

**What you need to know  
about hazardous waste in  
healthcare clinics**

Dear Reader,

Healthcare produces enormous volumes of hazardous and solid waste. If handled improperly, healthcare waste streams can adversely affect our environment by threatening lakes, rivers, and streams. Neglectful hazardous waste practices also pose problems for worker safety at the point of generation and it increases the risk of exposure to downstream workers (e.g., those who are involved in handling, transporting, treating, and disposing of waste).

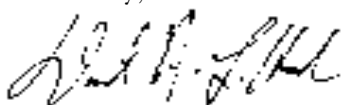
The threat to the environment and workers has not gone unnoticed by regulatory agencies. The EPA has broad regulatory oversight through the Resource Conservation and Recovery Act of 1976 (RCRA). Many state and county departments that are responsible for protecting the environment have higher standards than the RCRA with which businesses, including healthcare facilities, must comply.

Federal and state OSHA agencies have regulatory oversight for hazards occurring in the workplace. Many of these concerns fall under the area of hazard communication or bloodborne pathogens, the two most frequently cited OSHA standards for medical practices, clinics, and other facilities providing ambulatory care.

With that in mind, we offer this special report, which we hope will help you to identify what hazardous waste are present in your healthcare facility and develop strategies for safe and cost-effective management of hazardous waste.

Please let us know what you think of this information and whether it was helpful. If you have any comments about the special report or if you want to pass on ideas for other topics, please contact us via phone or e-mail.

Sincerely,



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# Identifying hazardous waste in your facility

“U.S. hospitals alone generate over 9,000 tons of waste per day,” says **Catherine Zimmer**, healthcare specialist for the Minnesota Technical Assistance Program at the University of Minnesota in Minneapolis. Although individual clinics generate smaller amounts than hospitals, it’s important to remember that the number of clinics—far exceeding the number of hospitals—gives them a considerable cumulative effect on waste generation nationwide, she adds.

Solid waste and recyclables make up the majority of clinic waste, but clinics also produce hazardous waste (e.g., chemical and pharmaceutical waste, infectious waste, and, in some cases, radioactive waste).

Hazardous waste is defined by the Resource Conservation and Recovery Act of 1976 (RCRA) as “that portion of the waste stream with potential to adversely affect human health and the environment.” The EPA enforces RCRA on the federal level. There are many states, counties, and municipal agencies that have regulations surpassing RCRA. That is why it is important to know not only what waste is produced in your clinic, but also who regulates it and on what level.

## Minding your Ps and Us

RCRA uses four lists to classify hazardous chemicals (40 CFR 261.30 -261.33). The lists are referred to as F, K, P, and U. The F-List contains mostly solvents and solvent mixtures (e.g., acetone, xylene, methanol, and methylene chloride). These are substances found in various types of businesses, not just healthcare. The K-List covers manufacturing-related chemicals, most of which are not present in healthcare.

RCRA defines P- and U-List chemicals as commercial products not used for their intended purpose and that are to be discarded. According to the EPA, all active P- and U-List ingredients in a mixture must be considered. “Many pharmaceuticals and other chemicals used in healthcare, including clinics, are on the P- and U-lists, says Zimmer.

P-List chemicals are acutely toxic. Even the empty containers of P-List chemicals must be treated as hazardous waste or triple-rinsed. Zimmer does not

recommend attempting to rinse P-List containers as the recovered rinsate is subject to hazardous waste regulations. “It’s usually safer and more economical to manage both the chemical and container as hazardous waste,” she says.

The most common P-List chemical found in clinics is epinephrine. “It’s ubiquitous in healthcare. We use it everywhere as a vasoconstrictor, in allergy kits, bee-sting kits, crash carts, arthroscopies, and other surgical procedures,” says Zimmer. Because it is used so often, healthcare workers may not suspect that epinephrine waste is hazardous waste (see “Epinephrine syringe residue exemption” on p. 4).

Other P-List chemicals found in clinics are phenylmercuric acetate—which is used as a preservative in nasal sprays and contact lens solutions—and nicotine in patches used for topical application (see p. 6 for an expanded P-List of chemicals in healthcare).

It is important to keep close tabs on the amount of P-List waste that is generated. Small quantities of P-List waste—more than 2.2 lbs. per month—reclassifies a facility as a large quantity generator, which imposes added hazardous waste management, handling, transport, treatment, and disposal requirements.

U-List chemicals are not as toxic as those on the P-List, but are still considered hazardous.

Common U-List chemicals found in clinics include

- ethylene oxide, used in sterilization
- chloral hydrate, found in cough syrups
- chlorambucil and cyclophosphamide, which are chemotherapeutics
- azaserine, an antifungal
- lindane, for treatment of lice and scabies
- mercury as a preservative and in instruments
- phenacetin, a pain killer
- hexachlorophene, a primary ingredient in many antimicrobial preparations
- formaldehyde (formalin), used in specimen preservation
- selenium sulfide, found in dandruff shampoos
- warfarin (less than 0.3% is U-Listed,

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but warfarin greater than 0.3% is P-listed), used in anticoagulant therapy

- ethyl ether, an anesthetic
- methylthiouracil, a thyroid inhibitor
- phenol, used as a disinfectant
- dichlorodifluoromethane and trichloromonofluoromethane, used as refrigerants

(See p. 6 for an expanded U-List of chemicals in healthcare.)

RCRA's list of P- and U-List chemotherapy drugs is small when compared to all chemotherapy drugs that are used in healthcare. Zimmer recommends that facilities manage all chemotherapy waste as hazardous waste, regardless of whether it's on the list or not. Their inherent characteristic—being able to harm human life and the environment—is covered under the statutory language of RCRA, she explains.

### **Bulk and trace is not a distinction**

Traditionally, healthcare has drawn a distinction between bulk and trace chemotherapy waste when dealing with the disposal of near-empty containers. However, as Zimmer points out, that is a difference

not recognized by RCRA. According to the federal definition, a container is empty when all residue that can be removed via normal means has been removed, and the residue is less than 3% of the container's volume. There is no general 3% of volume cutoff. "That's a mistaken assumption," warns Zimmer.

For example, removing 7 ml of a chemotherapy drug from a 10 ml container—leaving 3 ml—still qualifies as hazardous chemotherapy waste, not trace chemotherapy waste.

Also, waste from any materials that are grossly contaminated (e.g., those resulting from a spill with chemotherapeutic materials) should be managed as hazardous waste.

### **Check the characteristics of nonlist items**

Not all hazardous substances found in a healthcare clinic will make it onto the RCRA lists. In that case, you need to be familiar with characteristics of hazardous waste—ignitability, corrosivity, reactivity, and toxicity—to avoid mismanagement, says Zimmer.

Waste exhibits the characteristic of ignitability when, as a liquid, it has a flash point less than 60°C (140°F). Aqueous solutions containing more than 24% alcohol are considered ignitable by definition. Lab stains and rinses dissolved in methanol, formalin solutions greater than 10%, common topical preparations (e.g., erythromycin and Anbesol®), mouthwashes, cough syrups, and nonempty aerosol containers (e.g., bronchial dilators, RightGuard®, and Solarcaine®) are ignitable hazardous waste that is common in healthcare.

Corrosive substances—check for a pH of less than 2 or greater than 12.5—found in healthcare include glacial acetic acid or sodium hydroxide as preservatives in laboratories, liquid phenol (carbolic acid), and potassium hydroxide used in podiatric applications.

Reactivity concerns substances that change violently when mixed with water. Hazardous reactions can generate toxic gases, vapors, or fumes in dangerous quantities. Lithium-sulfur batteries, picric acid (dry), peroxide formulations, and Clinatex® tablets used in urine

### **Epinephrine syringe residue exception**

Although vials that come in contact with epinephrine are considered P-listed waste, the EPA makes a distinction for disposal of epinephrine left in a syringe.

A syringe that has delivered a full dose of epinephrine—fulfilling the requirement that it was used for its intended purpose—and contains only residual epinephrine can be disposed of in the sharps container, according to the EPA.

*Source: "Regulatory Consensus On Health Care Issues," Minnesota Pollution Control Agency, October 2005*

analysis are examples of reactive hazardous waste. A solid waste exhibits the characteristic of toxicity if the Toxicity Characteristic Leaching Procedure (TCLP) defines it as toxic. The TCLP measures how much contamination would leach from waste and pollute groundwater. Examples include

- chloroform
- lindane (lice medications)
- insulin with cresol
- mercury and mercury Compounds (thimerosal, merbromin)
- certain vaccines (e.g., Fluogen), nasal sprays, lab reagents
- phenylmercuric acetate
- arsenic compounds (e.g., pesticides or chemotherapy)
- barium compounds (e.g., x-ray contrast)
- other metal compounds, such as chromium (some x-ray cleaners), cadmium (some dental lab materials), selenium (dandruff shampoos), and silver (silver nitrate eyedrops, x-ray fixers, and film)

### **Mercury hazards are many**

Much has been made of the presence of mercury, a U-List hazard, in healthcare. Broken thermometers and especially sphygmomanometers can cause disruption of schedule, evacuations, significant cleanup costs, and hazardous exposures to workers and patients. Other medical devices containing mercury are nursing incubators, thermostats, batteries (button type), esophageal dilators, Cantor tubes, Miller Abbot tubes, and feeding tubes. Mercury is also an ingredient in merthiolate, mercuric nitrate, mercury iodine, mercurochrome, some vaccines, nasal sprays, and ophthalmic solutions.

### **Infectious waste is an ‘oozy and goozy’ matter**

Infectious waste is that portion of waste stream that has potential to transmit disease. Red bag, biohazardous, and medical/regulated are synonyms for infectious waste. There are no federal EPA definitions or regulations for infectious waste, says Zimmer.

Although the federal OSHA bloodborne pathogens standard references infectious or regulated waste, the individual states define infectious waste relating to its storage, handling, transporting, treating, and disposal. As such, the definitions may vary from state to state. Zimmer says the following is an all-purpose infectious

waste list that could apply to most regulatory agencies:

- Cultures, stocks pathogenic agents
- Sharps
- Blood and body fluids
- Compounds
- Animals infected with pathogenic agents
- Pathology specimens

Zimmer emphasizes that blood and body fluids really means “oozy and goozy stuff.” In our eagerness to regulate this waste stream, we have probably gone overboard by including items not representing a hazard of infection, she adds. “Infectious waste is really not a drop of blood on a piece of gauze nor is it a disposable speculum, unless it is dripping or saturated.”

Used facial tissues, wound dressings, casts, splints, exam gloves (unless dripping or saturated) and cotton balls are commonly mistaken for infectious waste. Clinics generally should not produce large amounts of infectious waste if they carefully apply the definition above and educate staff accordingly, claims Zimmer.

### **Infectious and hazardous is double the trouble**

Sometimes a clinic will produce waste that contains hazardous and infectious material. This is known as dual waste (e.g., mercury-containing vaccine, mercury-containing lab reagent plus serum specimen, and used epinephrine delivery devices that are not syringes).

It is essential not to generate dual waste by mismanagement of waste procedures. At \$15–\$17 per lb.—compared to \$0.04 for regular trash, \$0.25–\$0.50 for infectious waste, and \$1.25–\$8 and up for hazardous waste—it is by far the most expensive waste that a clinic is likely to produce, says Zimmer.

Given the high cost of managing infectious, hazardous, and dual waste, your clinic may want to carefully review waste generation practices for waste reduction opportunities.

Hospitals for a Healthy Environment ([www.b2e-online.org](http://www.b2e-online.org)), the Healthcare Environmental Resource Center ([www.hercenter.org](http://www.hercenter.org)), and Minnesota Technical Assistance Program Healthcare Web page (<http://mntap.umn.edu/health/index.htm>) all have resources to assist healthcare facilities with waste and cost reduction. ■

# Hazardous and pharmaceutical waste list

## P-List hazardous found in healthcare

- 3-Benzyl chloride (P028)
- Arsenic (P012)
- Arsenic trioxide (P012)
- Chloropropionitrile (P027)
- Cyanide salts (P030)
- Epinephrine (P042)
- Nicotine (P075)
- Nitroglycerin (P081)
- Osmium tetroxide (P087)
- Phentermine (P046)
- Phenylmercuric acetate (P092)
- Physotigmine (P204)
- Physotigmine salicylate (P188)
- Potassium silver cyanide (P099)
- Sodium azide (P105)
- Strychnine (P108)
- Warfarin, greater than 0.3% (P001)

## U-List hazardous found in healthcare

- 2-Chloroethyl vinyl ether (U042)
- 3-Methylchloranthrene (U157)
- Acetone (U002)
- Acetyl chloride (U006)
- Acrylonitrile (U009)
- Aniline (U012)
- Azaserine (U015)
- Bromoform (U225)
- Cacodylic acid (U136)
- Carbon tetrachloride (U211)
- Chloral hydrate (U034)
- Chlorambucil (U035)
- Chlornaphazin (U026)
- Chloroform (U044)
- Creosote (U051)
- Cresols (U052)
- Cyclophosphamide (U058)
- Daunomycin (U059)
- Dichlorobenzenes (U070, U071, U072)
- Dichlorodifluoro-methane (U075)
- Diethylstilbesterol (U089)
- Ethyl acetate (U112)
- Ethyl carbamate (U238)
- Ethyl ether (U117)
- Ethylene oxide (U115)
- Formaldehyde (formalin) (U122)

- Formic acid (U123)
- Hexachloroethane (U131)
- Hexachlorophene (U132)
- Lindane (U129)
- Maleic anhydride (U147)
- Melphalan (U150)
- Mercury (U151)
- Methanol (U154)
- Methylpyriline (U155)
- Methylthiouracil (U164)
- Mitomycin C (U010)
- Naphthalene (U165)
- N-butyl alcohol (U031)
- Paraldehyde (U182)
- p-Chloro-m-Cresol (U039)
- Phenacetin (U187)
- Phenol (U188)
- Reserpine (U200)
- Resorcinol (U201)
- Saccharin (U202)
- Selenium sulfide (U205)
- Streptozotocin (U206)
- Tetrachloroethylene (U210)
- Thiram (U244)
- Trichloroethylene (U228)
- Trichloromonofluoromethane (U121)
- Uracil mustard (U237)
- Warfarin

## P- and U-List chemotherapy found in healthcare

- Chlorambucil (Leukeran) (U035)
- Cyclophosphamide (Cytoxan, Neosar, Procytox) (U058)
- Daunomycin (Daunorubicin, Cerubidine, DaunoXome, Rubidomycin, Liposomal Daunorubicin) (U059)
- Diethylstilbestrol (Diethylstilbesterol, Stilbestrol, Honvol, Stilbesterol) (U089)
- Melphalan (Alkeran, L-PAM) (U150)
- Mitomycin C (Mitomycin, Mutamycin) (U010)
- Streptozotocin (Streptozocin, Zanosar) (U206)
- Uracil mustard (U237)
- Arsenic trioxide (Trisenox) (P012) ■

# How to create a safe and effective waste program

Maintaining a safe and effective waste program can be challenging even for hospitals and large healthcare facilities. Is it possible, then, to do so in smaller facilities (e.g., physician practices, clinics, and others that provide ambulatory care)?

“It is possible, and the strategies and tools to use are the same that large institutions use,” says **Steve Waderich**, safety manager, hazardous waste program director, and hazardous materials emergency coordinator at Abbott Northwestern Hospital, a 646-bed community and teaching hospital in Minneapolis.

Waderich should know, because he has assisted the 50-plus outpatient facilities that are affiliated with Abbott Northwestern in assessing, monitoring, and improving waste management programs.

Limited expertise and resource time, high dependence upon vendors, and the historically decentralized management of clinical, laboratory, and pharmaceutical waste streams are challenges noted by Waderich. An increasing level of scrutiny from OSHA, the EPA, and state and county regulators also adds to the mix. Your facility might have additional requirements if accredited by the JCAHO. Even the U.S. Department of Transportation and the Drug Enforcement Agency have at times become involved in hazardous waste and drug management.

“Typically, unless we receive alerts from vendors or inspections from regulatory agencies, we assume that our programs are safe, effective, and compliant,” says Waderich. “But a waste survey, especially one covering months to a year, is a good way to test this assumption and to develop new procedures and realize savings in the process.”

Examine hazardous, infectious, solid, and liquid waste that is disposed of down the drain. You will want to identify opportunities to reduce, reuse, recycle, or modify disposal policies.

“Use a digital camera to document findings,” says Waderich. “This will help show problem areas and provide pictures for training development later.”

Solid waste should comprise 85% of total waste, infectious waste should be 10% or less, and hazardous waste 5% or less. Although it comprises the smallest percentage of volume, “hazardous waste is the most expensive, and it’s the best place to start a waste survey,” Waderich advises.

Here are the components that Waderich recommends for a comprehensive waste survey—one that will help protect patients, workers, and the environment:

- **Read your waste management policies and procedures.** “Even if done well and up to date, you want to make sure that your facility is doing what the documents describe,” he says.
- **Examine current regulations.** Start by asking for assistance from your infectious and hazardous waste vendors. Don’t be afraid to connect with the regulatory agencies. “They can provide expert advice, and it will show your willingness to manage waste properly,” says Waderich.
- **Review waste acceptance protocols with your vendors.** Make sure that you are on the same page concerning definitions, especially for hazardous and infectious waste. Also cover waste segregation, packaging guidelines, and nonconforming waste. An example of nonconforming waste would be radioactive waste in a dumpster. “It will be checked before taken to the landfill, and the last thing you want is for that dumpster to come back to your facility,” warns Waderich.
- **Observe the type of waste produced at the point of generation.** Include all settings (e.g., waiting areas, administrative offices, exam rooms, laboratories, and radiology areas).
- **Note the handling, transport, storage and disposal points in these areas.** Pay attention to collection issues (e.g., container specifications, labeling, placards, and warning signs) and satellite accumulation.
- **Identify recycling opportunities.** This usually includes recycling for metal, aluminum, plastic, cardboard, and flat cartons.
- **Assess staff education and training.** Ensure that it covers all of the waste streams in your facility.

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- **Analyze the cost.** In addition to disposal costs, include handling and storage recycling factors.

### Solid waste tips

Solid waste comprises the greatest amount of waste volume and offers the best potential for recycling.

Common items for recycling include the following:

- Paper, cardboard, and boxboard products
- Plastic film products from trash bags, food wrappings, shipping wraps, and peel pouches
- Plastic transparent and nontransparent bottles
- Rigid containers (e.g., procedure trays, basins, and cups)
- Products such as tubing, pads, and procedure components
- Wood in the form of pallets, furniture, construction debris, and landscaping
- Metals (e.g., aluminum and steel)
- Clear, brown, and green glass

Pay particular attention to aluminum, alcohol foam canisters, and inhalers. “They are common to health-care settings, and many discarded containers will not meet the empty container definition, requiring hazardous waste handling,” says Waderich.

### Infectious waste tips

Review the infectious waste policy and clearly define, with the help of infection control personnel, what your facility considers to be infectious waste and how you meet regulatory compliance in its handling and disposing.

Make sure that all staff know what is and what is not infectious waste. “Keeping regular trash out of infectious waste containers is one of the easiest and most cost-effective measures to take,” Waderich says.

For example, move red bag receptacles away from sinks and replace them with regular trash cans. You can eliminate a lot of paper towel and hand-hygiene products from accumulating in infectious waste, he says.

Also, remove excess packaging before taking to procedure rooms. Packing material will usually end up in

the nearest container, and if it’s a red bag container, you are mismanaging that waste stream.

“Actually, very little infectious waste is generated in exam rooms”, says Waderich. “And I am aware of facilities removing infectious waste containers out of exam rooms and having red bags available only when needed.”

A subtle but vital safety tip is to never place a regular waste container under a wall-mounted sharps container. It is too easy for a contaminated sharp to fall into the regular waste bag, posing a serious exposure hazard. Waderich says he looks for this situation every time he does a survey.

A general strategy for infectious waste–container placement is to make it easily available to staff, but also to oblige staff to make a conscious decision to use the infectious waste container over the regular one.

Placing a lid with a foot-operated pedal on the infectious waste container is another way to combine conscious decision-making and proper infectious waste disposal among the staff. Reusable sharps containers are another option for reducing waste. Ensure that the process is compliant with state regulations and that it meets the infection control policies of your facility.

Flow charts, fact sheets, signs, and items affixed to posters are extremely helpful in reminding staff what is and isn’t red bag waste (see sample sign on p. 9). Waderich recommends having visual training materials displaying the type of waste that goes in its respective container for all waste streams—certainly for infectious and hazardous waste.

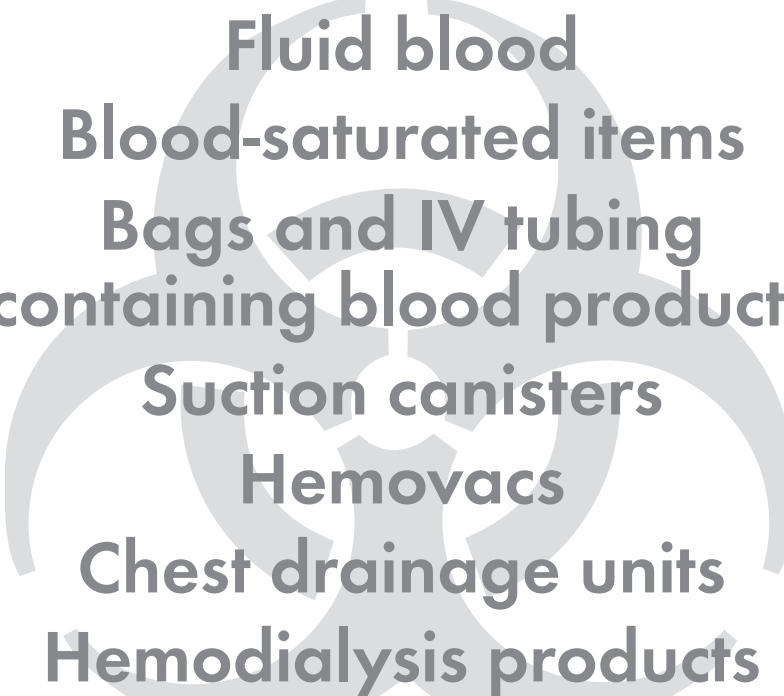
Finally, don’t dispose of drugs as infectious waste. It adds weight to your infectious waste stream, and if the drugs are hazardous, you might be creating a dual waste situation that can become expensive to dispose of, says Waderich.

### Hazardous waste tips

In most healthcare facilities, hazardous chemical and pharmaceutical waste is the smallest in vol-

## **Sample red bag items sign**

# **BIOHAZARD RED BAG WASTE**



**Fluid blood  
Blood-saturated items  
Bags and IV tubing  
containing blood products  
Suction canisters  
Hemovacs  
Chest drainage units  
Hemodialysis products**

These instructions are valid only in California.

This sample sign reflects the waste challenges and regulations that are unique to California. Although it may be suitable for other states, those outside of California should check the applicability of state and county laws before posting this sign.

*Source: Reprinted with permission by the California Integrated Waste Management Board.*

ume, but, pound-for-pound, the most expensive to manage, handle, and dispose of.

Conduct a thorough, facilitywide review paying attention to mercury-containing devices. Also keep in mind that cleaning agents and degreasers used by engineering and environmental services may have hazardous waste characteristics. “Typically it is unused product, the stuff that’s been sitting on the shelf for years, that is mismanaged by tossing in the trash or flushing down the drain,” says Waderich.

### Waste minimization action items

Whether you are just initiating a waste management plan or revising a current plan, the following are items suitable for healthcare facilities as suggested by **Steve Waderich**, safety manager at Abbott Northwestern Hospital in Minneapolis:

- Establish a green team at your site to carry out action items.
- Develop inservice programs for volume reduction, separation procedures, and signage.
- Choose the two or three top problem areas, and focus on them first.
- Assign waste color codes, making it easier for staff to identify the waste streams (e.g., red for infectious waste, black for hazardous waste, clear bags for regular trash, and green or blue tint for linen).
- Take steps for proper segregation and cost reduction of paper and packaging, the largest waste stream in your facility.
- Place recycling containers throughout your facility where appropriate.
- Consider an exchange program in place of disposal for discontinued but good products.
- Send back products in place of disposing them if a vendor sends you a wrong item. It’s often cheaper for vendors to have you dispose of it, but it may be more expensive for you if the product contains hazardous material.
- Donate equipment and furniture instead of throwing it away when remodeling.

You should already have an inventory for chemical waste in laboratories. If not, create one and review it at least annually. Check laboratory processors that empty into the sewer for required pH ranges.

Make sure that the pH jibes with your facility’s policies and is in compliance with your local publicly owned treatment works for what can drain into the sewer.

If your facility has an imaging or radiology department, check whether the films, developers, and reagents may have hazardous waste characteristics. Barium is common in radiology procedures.

Many pharmaceuticals have a hazardous waste classification and should be part of your review. “Pay special attention to epinephrine waste,” says Waderich.

“It’s a P-Listed Drug, and you want to evaluate your procedures to make sure you are not above 2.2 lbs. per month, which would make your facility a large quantity generator. Most clinics should be under that threshold.”

Also, be sure to check your drug samples. Are the expiration dates short-dated? Do you have too much inventory? Do you monitor who adds to the inventory?

Waderich says that more facilities are going to a voucher method for drug samples, eliminating the flushing of expired drugs into the sewer.

### Training considerations for waste handling

“You certainly cannot do enough educating and training of staff, whether of the formal variety required by regulation or the day-to-day type,” says Waderich.

Use policies, procedures, and visual aids to help staff define the various waste streams in your facility, as well as the handling procedures and personal protective equipment specific to those waste streams.

Addressing container and bag considerations is also an important component of training.

In the education, be sure to include the applicable federal and state regulations on

- container labeling
- container specifications (e.g., closed containers for hazardous waste, durable containers to prevent leaking infectious waste, and closed containers when handled)
- satellite or alternative site accumulation
- collection frequency
- storage room requirements (e.g., security placards and warning signs, storage time limits, and ventilation)

Spill response is an area that Waderich says is often overlooked. He recommends having specific spill response policies to identify the types of potential spills, an availability of spill kits including neutralizers, staff who are trained to respond to spills at various levels of severity, and documentation of spill incidents. As part of your policy, establish criteria for when you will call for emergency spill response.

#### **Resource management contracting**

Enlist your waste contract vendors to assist your facility to minimize waste, not just provide disposal services. Resource management (RM) is a concept that is supported by the EPA in which your vendor has a vested interest in waste minimization and recycling.

“There are tremendous saving opportunities for healthcare facilities through RM—increased recycling,

reduced costs and liabilities, and data tracking by the contractor,” says Waderich. “Make RM performance part of the contract with your vendor.” The EPA has a comprehensive Web site about resource management contracting at [www.epa.gov/wastewise/wrr/rm.htm](http://www.epa.gov/wastewise/wrr/rm.htm).

#### **A healthcare commitment**

“The proper management and disposal of hazardous, pharmaceutical, and infectious waste is necessary to protect ourselves, our patients, and the environment of the communities we serve,” Waderich says. “It’s part of our mission as caregivers—and I know it can be done in healthcare facilities of all sizes.” ■

### **Online resources for managing waste in healthcare**

#### **State environmental agencies**

[www.epa.gov/epahome/state.htm](http://www.epa.gov/epahome/state.htm)

#### **State-by-state regulated medical waste resource locator**

[www.b2e-online.org/rmw/rmwlocator.html](http://www.b2e-online.org/rmw/rmwlocator.html)

#### **Resource Conservation and Recovery Act of 1976 Online Database**

[www.epa.gov/rcraonline](http://www.epa.gov/rcraonline)

#### **EPA medical waste**

[www.epa.gov/epaoswer/other/medical](http://www.epa.gov/epaoswer/other/medical)

#### **OSHA hazardous waste**

[www.osha.gov/SLTC/hazardouswaste/index.html/](http://www.osha.gov/SLTC/hazardouswaste/index.html/)

#### **Minnesota Technical Assistance Program**

<http://mntap.umn.edu/health/index.htm>

#### **Hospitals for a Healthy Environment: “10 Steps to Reducing Regulated Medical Waste”**

[www.b2e-online.org/pubs/tensteps/Rmw10steps.pdf](http://www.b2e-online.org/pubs/tensteps/Rmw10steps.pdf)

#### **Healthcare Environmental Resource Center**

[www.hercenter.org](http://www.hercenter.org)

#### **Healthcare Without Harm**

[www.noharm.org](http://www.noharm.org)

### **Reduce facility waste and save money**

This special report was adapted from the July 27 audioconference “Managing Hazardous Waste: Cost-effective strategies for outpatient healthcare facilities.” The 90-minute program covers the best practices for effective waste management that will save money for your nonhospital facility and cut down on the amount of waste that you produce.

To order tapes or CDs of the audioconference, visit HCPro's Healthcare Marketplace at [www.hcmarketplace.com](http://www.hcmarketplace.com), or call 800/650-6787.

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