



MEDICAL WASTE GUIDELINES

AN EBOOK TO HELP YOUR MEDICAL OFFICE FOLLOW
BEST PRACTICES IN EVERY STEP OF THE MEDICAL
WASTE PROCESS



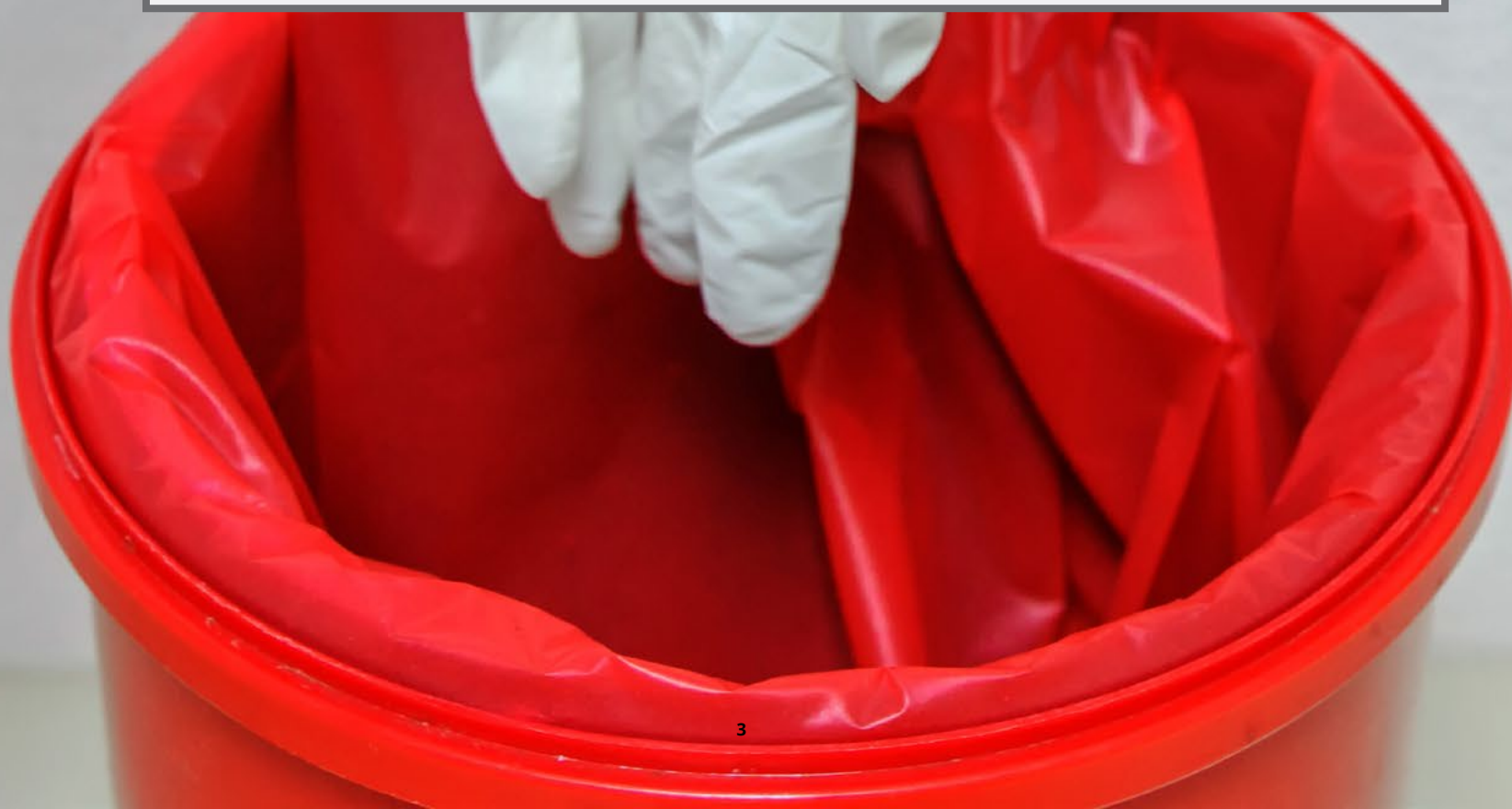
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HANDLING MEDICAL WASTE CAN BE CONFUSING, AND WE KNOW YOU ARE BUSY, SO WE DEVELOPED THIS COMPREHENSIVE EBOOK TO HELP YOU SAFEGUARD YOUR OFFICE BY FOLLOWING MEDICAL WASTE BEST PRACTICES.

FEEL FREE TO REACH OUT TO US IF YOU HAVE ANY FURTHER QUESTIONS.





Chapter 1. Why Proper Handling, Disposal, and Treatment Are So Important

We’ve all heard the saying, “Out of sight, out of mind.” And let’s face it, no one wants to think about what could happen in a worst-case scenario.

However, it’s important to know about the inherent risks in handling medical waste. The decisions you make with your medical waste safeguard the physicians and employees at your medical facility. That is why the value of proper medical waste management is inestimable. Make sure you take all risk into account when evaluating your medical waste processes and procedures, and when choosing a medical waste service provider.

Health Risks

Medical waste is potentially [infectious](#), toxic, and radioactive. Because of this, [mishandled](#) medical waste can seriously affect your patients, staff, and the local community. You can ensure medical waste is handled properly by educating staff, posting notices for do’s and don’ts, and checking to make sure proper procedures are followed. You decrease health risks and costs by ensuring you are properly classifying and segregating your office’s [waste streams](#).

Environmental Risks

Mishandled medical waste can endanger your employees and patients, the community-at-large, and the environment. Diligence on your part in selecting the right partner for your waste disposal needs, maintaining compliance, and in making sure that your staff is properly educated and trained can help ensure that a worst-case scenario never happens.





Legal Risks

Have you heard the term “cradle-to-grave” used in reference to medical waste regulations? It’s an important aspect of the medical waste disposal process. Did you know that your medical facility is legally responsible for [medical waste](#) even after the waste has been transported, treated, and disposed? A failure to properly document, package, treat, transport, and dispose of waste can lead to [fines from local, state, and federal agencies](#) that regulate medical disposal. You might work with a third-party provider to handle all or part of this process, but your medical practice remains responsible.

You can minimize legal risk by doing the following:

- Staying up-to-date with local and state regulations on medical waste
- Making sure your medical waste company provides you with the correct documentation, both federally and locally.
- Providing medical staff with personal protective equipment and training them correctly

Make sure you take all risk into account when evaluating your medical waste processes and procedures and when choosing a medical waste services provider.



Chapter 2. Waste Classifications

Your medical facility produces several types of waste streams, and you need a full understanding of what goes into each category to make sure they're handled properly.

Regulated medical waste is a catch-all term that covers the items that fall under federal and state disposal regulations. Some regions call this material biomedical waste or infectious waste. Federal laws that define and regulate hazardous and non-hazardous solid waste include the [Resource Conservation and Recovery Act \(RCRA\), Title 40](#) and the [Code of Federal Regulations](#). Each state also provides its own definition of the regulated medical waste covered by its laws.

While the details vary between regions, you typically see these six categories:

Biological Waste

Biological waste includes materials such as bacteria cultures and live vaccines. When you sort waste into biohazard bags, you must have it treated at a medical waste treatment facility.

Contaminated Sharps

Needles, syringes, and blades fall under the sharps category. Secure contaminated sharps in a special-marked, heavy-duty container to reduce the risk of someone being injured when disposing of them. Your state may have specific regulations

on the exact container to use for this purpose, but in general, it should prominently display the biohazard symbol.

Pathology Waste

The tissue samples from tests and biological matter removed during surgery are examples of pathology waste. Anything that was once a part of an animal or a human goes into this category.

Pharmaceutical Waste

Pharmaceutical waste is any pharmaceutical product that is designated for disposal, no longer used as intended, or unable to be returned to the manufacturer. Typical examples of pharmaceutical waste include discontinued or unused medication, partially filled vials and syringes, prescriptions, pre-filled syringes and IVs, and sample medications.

Pharmaceutical waste is either hazardous or non-hazardous. Hazardous waste can be divided into three primary categories: listed pharmaceutical waste (RCRA), chemotherapy waste (bulk), and controlled substances.

Listed Pharmaceutical Waste

Listed black-container waste is on one of the four hazardous waste lists by the Resource Conservation and Recovery Act (RCRA). The P-list and the U-list pertain to hazardous waste pharmaceuticals, which also include commercial chemical products.

P-Listed Waste

The [P-list covers a range of pharmaceuticals](#), with two important exceptions. Both epinephrine salts and nitroglycerin are technically P-listed substances, but the federal government has excluded epinephrine salts from the list's requirements since 2007, and weak medicinal nitroglycerin has been excluded since 2001. Some states still maintain protected categorization for those products. The hazardous medical waste disposal requirements include any drug that contains a P-listed component when two [primary conditions](#) are met:

First, the drug waste to be discarded must have the pertinent P-listed component as its sole active ingredient. **A product is not a P-listed waste if it contains a listed component as a secondary or inactive component.**

Secondly, the drug waste must not have been used for its intended purpose. In this case, that means it has not been used for a patient. That designation includes products that were never opened and products that were partially used, but have remaining substances and containers to be discarded.

P-listed waste containers are only considered to be legally empty under RCRA when they have been appropriately triple-rinsed, with the rinsing liquid disposed of as hazardous

waste. Since most medical facilities are not able to maintain compliant triple-rinsing facilities, the rule of thumb is that all P-listed drugs, dispensing devices such as syringes and IVs, and holding containers or bottles must be managed and destroyed as hazardous waste.

In most cases, a properly certified waste management services provider is the best option to meet those requirements.

U-Listed Waste

The [U-list contains 21 drugs](#) that are chiefly listed because of their toxicity. Like P-listed waste, substances on the U-list are covered by waste regulations when they are the sole active ingredient in a product and have not been used for their intended purpose.

Containers holding U-listed substances are only considered empty by RCRA when all contents have been removed as much as possible in normal use, such as emptying a syringe by hand, and when no more than 3 percent of the product remains by weight of the total capacity of the container. The residual substance that is removed must be treated as hazardous waste for disposal, and any containers that have not met the two emptying criteria are also hazardous waste.

D-Listed Waste

The [D-list covers waste products](#) that are not strictly pharmaceutical, but exhibit hazardous properties that make them flammable, corrosive, toxic, or highly reactive.

Medical facilities are individually responsible for determining whether a substance meets D-list criteria.

However, in most cases, manufacturers clearly denote such qualities in product information. You should also consult with a knowledgeable medical waste management services provider to determine which products in your facility's inventory may qualify.

Products covered by the D-list are only considered non-hazardous once you have found a way to remove their hazardous properties. In most cases, it's best to simply treat them as hazardous waste to be managed by your disposal provider.

Chemotherapy Waste

[Chemotherapy waste](#) is technically a pharmaceutical waste that is covered as a single category, in legal terms. However, the medical disposal industry breaks it into two sub-categories:

Bulk chemotherapy waste: This category includes any product that is a characteristic waste, listed, and still contains more than 3 percent by weight of the regulated ingredient.

Examples include IV bags leftover after treatment and materials used to clean up chemotherapy spills.

Trace chemotherapy waste: This category includes intact and unused EPA "listed" or "characteristic" chemotherapy waste that is less than 3% by weight of the ingredient (RCRA Empty). It also consists of any items that came into contact with hazardous substances, such as rubber gloves and gowns.

Controlled Substances

Controlled substances are divided into five schedules as determined by the Drug Enforcement Administration. To be [properly discarded](#), they must be "destroyed beyond reclamation," with two healthcare professionals documenting the process. Incineration is the preferred method.

Disposal of controlled substances is tightly regulated regardless of their hazardous qualities under the RCRA.

If your medical facility is a [DEA registrant](#), it may destroy substances on-site in accordance with regulations. If your facility is not a registrant, or otherwise not able to properly destroy substances, you must send the waste to a DEA-registered reverse distributor. If you have dispensed any controlled substance, you cannot return that substance to a registrant.



“RCRA Empty” — What Does it Mean?

Some items that once contained chemotherapy drugs may be classified as “RCRA empty.” This means that a container that once held a U-listed substance has less than 3 percent of the former volume in it. For containers that held P-listed substances, triple-rinsing will render them RCRA empty. If these criteria are met, the waste can be considered trace waste. This means it can be managed as regulated medical waste but must be medically incinerated.



Chapter 3. Proper Separation and Storage

To keep the medical waste disposal process compliant make sure your staff knows exactly what kinds of medical waste your practice produces and how to separate and store each type of waste stream.

Proper collection and segregation can help guarantee that you [do not mix medical waste into the wrong stream](#) or fail to comply with state or federal guidelines and regulations.

The following pages provide a handy, color-coded list for quick reference to make the process smooth for your medical practice.

Don't store your waste too long! Be sure to have your waste service provider on a monthly scheduled pickup. If your practice generates less than 220 lbs a month, it is best practice to have your medical waste picked up every 30 days to decrease your employees' risk of contamination from the waste.

What type of medical waste goes into the red container?

Red Sharps Container

- Needles and syringes
- Blades and lancets
- Razors and scalpels
- Broken glass
- Glass pipettes and tubes
- Microscope slides
- Staples and wires
- Disposable suture sets

Bottom Line: Any other contaminated sharp items

Red Container or Red Liner in Container

- Blood, blood products, and other potentially infectious material
- Saturated or soiled disposable items such as gauze, dressings, gloves, and clothing
- Containers, catheters, or tubes with blood or blood products
- Dialyzers and tubing
- Tissues and small pathology waste
- Used culture plates, tubes, bottles, and devices
- Blood and body fluid spill cleanup materials

Bottom Line: Anything contaminated with biohazardous waste that does not go in a Sharps Container

What type of medical waste goes into the yellow container?

Yellow Container (or a container marked as Trace Chemo)

Trace contaminated chemotherapy is waste generated in the preparation & administration of antineoplastic/cytotoxic drugs.

- Gowns
- Gloves
- Masks
- Barriers
- IV tubing
- Empty bags/bottles/drug vials

Bottom Line: All trace chemotherapy waste

What type of medical waste goes into the black container?

Black Container (RCRA Hazardous) or a drum labeled hazardous

- Certain pharmaceuticals (D, U & P Listed)
- Antineoplastic waste
- Radioactive waste
- Chemicals such as xylene, formaldehyde, formalin, acetone, toluene, fixatives, and alcohol
- Disinfectants & chemical sterilizing agents

Bottom Line: All RCRA hazardous waste, except mercury

What type of medical waste goes into the blue container?

Blue or Green Container (Non-Hazardous Pharmaceutical) or a container marked as non-hazardous

- Pills
- Antibiotics
- Injectables

Bottom Line: All categories of pharmaceuticals, not D, U or P Listed



Chapter 4. Handling and Packaging

Imagine this scenario: Your medical waste services provider makes a scheduled pickup after your practice has had a busy day of seeing patients. Unfortunately, your medical waste cannot be transported as scheduled, because it was not properly packaged and labeled.

Avoid any missteps when preparing your medical waste for pickup and transportation by reviewing these guidelines.

Collect and Segregate Your Medical Waste

Categorizing medical waste with the correct separation isolates each type so it can be managed in the proper way. Remember to never mix waste streams!

There are five major categories of medical waste: sharps, biohazardous waste, trace chemotherapy waste, RCRA hazardous waste, and pharmaceutical waste.

Sharps

Examples include blades, broken glass, glass pipettes, microscope slides, needles, razors, scalpels, staples, syringes, tubes, wires, and other contaminated sharp items.

Biohazardous waste

Examples include blood, blood products, body fluid spill

cleanup materials, dialyzers and tubing, saturated or soiled disposable items, small pathology waste, tissues, and anything contaminated with biohazardous waste that does not go into a sharps container.

Trace chemotherapy waste

Examples include empty bags and bottles, empty drug vials, empty needles and syringes, gowns, gloves, IV tubing, masks, and spill cleanup materials.

RCRA hazardous waste

Examples include mercury-filled devices (batteries, blood pressure cuffs & gauges), radioactive waste, and pharmaceuticals on the D-List, U-List, and P-List.

Non-hazardous pharmaceutical waste

Examples include antibiotics, pills, and injectables that are not on the D-List, U-List, and P-List.

Anyone handling untreated medical waste should wear impermeable gloves and protective clothing to minimize exposure. Shoe covers are recommended if splashing could occur, and washing hands with soap and water after any handling of medical waste is a must. Note: Contaminated broken glass should never be picked up by hand.

Use the Right Containers for Your Medical Waste

It’s critical to use the correct containers, both in terms of physical strength and appearance, for medical waste that will be transported off-site. Containers must be resilient and strong enough to resist breakage during the handling process—basically, puncture, leak, burst, and tear-resistant.

When using red bags, they should be securely tied (using an overhand knot or twist/zip tie) and placed into another container that is approved for medical waste. If the contents could puncture a red bag, a puncture-resistant container (like a sharps container) must be used.

Sharps containers may be placed in red medical waste containers if there is a chance of leakage. The secondary container must be able to be closed, appropriately labeled (see below) or color-coded red, and constructed to contain all contents and prevent leakage during handling, storage, and transport. Note: Never overfill containers. Red bags should not be visible

Label and prepare Your Medical Waste for Transport

Container labeling seems like a relatively easy task; however, label coding is a critical step in the medical waste disposal process. You need to make sure to use the correct typography, color, and type of ink.

According to most state guidelines for medical waste disposal, containers must have the International Biological Hazard Symbol and be labeled with one of the following words:

- Infectious
- Medical Waste
- Biohazardous

If the container does not have a red background color, then red lettering with a contrasting background color should be used. The ink has to be indelible and considered permanent if exposed to the environment under normal weather conditions. Finally, the wording should be either printed on the container or a securely attached label on two or more sides.

Also, the outermost layer of packaging (if smaller containers have been used) has to include the following information:

- Name and address
- Date the waste was packaged in the outermost container

Container Type	Contents Allowed
Red sharps container	Sharps
Red container with a red liner	Biohazardous waste
Yellow container	Trace chemotherapy waste
Black container	RCRA hazardous waste
Blue or green container	Pharmaceutical waste

Store Your Medical Waste for Pickup

Once your medical waste has been properly segregated, it may need to be stored until pickup. (**Note:** Placing waste in a container at the point of generation, such as an examining room, would not be considered as storage.) For medical facilities that generate more than 220 pounds of medical waste per month, storage must not exceed seven calendar days from the date that initial storage begins without refrigeration at a temperature less than 45 degrees Fahrenheit.

[Guidelines for medical waste storage include:](#)

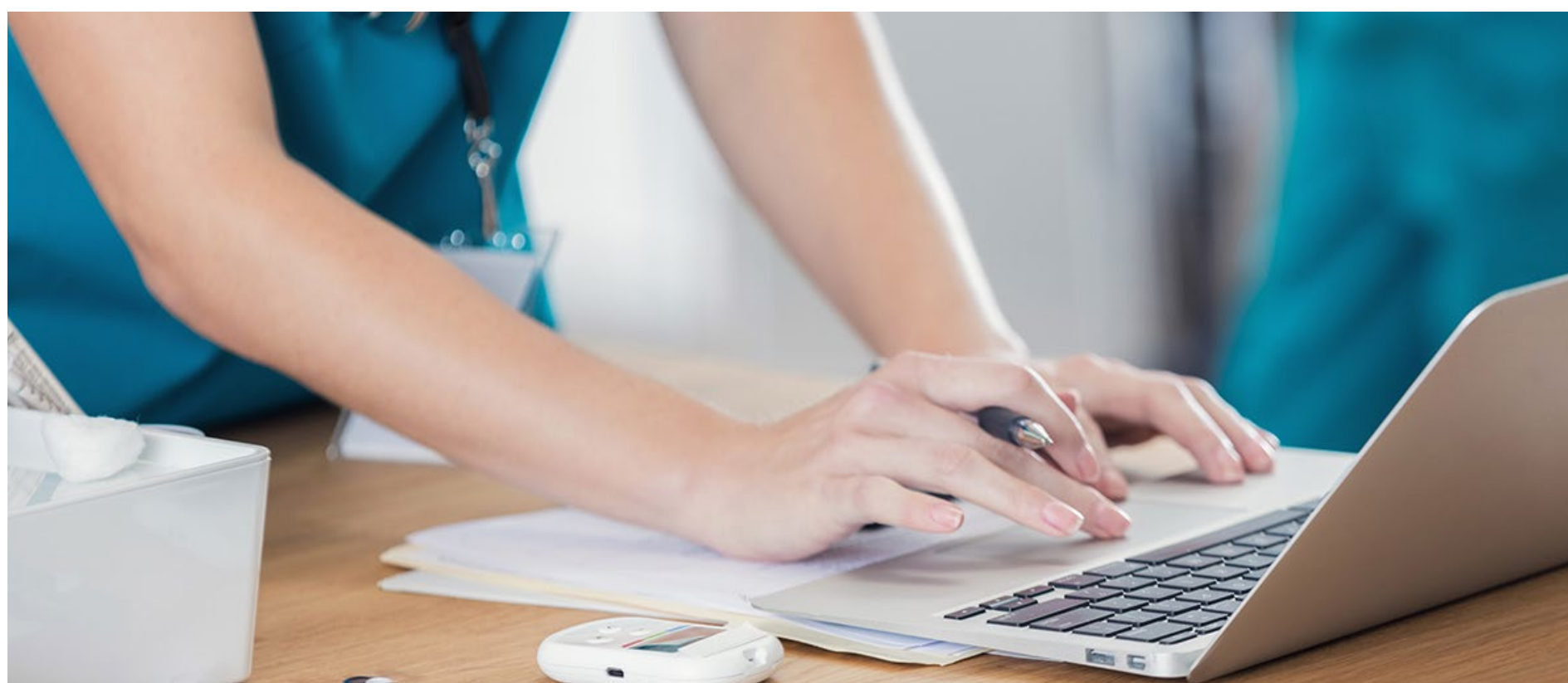
- A secure area that is inaccessible to the general public
- An area that is separated from food consumption areas
- A refrigerator or freezer that can be used, if necessary

Get the Proper Documentation for Your Medical Waste

Now that your medical practice's medical waste has been properly prepared and picked up for transportation, you can relax, right? Not so fast! You are responsible for medical

waste even after it leaves your facility. Any permits required for the transport and delivery of your medical waste should be kept on file, and you should know where your medical waste is going. Make sure the medical waste transporter identifies your medical waste by labeling each container with your facilities name so it can be identified at any time during transport. Be sure to receive a signed manifest document from your medical waste services provider before the waste leaves your facility. This is the most important part of the transportation process. Finally, you should receive a certificate of destruction from your medical waste transporter after the medical waste is rendered non-infectious or destroyed and disposed.

Proper segregation, packaging, labeling, and storage of your medical waste will help ensure that it will be accepted upon pickup by your medical waste services provider. Are there any gaps in your medical waste disposal process? [Download our quick reference waste handling guide](#) to see.





Chapter 5. Pickup, Transport, and Treatment

It's important to remember that you are still liable for your waste. [Pickup and transportation](#) is just one part of the process.

Be sure you have your waste service provider on a monthly scheduled pickup. It is best practice to have your medical waste picked up every 30 days to decrease your employees' risk of contamination from the waste if your practice generates less than 220 lbs a month.

Your Medical Waste on the Road

All medical waste must be safely and securely transported to a treatment or disposal facility. There are strict guidelines for transporting the waste, including segregating different types of waste inside the truck. Also, procedures are in place in the event of an accident, allowing for spill containment and cleanup, if necessary. Did you know that each vehicle is required to carry a written contingency plan for spills and accidents, as well as the tools and materials needed to implement the plan? Such measures are taken to protect the waste handlers, the public, and the environment from exposure to the potentially infectious waste.

Questions to Consider:

- After the medical waste leaves your practice, do you know exactly where it goes and how long it takes to get to a treatment facility?
- Where is the treatment facility; is it in the same state?
- What does the inside of your waste provider's truck look like?
- Does the waste cross state lines?
- Once the waste reaches a facility, how long does it stay there? Is it treated at that facility?
- How is the waste treated and who treats it?
- When the treated waste leaves, where is its final destination?

There are also stringent requirements set forth by the department of transportation for the vehicles themselves, including items such as keeping the vehicle in good repair, frequently cleaning it, and ensuring the overall durability of the vehicle.

Your waste manifest form should include the route your waste will take, which is an item to look at closely. Some medical waste disposal providers may have a big geographic footprint, which means they transport waste across state lines. They may transport your waste long distances for either treatment or final disposal. Providers who have their own treatment facilities may have a smaller footprint. Plus, if the facility is nearby, that is an added bonus since your waste will be on the road less. Less time on the road means reduced risk for you, the waste generator.

Ideally, your waste services provider should use dispatch software that allows them to pinpoint the location of your waste at any time. Vehicle routing and mapping technology is key to providing safe, efficient transportation.

Your Medical Waste Gets Treated

Once the waste arrives at a [treatment or disposal facility](#), it must be carefully unloaded to avoid damaging the containers or spilling their contents. All manifests that have accompanied the waste must be signed by the next person who handles the waste. Medical waste requires some form of treatment before it's disposed. These treatments aim to deactivate or destroy harmful substances, pathogens, and chemicals. While some larger medical facilities can afford their own equipment for handling these tasks, most prefer to partner with a fully certified medical waste management provider, who handles the expense and expertise necessary to maintain compliant treatment facilities.

In performing the proper destruction and deactivation of your medical waste, waste management providers use one of [these four techniques](#): **autoclaving**, **chemical disinfection**, **microwaving**, or **incineration**.

Autoclaving

An autoclave is a high-pressure, high-heat treatment chamber that usually incorporates superheated steam.

In a typical autoclave used for medical waste treatment, waste is placed into an insulated chamber. Air is removed from the chamber since it's a thermal insulator and likely to interfere with consistent heat distribution. The chamber is then filled with superheated steam built up to very high pressure. The heated and pressurized steam effectively boils the material inside, killing all microorganisms and deactivating many chemical substances.

Autoclaved waste is biologically tested every 40 hours to ensure proper treatment, since effective disinfection or sterilization can't be verified by casual inspection. Autoclaves are versatile and usually the most cost-effective treatment option. Indeed, even small facilities often maintain downscaled autoclaves to sterilize reusable instruments and other items. However, scaled waste management requires significantly larger autoclaves better suited for dedicated treatment facilities.

Recommended waste types for autoclaving:

- Used or contaminated sharps
- Used bandages and gauze
- Items worn by patients or staff, such as gloves, gauze or gowns

Waste that shouldn't be treated with an autoclave:

- Bulk and trace chemotherapy waste
- Pharmaceutical waste
- Some expired medications

Chemical Disinfection

You're probably already familiar with [chemical disinfection](#), as it's used in many healthcare applications. While your facility's staff can disinfect beds and some equipment with in-house chemicals, true industrial-scale treatment of regulated medical waste is more complex.

Along with requiring greater amounts of chemicals than in-house efforts, waste management chemical disinfectants are much stronger, making them a threat to staff and surroundings. Additionally, the chemicals used to disinfect become regulated waste themselves. Accordingly, most medical facilities choose to work with a waste management provider for all chemical disinfection of large-scale waste.

The actual technique for chemical disinfection is fairly straightforward: the materials to be treated are mixed with industrial disinfectant chemicals, then rinsed or sent directly for disposal.

Solid materials need to be shredded to ensure consistent contact with the chemicals, **so this technique is best suited for purely liquid waste and materials that can be easily and thoroughly shredded**. Other types of waste are usually not recommended, such as bulk and trace chemotherapy waste, and pharmaceutical waste.

Chemical treatment is effective at killing or inactivating pathogens but usually results in disinfection, rather than true sterilization. It's not completely guaranteed to deactivate specific pharmaceuticals and other chemical compounds, which makes it a poor fit for mixed-source and bulk waste.

Microwave Treatment

Microwave treatment is as it sounds: A large microwave is used to heat the waste, which can then be discarded in a landfill. Microwave treatment equipment is identical to a home microwave in its basic function. Microwaves are generated and projected at a substance, where they agitate the molecules to generate friction, quickly raising the temperature of the substance.

Like a home unit, [waste treatment microwaves](#) work best with plenty of water molecules around, since those molecules are easy to agitate and very efficient at generating friction heat. If the waste material is dry, water may be

Items that can receive microwave treatment:

- Used or contaminated sharps
- Used bandages and gauze
- Items worn by patients and staff such as gloves, gauze, and gowns

Items to avoid using microwave treatment:

- Items unable to be shredded
- Bulk and trace chemotherapy waste
- Pharmaceutical waste
- Some expired medications

added to facilitate the process. As with some other methods, solid waste should be shredded to ensure even penetration of the microwaves, and to prevent cold spots from forming.

In an appropriately scaled treatment, so much heat is generated that all the water converts to steam, exposing the entire contents to temperatures above 100 degrees Celsius. This neutralizes all biologicals and deactivates many, but not all, chemical substances.

Incineration

Medical incineration is when waste is burned at a high temperature and reduced to ash so that it can then be disposed of in a landfill. For the best results, an industrial-scale incinerator is required to generate temperatures high enough to ensure the entire contents are incinerated, reducing the waste volume by up to [90 percent](#).



[Nearly all](#) types of medical waste can be incinerated, including pathological waste and general housekeeping waste, but it is the most expensive method. So it's mostly recommended for these categories:

- Trace chemotherapy and non-hazardous pharmaceutical waste
- **Some** pharmaceuticals on List D
- **Some** controlled substances

Some waste items on the D-list plus all items that might be explosive are not suitable for incineration.

Your Medical Waste is Transported to Final Disposal

After your medical waste has been treated, it must be disposed of properly, with accurate documentation (certificate of destruction) of the process. It is best practice for this process to be completed within one day. Again, the less time

your waste is on the road, the less risk for you. It is more beneficial for you to be located close to the waste treatment facility. Are you aware of the “final resting place” of your waste? If not, find out to see if you are able to reduce your liability and geographical footprint by using a local service.

Concluding Remarks

Proper medical waste management is essential for ensuring the safety of your medical practice and the environment. It is critical that you and your staff follow the proper separation, storage, handling, and packaging waste guidelines. Refer to this ebook when you are evaluating your medical waste process to ensure you are considering all risks.

If you would like more information on how partnering with a local, reliable waste management provider can help you remain compliant with medical waste guidelines, [contact TriHaz Solutions today for a free quote.](#)



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