



Evaluating Pharmaceutical Wastes

Waste/Hazardous Waste #4.45a • August 2004

Environmental concerns

Health care facilities can generate hazardous waste from many sources, including disposal of pharmaceuticals. Hazardous waste, if managed improperly, may harm human health and the environment.

This fact sheet offers general guidance only to help health care providers **evaluate pharmaceutical wastes** (determine whether they meet the definition of hazardous waste). For help identifying and evaluating non-pharmaceutical wastes commonly generated at health care facilities and for information on proper disposal of wastes, see the fact sheet entitled *Managing Waste from Health Care Providers*, available on the Minnesota Pollution Control Agency (MPCA) Web site at: www.pca.state.mn.us/publications/w-hw3-34.pdf.

Pharmaceutical waste

Pharmaceutical waste may include, but is not limited to:

- expired drugs
- patients' personal medications
- waste materials containing excess drugs (syringes, IV bags, tubing, vials, etc.)
- open drugs that cannot be used
- containers that held drugs
- drugs that are intended to be discarded
- contaminated garments, absorbents and spill cleanup material, except for materials with only trace contamination

You must evaluate each pharmaceutical waste to determine whether it is hazardous and dispose of it properly.

Evaluate discarded pharmaceutical materials

All discarded pharmaceutical materials must be evaluated except for these two situations:

1. Sometimes pharmaceuticals may be returned to the manufacturer or a reverse distributor. Because of their potential for reuse, these pharmaceuticals are not considered waste and therefore, are not subject to evaluation. Pharmaceuticals managed this way must not be mixed together, be leaking, be waste-like or display any other characteristics that would reasonably preclude their beneficial reuse as products.
2. Medical supplies and containers that are "RCRA empty" (empty as defined by the Resource Conservation and Recovery Act - RCRA) are not subject to evaluation. In this case, "RCRA empty" means that **all** of the following criteria are met:
 - all material that can be removed by normal means has been removed and
 - less than three percent by weight of the total container capacity remains and
 - supplies and containers do not contain residue from a P-listed hazardous waste (see page four).

Dispose of waste that meets the definition of "RCRA empty" as infectious or solid waste – whichever is appropriate. To determine whether a waste is P-listed, see page four and the fact sheet entitled *P List of Acute Hazardous Wastes* on the MPCA Web site at: www.pca.state.mn.us/publications/w-hw2-02.pdf.

Pharmaceutical hazardous wastes regulated by other rules

Sometimes pharmaceutical wastes are regulated by both hazardous waste rules and other rules. For example,

- Pharmaceutical hazardous wastes may also be regulated by the MPCA and Occupational Safety and Health Administration (OSHA) as infectious waste, such as a syringe containing a pharmaceutical with a mercury preservative.
- Pharmaceutical hazardous wastes may also be regulated by the U.S. Drug Enforcement Agency (DEA) as a controlled substance, such as waste phentermine.
- Pharmaceutical hazardous wastes may also be regulated by the U.S. Nuclear Regulatory Commission (USNRC) as a radioactive waste, such as waste liquid scintillation cocktail.

When evaluating a waste, be sure to consider all regulations – not just hazardous waste – that affect how you must manage and dispose of the waste. Remember, the guidance offered in this fact sheet only considers hazardous waste regulations.

Evaluation tool

Use the flowchart on page three to determine whether a pharmaceutical waste is hazardous. You will need to also determine whether the waste is regulated under other rules as discussed above.

Before you begin, make a list of all pharmaceuticals used in your health care facility. Follow the flowchart for each pharmaceutical. **You must evaluate all pharmaceutical wastes in your facility.**

More information

Waste management - The MPCA and your county have waste management staff available to help you with your waste management questions (see contact information, page). Contact your county or the MPCA office nearest you for help.

For more information about and assistance reducing the amount of hazardous waste you generate (which generally lowers disposal costs), contact the Minnesota Technical Assistance Program (MnTAP).

Sewering – Do not discharge pharmaceutical wastes to a subsurface sewage treatment system (septic tank).

Remember: Get approval from your wastewater treatment plant operator before discharging any pharmaceutical wastes. Be sure to notify the operator of all ingredients (actives and all others) in any wastes to be discharged to a sanitary sewer.

Facilities in the Twin Cities Metropolitan Area: check with Metropolitan Council Environmental Services (MCES) Industrial Waste Section.

Facilities in Greater Minnesota: check with your local wastewater treatment plant operator or the MPCA office nearest you.

Fact sheets - The MPCA has fact sheets that provide detailed information about Minnesota's hazardous waste requirements. Find them on the MPCA Web site at www.pca.state.mn.us/waste/pubs/business.html

Web links - Find more information for the health care provider as well as links to other helpful Web sites on the MPCA Health Care page at: www.pca.state.mn.us/industry/healthcare.html.

Find information on the Memorandum of Understanding between the U.S. Environmental Protection Agency and the American Hospital Association on the Hospitals for a Healthy Environment Web page: www.h2e-online.org.

Contact information - The MPCA and your metropolitan county hazardous waste offices have staff that can help you. Contact your metropolitan county or the MPCA office nearest your facility at the numbers below. (Ask for hazardous waste program staff.) MnTAP staff can provide information and resources to help you reduce waste.

Metro County Hazardous Waste Offices

Anoka	763-422-7093
Carver	952-361-1800
Dakota	952-891-7557
Hennepin	612-348-3777
Ramsey	651-266-1199
Scott County	952-496-8475
Washington County	651-430-6655
Web sites	www.co.[county].mn.us

Minnesota Pollution Control Agency

Toll free (all offices)	1-800-657-3864
Brainerd	218-828-2492
Detroit Lakes	218-847-1519
Duluth	218-723-4660
Mankato	507-389-5977
Marshall	507-537-7146
Rochester	507-285-7343
St. Paul	651-296-6300
Willmar	320-214-3786
Web site	www.pca.state.mn.us

Minnesota Technical Assistance Program

Toll-free	1-800-247-0015
Minneapolis	612-624-1300
Web site	www.mntap.umn.edu

Metropolitan Council Environmental Services

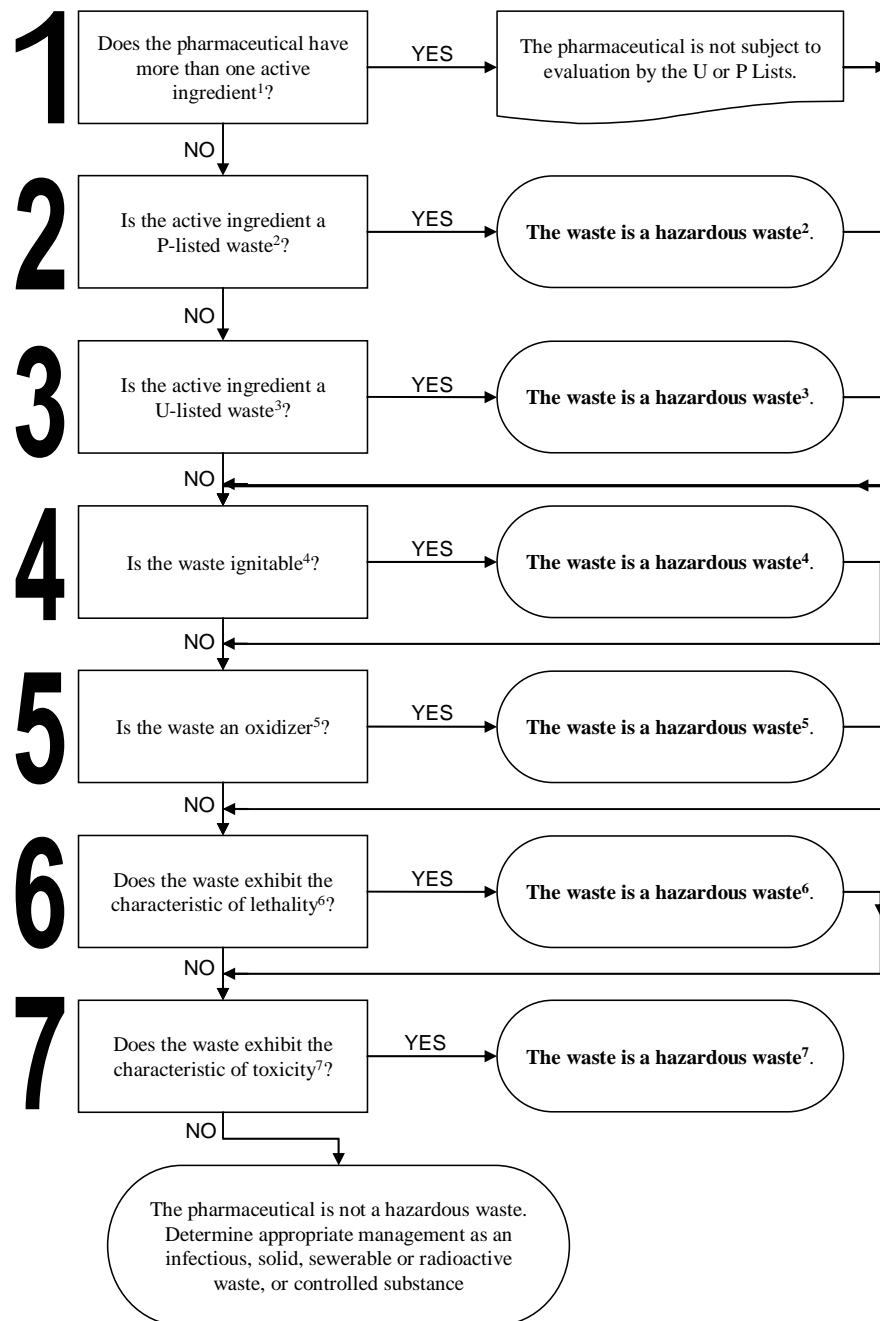
MCES Metro area	651-602-4703
Web site	www.metrocouncil.org/environment

Flow chart evaluation tool

Remember, you must evaluate every pharmaceutical waste in your facility! The explanations given on page four corresponding to each step contain important information that will help ensure correct evaluation and proper management. See page four for important notes!

Reminder:

This flow chart only helps you determine whether a waste pharmaceutical is a hazardous waste. You also need to determine whether the waste is regulated under other rules in addition to the hazardous waste rules.



Flow chart notes

- 1 The active ingredient is the component that performs the function of the product. Fillers, solvents, carriers, propellants, preservatives, etc. are not active ingredients.
- 2 For a list of pharmaceuticals on the P List, see hazardous waste fact sheet #2.02, *P List of Acute Hazardous Wastes*, on the MPCA Web site: www.pca.state.mn.us/publications/w-hw2-02.pdf.

Under a revision to the federal regulations adopted by a program management decision in Minnesota, pharmaceuticals placed on the P and U lists solely for the characteristic of ignitability, corrosivity or reactivity that do not exhibit that characteristic at the point they become waste are not considered P or U-listed hazardous wastes. However, they must still be evaluated for all other hazardous waste criteria. For more information, see the fact sheet *Exclusion of Some Characteristic Wastes* on the MPCA Web site: www.pca.state.mn.us/publications/w-hw8-01.pdf.

Dispose of an unused or unusable pharmaceutical (e.g. open medication, residual IV solution) P- and U-listed wastes as hazardous wastes. Manage contaminated equipment, garments, absorbents and spill clean-up materials as hazardous wastes. Used pharmaceuticals (e.g. removed nicotine patches) are not considered P- or U-listed wastes; however, you must evaluate them for all other hazardous waste criteria. Waste residue remaining in a used syringe is considered a used pharmaceutical.

Containers that held a P-listed pharmaceutical waste are also hazardous unless they are triple-rinsed; the rinseate is also hazardous (See hazardous waste fact sheet #4.16, *Managing Empty Containers*, on the MPCA Web site www.pca.state.mn.us/publications/w-hw4-16.pdf for an explanation of triple rinsing and more information). Rinsing is not recommended for containers that are also infectious waste; manage them as a hazardous waste.
- 3 For a list of drugs on the U list, see hazardous waste fact sheet #2.03, *U List of Hazardous Wastes* on the MPCA Web site at: www.pca.state.mn.us/publications/w-hw2-03.pdf.

Manage an unused or unusable pharmaceutical (e.g. open medication, residual IV solution) listed on the U List as a hazardous waste*.

Manage contaminated equipment, absorbents, other materials and spill materials as hazardous waste.
- 4 Ignitable wastes have a flash point less than 140°F or meet one of the other criteria for ignitability given on hazardous waste fact sheet #2.04, *Characteristic Wastes*, on the

MPCA Web site at:

www.pca.state.mn.us/publications/w-hw2-04.pdf.

Manage a waste pharmaceutical that is ignitable as a hazardous waste*. Also, manage moist, contaminated materials as a hazardous waste*. Do not air dry absorbents.

- 5 An oxidizer adds oxygen to a reaction. For a complete definition of an oxidizer, see hazardous waste fact sheet #2.04, *Characteristic Wastes*, on the MPCA Web site: www.pca.state.mn.us/publications/w-hw2-04.pdf.

Manage pharmaceuticals meeting the definition of oxidizers as a hazardous waste*. Also, manage overtly contaminated absorbents and materials and spill material as hazardous waste*.

- 6 Lethality is a characteristic regulated in Minnesota. For a definition of lethality, see hazardous waste fact sheet #2.04, *Characteristic Wastes*, on the MPCA Web site: www.pca.state.mn.us/publications/w-hw2-04.pdf.

Determine the lethality threshold concentration of the pharmaceutical as a waste. This is the lowest concentration of the pharmaceutical that exhibits the lethality characteristic.

When the concentration of the waste pharmaceutical is at or greater than the lethality threshold concentration, manage the waste as a hazardous waste*. Also manage contaminated materials as hazardous waste*.

- 7 A toxic waste contains one or more contaminants (such as mercury) at or above maximum allowable concentrations. For a complete list of toxic contaminants, see hazardous waste fact sheet #2.04, *Characteristic Wastes*, on the MPCA Web site at: www.pca.state.mn.us/publications/w-hw2-04.pdf.

Manage waste pharmaceuticals that exhibit the toxicity characteristic as hazardous waste. Also manage contaminated materials as hazardous waste.

Managing waste pharmaceuticals as hazardous waste

Hazardous waste has specific management requirements for marking (labeling), time limits for storing, type of transportation and transporter that can be used, disposal methods and record-keeping. For more information about these requirements, see the *Ten Steps to Compliance* fact sheet on MPCA's Web site at: www.pca.state.mn.us/waste/pubs/business.html#general.

Also, see hazardous waste fact sheet #3.34, *Managing Waste from Health Care Providers*, on the MPCA Web site: www.pca.state.mn.us/publications/w-hw3-34.pdf.