



# Hazardous Drug Handling Education

# Hazardous Drugs (HDs) Definition

- **Hazardous Drugs (HDs), also known as hazardous medications,** are those in which studies in animals or humans indicate that exposures to them have a potential for causing cancer, developmental or reproductive toxicity, or harm to organs.

**United States Pharmacopeia (USP) Chapter 800** provides the standard for safe handling of hazardous drugs to minimize the risk of exposure to healthcare personnel, patients, and the environment.

The **National Institute for Occupational Safety and Health (NIOSH)** evaluates hazardous drugs and produces a list of hazardous drugs updated every few years.



# Why am I receiving this education?

- By nature of working in a healthcare setting, you could potentially be exposed to HDs in some capacity.
- The goal of this course is to provide education to help prevent, contain, and reduce exposure to HDs.
- Any activity that places you in a patient care area or an area that is processing materials going to or from a patient care area could put you at risk.

# Hazardous Drug Handling Activities

How can exposure occur?

Every aspect of handling hazardous drugs may result in exposure if proper precautions are not taken.



Reference: United States Pharmacopeia Website: <https://www.usp.org/sites/default/files/usp/document/our-work/healthcare-quality-safety/800-know-your-exposure-to-hazardous-drugs.pdf> Accessed August 14, 2019.

# What You Will Learn in this Course

- Review the *Occupational Safety Plan for Hazardous Drug Handling*
- Where to find the entity's list of HDs and their risks
- Proper Use of Personal Protective Equipment (PPE)
- Spill Management
- Response to known or suspected HD exposure

# Occupational Safety Plan for HD Handling

- The **Occupational Safety Plan for the Handling of HDs** outlines safety requirements for the handling of HDs.
- The **Plan** contains the elements below:
  - Reference to the list of HDs
  - Types of Exposure Based on Activity and Impacted Departments
  - Required Personal Protective Equipment
  - HD Handling
  - Environmental Sampling
  - Deactivation/Decontamination, Cleaning and Disinfection
  - Hazardous Drug Waste, Disposal, and Spills
  - Required Education

# List of HDs and their Risks

- See policy *Hazardous Medications* in PolicyStat
- The Joint Commission and USP 800 require that the facility maintain a list of hazardous drugs used

# List of HDs and their Risks Continued

- The facility maintains a list of HDs available online.
- Hazardous drugs are marked by the Pharmacy with a HD label and an additional A, B, C classification label.





# List of HDs and their Risks Continued

- ***Some drugs defined as hazardous may not pose a significant risk of direct occupational exposure because of their dosage form (for example, tablets or capsules—solid, intact medications that are administered to patients without modifying). However, they may pose a risk if solid drug forms are altered, such as by crushing or cutting.***



# Hazard Communication

- Safety Data Sheets contain information on hazardous drugs (for example, PPE required, first aid procedures, and spill management).
- Safety Data Sheets are available through MSDSOnline (link on PC desktops)

<b>Health Hazard</b>  <ul style="list-style-type: none"><li>• Carcinogen</li><li>• Mutagenicity</li><li>• Reproductive Toxicity</li><li>• Respiratory Sensitizer</li><li>• Target Organ Toxicity</li><li>• Aspiration Toxicity</li></ul>	<b>Flame</b>  <ul style="list-style-type: none"><li>• Flammables</li><li>• Pyrophorics</li><li>• Self-Heating</li><li>• Emits Flammable Gas</li><li>• Self-Reactives</li><li>• Organic Peroxides</li></ul>	<b>Exclamation Mark</b>  <ul style="list-style-type: none"><li>• Irritant (skin and eye)</li><li>• Skin Sensitizer</li><li>• Acute Toxicity (harmful)</li><li>• Narcotic Effects</li><li>• Respiratory Tract Irritant</li><li>• Hazardous to Ozone Layer (Non-Mandatory)</li></ul>
<b>Gas Cylinder</b>  <ul style="list-style-type: none"><li>• Gases Under Pressure</li></ul>	<b>Corrosion</b>  <ul style="list-style-type: none"><li>• Skin Corrosion/ Burns</li><li>• Eye Damage</li><li>• Corrosive to Metals</li></ul>	<b>Exploding Bomb</b>  <ul style="list-style-type: none"><li>• Explosives</li><li>• Self-Reactives</li><li>• Organic Peroxides</li></ul>
<b>Flame Over Circle</b>  <ul style="list-style-type: none"><li>• Oxidizers</li></ul>	<b>Environment (Non-Mandatory)</b>  <ul style="list-style-type: none"><li>• Aquatic Toxicity</li></ul>	<b>Skull and Crossbones</b>  <ul style="list-style-type: none"><li>• Acute Toxicity (fatal or toxic)</li></ul>

Image from OSHA: <https://www.osha.gov/Publications/OSHA3491QuickCardPictogram.pdf>

# Types of Exposure Based on Activity

- Clinical and non-clinical personnel may be exposed to HDs when they handle HDs or touch contaminated surfaces (counters, paper, linen, waste, etc.)
  
- See the following table for examples of types of exposure based on activity.

# Types of Exposure Based on Activity

(Reference: USP 800 Table 1. Examples of Potential Routes of Exposure Based on Activity)

Activity	Potential Route of Exposure
<b>Receipt</b>	Contacting HD residues present on drug container, individual dosage units, outer containers, work surfaces, or floors
<b>Storage</b>	Contacting HD residues present on drug container, individual dosage units, outer containers, work surfaces, or floors
<b>Dispensing</b>	Counting tablets and capsules from bulk containers
<b>Compounding and other manipulations</b>	<p>Crushing tablets or opening capsules</p> <p>Pouring oral or topical liquids from one container to another</p> <p>Weighing or mixing components</p> <p>Constituting or reconstituting powdered or lyophilized HDs</p> <p>Withdrawing or diluting injectable HDs from parenteral containers</p> <p>Expelling air or HDs from syringes</p> <p>Contacting HD residue present on PPE or other garments</p> <p>Deactivating, decontaminating, cleaning, and disinfecting areas contaminated with or suspected to be contaminated with HDs</p> <p>Maintenance activities for potentially contaminated equipment and devices</p>

# Types of Exposure Based on Activity Continued

Activity	Potential Route of Exposure
<b>Administration</b>	Generating aerosols during administration of HDs by various routes (e.g. injection, irrigation, oral, inhalation, or topical application) Performing certain specialized procedures (e.g., intraoperative intraperitoneal injection or bladder instillation) Priming an IV administration set
<b>Patient-care activities</b>	Handling body fluids (e.g., urine, feces, sweat, or vomit) or body-fluid-contaminated clothing, dressings, linens, and other materials
<b>Spills</b> <i>For Chemo spills, see policy EC-049 Management of Hazardous/Cytotoxic (Chemotherapy) Spills</i>	Spill generation, management, and disposal
<b>Transport</b>	Moving HDs within a healthcare setting
<b>Waste</b> <i>For Chemo waste, see policy EC-051 Management of Hazardous/Cytotoxic (Chemotherapy) Waste</i>	Handling of contaminated waste

# Required Personal Protective Equipment

- See the *Occupational Safety Plan for Hazardous Drug Handling policy (or other Department-specific applicable policy) for PPE required based on specific activities.*



# Required Personal Protective Equipment (continued)

- Nursing Specific: Refer to Policy regarding administering hazardous drugs.
- Pharmacy Specific: Refer to Policy **Hazardous Drug Handling**, attachment titled “Pharmacy Hazardous Drug Handling Chart”
- Safety Data Sheets (SDSs) should be accessed for review of special precautions.

# Hazardous Drug Waste, Disposal, and Spills



- **Hazardous drug waste** shall be disposed of in an approved waste container at the site of drug administration. (See hazardous waste pharmaceutical disposal charts posted by containers).
- Equipment (such as tubing and needles) and packaging materials must be disposed of properly, such as in HD waste containers, after administration.
  - Chemo waste (including any product directly exposed to the drug and any patient blood and body fluids, urine, stool, vomitus) is considered to contain hazardous drug for 48 hours following chemotherapy administration.
- All disposable materials touching hazardous drugs must be discarded as contaminated hazardous drug waste.



# Hazardous Drug Waste, Disposal, and Spills Continued

- **Hazardous drug spills** must be contained and cleaned immediately only by qualified personnel with appropriate PPE.



- **Spill kits** containing all the materials needed to clean hazardous drug spills must be readily available in all areas where hazardous drugs are routinely handled.
  - Spill materials shall be discarded as hazardous drug waste.
  - See **Management of Hazardous/Cytotoxic (Chemotherapy) Waste** and **Management of Hazardous/Cytotoxic Chemotherapy Spills** policies.
- Disposal of hazardous drug waste will comply with applicable federal, state, and local regulations.

# Response to Known or Suspected HD Exposure

- See Policy Management of Accidental Exposure to Hazardous/Cytotoxic Agents
- Refer to the First Aid section in the SDS.

# Review

- **This course has covered the components below:**
  - Definition of a hazardous drug
  - Potential risks of exposure
  - Hazardous Drug Handling Activities
  - Applicable house-wide policies
  - Types of Exposure Based on Activity
  - Required Personal Protective Equipment (PPE)
  - Hazardous Drug Waste, Disposal, and Spills
  - Response to known or suspected HD exposure
- For additional detail, see your Department's Policies, Procedures, and Protocols around HD handling.

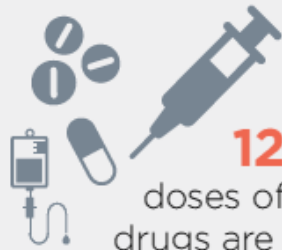
# KNOW YOUR EXPOSURE TO HAZARDOUS DRUGS

Help minimize your risk with the **USP <800> HazRx™** mobile app

## WHAT IS THE EXPOSURE?



More than  
**8 million**  
US healthcare workers  
are exposed to hazardous  
drugs every year<sup>1</sup>



More than  
**12 billion**  
doses of hazardous  
drugs are handled by  
US providers each year<sup>2</sup>

Drugs are classified as **hazardous** when they possess any of **these characteristics**:<sup>1</sup>

- ✓ Impact or damage DNA/genes
- ✓ Cause cancer
- ✓ Contribute to infertility
- ✓ Impact a developing embryo or fetus
- ✓ Cause developmental abnormalities
- ✓ Cause organ damage
- ✓ Have a similar structure or function to drugs that are determined to be hazardous

# WHAT ARE THE POTENTIAL RISKS?

Acute<sup>3</sup> and long term<sup>4,5</sup> effects

Hair Loss  
Cardiac Toxicity  
Kidney Damage  
Hearing Loss  
Nausea  
Rashes



Healthcare  
Worker



Cancer



Reproductive  
Outcomes



Infertility

# WHO IS AT RISK?

Anyone handling hazardous drugs is at risk of exposure<sup>1</sup>



- Pharmacists
- Pharmacy Technicians
- Nurses
- Physicians
- Surgeons

- Physician Assistants
- Respiratory Therapists
- Home Health Aides
- Nurses' Aides
- Housekeeping

- Janitorial Services
- Environmental Services
- Veterinarians
- Veterinarian Technicians
- Veterinarian Assistants

# WHERE CAN EXPOSURE OCCUR?

Exposure can take place in any healthcare setting<sup>1,6</sup>



Hospitals



Surgical Centers



Veterinary  
Hospitals  
and Clinics



Pharmacies



Home Health  
Care



Skilled Nursing  
Facilities

## HOW CAN EXPOSURE OCCUR?

Every aspect of handling hazardous drugs may result in exposure if proper precautions are not taken<sup>1,6</sup>





# What are the potential risks?

*See the image below from USP 800 showing acute and long-term effects.*



# Acknowledgement of Risk

- Mon Health Medical Center and Mon Marion Neighborhood Hospital ask all employees to review and acknowledge the risks in the next few slides:
- *I understand working with or near hazardous drugs in health care settings may cause skin rashes, infertility, miscarriage, birth defects, and possibly leukemia or other cancers.*

# Acknowledgement of Risk Continued

- *I understand that the facility maintains detailed policies and procedures on the proper storage, handling, transport and disposal of hazardous drugs. The facility has put in place a variety of administrative, engineering and work practice controls to reduce the risk of occupational exposure to hazardous drugs.*
- *I understand the policies and procedures will be reviewed and/or updated periodically.*
- *Policies and procedures reflect information, standards and regulations from relevant local, state and federal regulatory bodies as well as practice standards from professional associations.*

# Acknowledgement of Risk Continued

- *I acknowledge that failure to follow the established policies and procedures may put me at risk of exposure to hazardous substances which can lead to acute effects such as skin rashes; chronic effects, including adverse reproductive events such as infertility, miscarriage, or birth defects; and possibly the development of cancer.*