

HAZARDOUS DRUG (HD) TOOLKIT

INTRODUCTION

The purpose of this toolkit is to promote safe work practices for all individuals who work directly with or have the potential to become exposed to hazardous medications in the workplace. Key Components of this program include: Hazard Determination, Engineering Controls, Safe Work Practices, Personal Protective Equipment (PPE), Waste Disposal, Emergency Response, and Spill Clean-Up.

TYPES OF HAZARDOUS DRUGS

A Hazardous Drug (HD) is a drug that meets one or more of the following characteristics:

Carcinogenicity

a substance that can cause cancer

Teratogenicity or other developmental toxicity

Reproductive toxicity

Organ toxicity at low doses

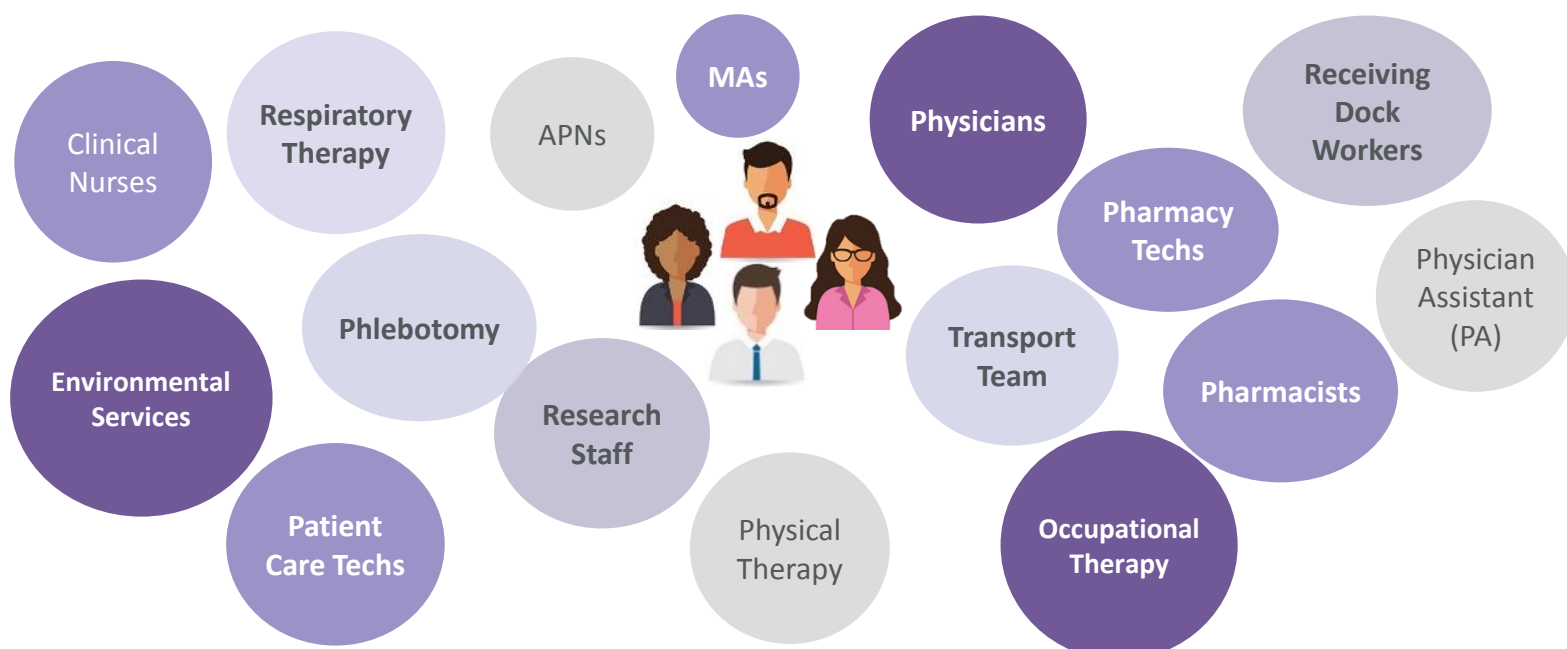
Genotoxicity

a substance that can cause damage to DNA

Structure and toxicity profiles of new drugs that mimic existing drugs determined hazardous by the above criteria

The NIOSH list of HD's, which is updated every two years, can be found on the NIOSH website:
www.cdc.gov/niosh.

Individuals Who Have Potential Exposure to HDs

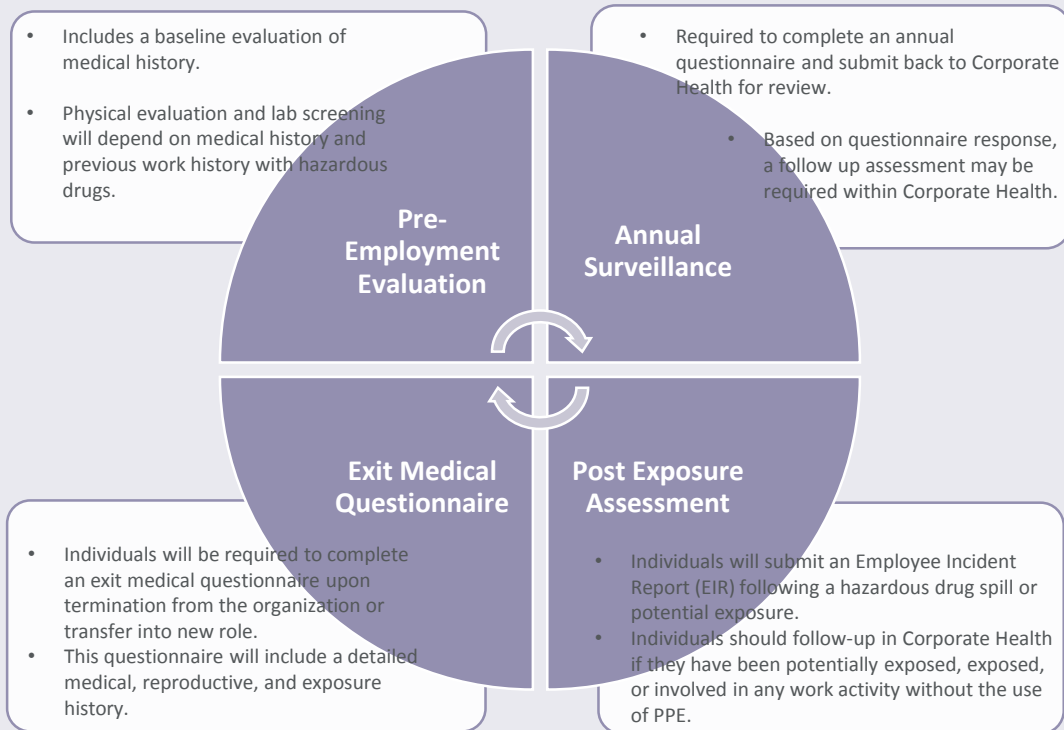


MEDICAL MONITORING AND SURVEILLANCE PROGRAM

MEDICAL MONITORING & SURVEILLANCE

Individuals who work with HD's on a routine basis, or have potential for exposure, will participate in the Medical Monitoring program at Northwestern Medicine. A medical surveillance program is part of a comprehensive exposure program complementing engineering controls, safe work practices, and the use of PPE. This program is also viewed as a secondary program tool that may provide a means of early detection if a health problem develops.

Testing Surveillance Methods



PREGNANT, POTENTIALLY PREGNANT, OR BREASTFEEDING

Individuals who are potentially pregnant, pregnant or breastfeeding may be voluntarily assessed for risk during their work with hazardous medications by Corporate Health Services. Restrictions or job modifications may be placed after this assessment, and voluntary transfer may occur to comparable duties that do not involve handling of hazardous medications/chemicals. **Refer to the following NMHC policy for more details: #HS 04.0201 Reproductive Hazards Program for Declared Pregnant Workers.**

APPROVED TYPES OF ENGINEERING CONTROLS

CONTAINMENT PRIMARY ENGINEERING CONTROLS (C-PEC)- ventilated device designed to minimize worker and environmental HD exposure

Containment Primary Engineering Controls (C-PECs) are used within the Pharmacy areas and are a ventilated device designed and operated to minimize worker and environmental exposures to HDs by controlling emissions of airborne contaminants approved C-PECs should be used when prepping hazardous medications . Examples include:

Non-sterile:

- Class I Biological Safety (BSC) Cabinet
- Class II Biological Safety (BSC) Cabinet
- Containment Ventilated Enclosure (CVE)
- Compounding Aseptic Containment Isolator (CACI)

Sterile: Needs to be performed in a C-PEC that provides an ISO Class 5 or better and externally vented.

- Class II Biological Safety (BSC) Cabinet
- Class III Biological Safety (BSC) Cabinet
- Compounding Aseptic Containment Isolator (CACI)



Biological Safety Cabinet (BSC)

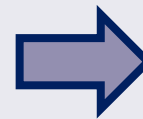


Containment Ventilated Enclosure (CVE)



Compounding Aseptic Containment Isolator (CACI)

CONTAINMENT SECONDARY ENGINEERING CONTROLS (C-SEC)- a room with the Pharmacy areas in which the C-PEC is placed.



SUPPLEMENTAL ENGINEERING CONTROLS –adjunct controls to offer different levels of protection.

**Closed System Transfer Devices
are an example of
supplemental engineering
controls**

Two major benefits of a CSTD:

1. Prevents the release of aerosols, vapors, and droplets into the environment
 - Protects the individual working with HDs
 - Decreases surface contamination of HDs
2. Prevents environmental contaminants from entering into the system

A CSTD is “a drug transfer device that mechanically prohibits the transfer of environmental contaminants into the system and the escape of HD or vapor concentrations outside the system.” CSTDs are designed to protect the sites prone to leakage during HD compounding and administration activities. In theory, CSTDs should provide completely dry connections from compounding through disconnection and disposal.



**CSTD are recommended when compounding and are required for use in administration when the dosage form allows.*

PPE SELECTION

PPE TYPE		SELECTION CRITERIA
Gloves		<ul style="list-style-type: none"> Gloves (as tested to American Society for Testing and Materials International (ASTM) standard D6978, or its successor) should be used for all HDs. The ASTM Standard will be stamped on the box. Powder-free gloves should be made of nitrile, polyurethane, neoprene, or latex material; polyvinyl chloride is not recommended.
Gowns		<ul style="list-style-type: none"> Gowns should not be worn outside the compounding or administrative area to avoid spreading drug contamination to other areas, and potentially exposing unprotected individuals. Gowns should have long sleeves and elastic or knit cuffs, fasten in the back (no open front), and be without seams or closures that could allow HD exposure. If no permeation information is available, the gown should be changed every 2-3 hours or immediately after spill, splash, or contamination. Sleeve covers should be polyethylene-coated polypropylene or other laminate is recommended, with closed cuffs and no seams, openings, or closures that would allow exposure. Gowns are meant for single use only.
Eye Protection		<ul style="list-style-type: none"> To be worn any time there is a risk of splashes or spills (e.g., working above eye level, cleaning spills, surgery, bladder treatments), including disposal of contaminated body fluids. Goggles should be worn when full eye and face protection is needed. Regular eye glasses are not adequate protection.
Face Protection		<ul style="list-style-type: none"> Surgical mask should be used to protect the face if potential for splashing exists.
Respiratory Protection	 	<p>N95 Respirator: For most activities requiring respiratory protection, a fit-tested, NIOSH-certified, N95 or more protective respirator is sufficient for airborne particles; however, N95 respirators offer no protection against gases and vapors.</p> <p>PAPR: should be worn when there is a risk of respiratory exposure to HDs, including large/complex spills and known risk of exposure to vapors and gases. These are the currently known HDs with the potential to vaporize at room temperature: Carmustine, Cisplatin, Cyclophosphamide, Etoposide, 5-fluorouracil, Ifosfamide, Nitrogen mustard, Thiotepea, and investigational medications.</p> <p><i>*Surgical masks do not provide protection against HD exposure</i></p>
Shoe Covers		<ul style="list-style-type: none"> Required when compounding sterile and non-sterile HDs. Required for response to any HD spill.

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GLOVES



Tasks when single gloves should be worn: Picking up, receiving or transporting intact supplies or compounded drugs; administration of unit-dose packaging of intact tablets or capsules; transporting patients during infusion or within precautions period; cleaning up patient care area after treatment; receiving and transporting intact supplies (remote from compounding area); clean up of patient care area after treatment (double gloves if handling linens).

Tasks when double gloves should be worn: Administration of the following: crushed or manipulated tablets/capsules, SubQ or IM from a prepared syringe, prepared IV solution, oral liquid drugs, feeding tubes, topical drugs, and irrigation solution; discontinuation of chemotherapy; transporting intact supplies or compounded drugs; ampoule (opening); prepping for subcutaneous or intramuscular injection; compounding; cutting or crushing tablets; manipulating powder; cleaning-up after compounding; receiving suspected/broken supplies or supplies not contained in plastic; stocking the compounding area; handling, cleaning, and/or disposing of patient waste; clean up of small or large spills; housekeeping triple rinse following a spill.

GOWN



Tasks when gowns should be worn: Administration of the following: crushed or manipulated tablets/capsules, SubQ or IM from a prepared syringe, prepared IV solution, oral liquid drugs, feeding tubes, topical drugs, and irrigation solution; discontinuation of chemotherapy; transporting intact supplies or compounded drugs; ampoule (opening); prepping for subcutaneous or intramuscular injection; compounding; cutting or crushing tablets; manipulating powder; clean-up routine after compounding; receiving suspected/broken supplies or supplies not contained in plastic; handling, cleaning, and/or disposing of patient waste; clean up of small or large spills; housekeeping triple rinse following a spill, clean up of patient care area after treatment when handling linens).

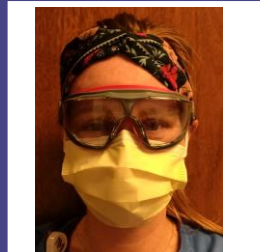
EYE PROTECTION



Tasks when goggles should be worn: when potential for vomiting or spit up exists; administration and handling of SubQ or IM from prepared syringe, preparing IV solution, oral liquid drugs, and feeding tubes; irrigation; discontinuation of treatment (chemotherapy), cleaning up after compounding; handling, cleaning, or disposing of patient's waste; clean up of patient care area after treatment; clean up of small spills; housekeeping triple rinse following a spill.

**Goggles are not required when a PAPR is being used.*

FACE PROTECTION



Tasks when surgical masks should be worn: Administration of the following: crushed or manipulated tablets/capsules, subQ or IM administration from prepared syringe; prepared IV solution; oral liquid drugs, feeding tubes, topical drugs, irrigation of bladder, HIPEC, or limb perfusion, treatment discontinuation, clean up routine after compounding, handling/cleaning/disposing of patient waste, clean up of patient care area after treatment, housekeeping triple rinse following a spill.

Tasks when head/hair covers should be worn: Ampoule (opening); Prepping (withdrawing from vial or ampoule) for subcutaneous, intramuscular injection; compounding; Cutting, crushing or otherwise manipulating tablets or capsules; Manipulating powder/solution for inhalation or aerosol treatment; Clean-up routine (after compounding).

**Face shields alone are not enough protection, protective eyewear are needed also.*

RESPIRATORY PROTECTION



Tasks when N95s should be worn: clean-up routine after compounding, clean up of small spills,

Tasks when PAPRs should be worn: Administration of the following: crushed or manipulated tablets/capsules, subQ or IM administration from prepared syringe; prepared IV solution; oral liquid drugs, feeding tubes, topical drugs, irrigation of bladder, HIPEC, or limb perfusion, treatment discontinuation, clean up routine after compounding, receiving suspected/broken supplies or supplies not contained in plastic, clean up of small spills of the following medications- carmustine; cisplatin; cyclophosphamide; etoposide; 5-fluorouracil; ifosfamide; mechlorethamine; thiopeta, or investigation drugs, clean up of any large/complex spill.

**PAPRs may be indicated for other tasks not listed here if the potential for inhalation exists. Refer to Appendix D- PPE Hazard Assessment for Hazardous Medications for a complete listing.*

SHOE COVERS



Tasks when shoe covers should be worn: ampoule opening, prepping (withdrawing from vial or ampoule) for SubQ or IM injection, compounding the following: IV solution; oral liquid drugs; solution for irrigation; topical drugs, cutting/crushing or manipulating tablets/capsules, manipulating powder/solution for inhalation or aerosol treatment, clean-up routine (after compounding), receiving suspected/broken supplies or supplies not contained in plastic, clean-up of small spills, clean up of large/complex spills, housekeeping triple rinse following a spill.

HD SPILL MANAGEMENT: SPILL KITS

Spill Kits for HDs should be stored in all areas where HDs are used.

DP5016K Spill Kit Chemobloc™ Spill Kit



(PS #365336):

- Gown - 1 maximum protection poly-coated - blue, X-large
- Latex-free gloves - 1 pair 8 mil, medium, and 1 pair 8 mil, large
- Shoe covers- 1 pair
- N95 rated Mask - 1 dust/mist respirator (Don't Use)
- Waste bag - 1 (2 gal.) , 1 (15 gal.)
- 6 Labels "Caution Chemotherapy Waste", "Drug Spill"
- Goggles - 1 pair wraparound
- Scoop & brush - 1 set
- Absorbent towels - 3 12"x12"
- Spill control pillows – 2
- 1 Sign "Caution: Dry Spill"
- 1 Exposure Report Form (Don't Use)

CT4004 ChemoPlus™ Chemo Spill Kit



(PS #7134):

- Gown- 1 poly-coated maximum protection, blue large
- Shoe covers- 1 pair
- Nitrile gloves- 1 pair 18 mil (large), 1 pair 18 mil (XL)
- Signs- 1 caution- "Caution Drug Spill"
- N95 Mask- 1 (Don't Use)
- ChemoSorb™ pads- 2
- Waste bag- 2 (20 gallon) bags
- Scoop and scraper- 1 set
- Safety glasses with side shields- 1 pair (Don't Use)
- Hazardous Drug Exposure Form- 1 (Don't Use)
- Spill towel- 3
- 2 Tie Wraps

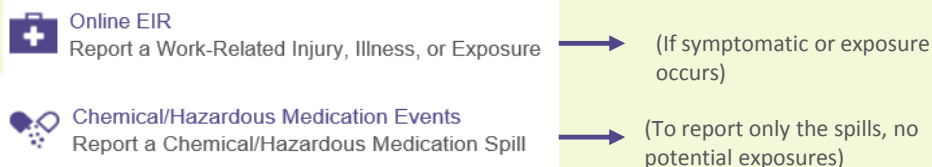
Remember to order a replacement once a spill kit has been used

HD SMALL SPILL MANAGEMENT & RESPONSE

SMALL SPILLS- Defined as spills that can be cleaned up using within 3 absorbent pads (contents in 1 spill kit)

1. Alert others in the area around the spill
2. Remove the patient and any visitors from the area
3. Cordon off the area so that no new people enter
4. Small spills that can be contained within 1 spill kit can be cleaned by trained staff*
5. Don appropriate PPE before cleaning any spills
6. Contain the spill using a spill kit, and clean the spill according to policy
7. Report the spill using an [EIR](#) (for NM workforce) and [NETS](#) (if patient or visitor impacted)

[EIR \(Employee\)](#) Employee Incident Reporting



[NETS \(Patients/Visitors\)](#)

Select Safety/Security →
Hazardous Substance Spill

PPE Requirements for Small Spill Clean-Up

Task	PPE
Cleaning small spills: <ul style="list-style-type: none"> • Can be contained with the three absorbent pads provided in the spill kit • Clean-up staff have been properly trained 	Double Gloves, Gown, Goggles, Shoe covers N95,
Housekeeping triple-rinse following spill	Double Gloves, Gown, Goggles, Surgical Mask, Shoe Covers



***The below drugs have the potential to vaporize at room temp. A PAPR is required to clean any size spill.**

- Investigational drugs
- Cyclophosphamide
- Ifosfamide
- Cisplatin
- Thiotepa
- Carmustine
- Etoposide
- Mechlorethamine
- 5-fluorouracil

HD LARGE/COMPLEX SPILL MANAGEMENT & RESPONSE

LARGE/COMPLEX SPILLS- Contact the Emergency Response Line 5-5555 to activate response

1. HD Response team will respond to area and alert others in the area around the spill
2. Remove the patient and any visitors from the area
3. Cordon off the area so that no new people enter
4. Identify storage location of PAPR, spill kit, and clean-up supplies.
5. Evaluate the size and complexity of the spill in conjunction with the HD Response Team to determine whether the external vendor should be called.
6. Don appropriate PPE and begin clean-up.
7. Decontaminate and disinfect area.
8. Doff PPE appropriately and disassemble PAPR

**HAZCHEM 24 Hour Spill Hotline for
large/complex spills:
630-458-1910**

EIR (Employee) Employee Incident Reporting



Online EIR

Report a Work-Related Injury, Illness, or Exposure



Chemical/Hazardous Medication Events

Report a Chemical/Hazardous Medication Spill

→ (If symptomatic or exposure occurs)

→ (To report only the spills, no potential exposures)

NETS (Patients/Visitors)

Select Safety/Security →
Hazardous Substance Spill

PPE Requirements for Large/Complex Spill Clean-Up

Task	PPE
Cleaning large/complex spills: <ul style="list-style-type: none"> • Cannot be contained with the three absorbent pads provided in the spill kit. • Cannot be easily removed, cleaned, or laundered (e.g.: carpeting or couches) • Occurs in a non-oncology unit/clinic • The drug is identified as having potential to vaporize at room temperature. 	Double Gloves, Gown, PAPR, Shoe Covers
Housekeeping triple-rinse following spill	Double Gloves, Gown, Goggles, Surgical Mask, Shoe Covers



***The below drugs have the potential to vaporize at room temp. A PAPR is required to clean any size spill.**

- | | | | | |
|-------------------------|--------------------|-------------------|------------------|-------------|
| • Investigational drugs | • Cyclophosphamide | • Ifosfamide | • Cisplatin | • Thiotepea |
| • Carmustine | • Etoposide | • Mechlorethamine | • 5-fluorouracil | |

SPILL MANAGEMENT DECISION TREE

1

Assess the exposure of the individuals involved and isolate them from the spill. If an individual's clothing or skin has made contact with the hazardous drug, immediately remove the contaminated clothing and wash the skin with soap and water.



2

Immediately evacuate non-exposed patients, visitors, and staff from the area.

3

All and face protection individuals involved with the spill cleanup must don HD-tested PPE, including double gloves, gown and respiratory.

4

Wear a NIOSH-approved respirator; standard paper surgical masks are ineffective.



5

Contain the spill using plastic backed absorbent sheets or spill pads.

6

If needed, obtain assistance from another trained person who can assist.

7

Place pads/towels into the waste disposal bag avoiding contamination of opening.

8

Spills originating from the chest or waist height can cause droplets to spread several feet from the source. Evaluate the extent of these droplets by moving away from the spill and checking under patients beds, carts, and tables, using a good light source to ensure the entire spill is cleaned.



9

Avoid touching any other parts of the environment during spill clean up because gloves will most likely be contaminated.

10

Use commercially available deactivation product for drugs that have been tested. If no information is available, consider a bleach solution, based on the surface, and a detergent solution to clean the spill. Begin with the least contaminated area and finish with the most contaminated area to prevent spreading of the spilled drug to non-contaminated areas.



11

Rinse area with plain water. Adequate dilution of HD residue is necessary to ensure that drug and any chemical residue has been removed and transferred to the wipes.

12

Discard all material used in cleanup in an HD waste bag. Seal the waste bag and place it in a puncture-proof container designed for HD waste.

13

After handling and disposal of HDs, remove the outer gloves, turning them carefully inside out to avoid touching the outside.

14

If a face shield was worn, remove that next, but avoid contact with the front of the shield as it may be contaminated.

DONNING PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR HD SPILLS

Spill Response - Donning PPE

1. Visually inspect all personal protective equipment to ensure it is intact and serviceable. Discard any PPE with holes, tears, or defects.
2. Wear shoe covers and ensure that they fit snug over your shoes.
3. Wear inner gloves and ensure the cuff of the glove is positioned as far up on your arm as possible.
4. Wear a gown. Make sure the inside of the gown is facing you and that the open end of the gown is facing your back. Tie gown securely.
5. Wear outer gloves and pull cuffs up and over the gown.



Small/Incidental Spills

6. Wear an N95 respirator you have been fit tested on. Discard respirator in chemo kit.

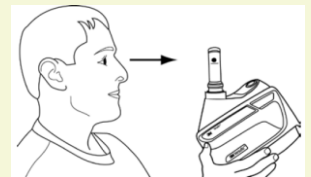
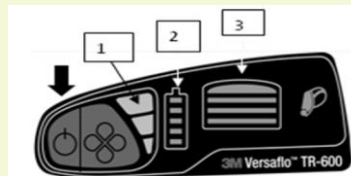


7. Wear goggles. Ensure they are secure and snug. Safety glasses should not be used.



Large/Complex Spills

6. Conduct PAPR performance check.



7. Place PAPR on the small of the back & fasten the belt around your waist snugly.



8. Don hood and ensure unit is powered on.



DOFFING PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR HD SPILLS

Spill Response - Doffing PPE

****As each disposable item is removed, place into a yellow chemo bag or chemo container****

1. Remove outer gloves.

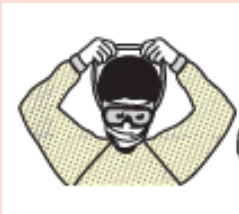
- A. Hold wrist so that your thumb points to the ceiling. Pinch that glove and lift at the wrist, then roll it down until the glove is completely off your hand in a ball in the palm of the other hand.
- B. Then, slide a finger down and inside the outer glove on the other hand and pull it off until it's balled around the first glove.



2. Remove shoe covers. Grasp the outer backside of the shoe cover and pull down over your heel and off your foot.

Small/Incidental Spills

3. Remove goggles from the back by lifting up, over, & pulling away from your face. Disinfect and place on a clean surface.



3. Remove N95 mask by grasping both elastic ties and lifting up, over, & pulling away from your face. Avoid touching the front.



Large/Complex Spills

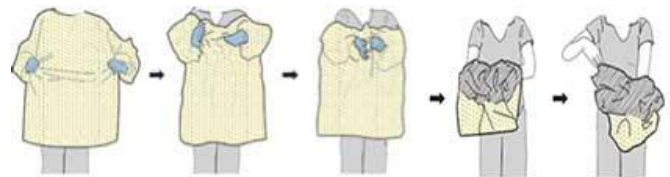
3. Remove PAPR hood. Bend forward at waist and pull the hood from the sides slowly and methodically down and away from your head until it's at waist level.



4. Disconnect/discard hood. Disinfect the exterior of the PAPR unit and place on a clean surface.



5. Remove gown by releasing ties and pulling the gown away from your body, being careful not to touch the inside with your hands. Once the gown is off your shoulders, pull the gown down one arm and then the other. Roll the gown inward as you progress downward until it's a tight ball.



6. Remove your inner gloves as outlined above (see step #1).
7. Secure all waste in chemo bag/black container and place in designated area for pick-up.



3M™ Versaflo™ Multi-Gas/HE Cartridge
(Reorder # TR-6590N)

ITEM	ITEM DESCRIPTION	PEOPLESOFT
Alcohol-Free Sani-Cloth Wipes	<ul style="list-style-type: none"> Wipes approved for cleaning PAPRs. 	Sani-Cloth® HB Germicidal Disposable Wipe #153576
Black Bulk Chemo Bin	<ul style="list-style-type: none"> Discarding spill waste and spill response PPE. For inpatient areas, request chemo bins through existing site-specific process.. 	18G: #348901
Gloves: Extended Cuff	<ul style="list-style-type: none"> When double-gloves are required and worn with a gown, the Flexal should be worn as the outside glove due to its longer cuff. 	Flexal Nitrile Extended Cuff #302166 (XS), #354228 (S), #354229 (M), #353574 (L)
Gloves: Standard Length	<ul style="list-style-type: none"> Both gloves below are chemotherapy approved but have a shorter cuff. When being worn with a gown, they should be worn as the inside glove. 	Cardinal Health Esteem with Neu-Thera #302166 (XS), #155618 (S), #155619 (M), #155620 (L), #155621 (XL) <i>or</i> Cardinal Health Nitrile Exam Gloves #151316 (XS), #9001260 (S), #9001250 (M), #9001255 (L), #365538 (XXL)
Gloves: Thiotepa and Carmustine	<ul style="list-style-type: none"> When administering thiotepa and carmustine, the gloves to the right are recommended due to their longer breakthrough time. 	Medline Professional Nitrile Exam Gloves with Aloe #368715 (S), #368710 (M), #368716 (L), #368717 (XL)
Goggles	<ul style="list-style-type: none"> Goggles should be worn when risk of spill or splash. Honeywell UVEX (can be worn over glasses). 	Honeywell UVEX S3970HS Goggles #368843 3M GC501SGAF Goggles #368844 Medline NON24776H Goggles #349850
Gowns	<ul style="list-style-type: none"> This gown is approved for HDs and should be worn when administering HDs, cleaning spills, and handling bodily fluids. 	Cardinal Health Poly-coated SMS Chemotherapy Gowns #156352
Luer Lock (Closed System Transfer Device)	<ul style="list-style-type: none"> Supplemental engineering control that should be used when the form allows. 	LL-1 Male Adapter: #365909 FC-1 Female Adapter: #357906
N95	<ul style="list-style-type: none"> N95 should be used when cleaning small spills by those trained in HD spill cleanup only and if potential for inhalation during administration. 	Mask Surgical Particulate Respirator N95 Aura Healthcare #160564
PAPR	<ul style="list-style-type: none"> PAPR to be worn when cleaning HD spills by those who are trained in their use. To be worn when responding to large/complex spills involving aerosolizing drugs or when a potential for a HD vapor or powered is present. 	TR-600 PAPR <i>Refer to the HD PAPR Ordering information guide for details instructions.</i>
Shoe Covers	<ul style="list-style-type: none"> To be worn when cleaning spills. 	Cardinal Full Guard High Top Shoe Covers #9026046 (universal)#61690 (large)
Spill Kit	<ul style="list-style-type: none"> Spill kit should be used when cleaning chemotherapy spills by those trained in HD spill cleanup only. For assistance in cleaning HD spills, dial 5-5555. 	Covidien ChemoPlus Chemo Spill Kit CT4004 #7134
Surface Safe Wipes	<ul style="list-style-type: none"> Wipes approved for cleaning infusion pumps and cleaning chemo spills. 	Surface Safe™ Two-Step Applicator Kit #364127
Surgical Mask	<ul style="list-style-type: none"> Mask should be worn when risk of spill or splash. 	Procedure Mask Secure-Gard® Pleated Earloops #7098
Yellow Chemo Bin	<ul style="list-style-type: none"> Discarding trace chemo waste & chemo PPE. For inpatient areas, request chemo bins through existing site-specific process. 	18G: #130067 9G: #6147

DEACTIVATION, DECONTAMINATION, CLEANING, & DISINFECTION

Deactivation, Decontamination, Cleaning, and Disinfection:

All areas where hazardous medications are handled and all reusable equipment and devices must be deactivated, decontaminated and cleaned:

- Pharmacy Staff will have specific policies outlining procedures on how the sterile compounding areas and devices will be disinfected. Cleaning procedures of nonsterile areas will be compliant with the USP795 requirements. Sterile areas will comply with USP 797
- All personnel performing these activities must wear appropriate PPE that is resistant to the cleaning agents used. This includes two pairs of chemotherapy gloves and impermeable disposable gowns. If splash likely, then goggles and a surgical mask should be added.
- The agents for the various stages must be appropriate for the type of hazardous medication contaminant, location and surface materials. Agents used for deactivation, decontamination and cleaning should be applied with the use of wipes wetted with the solution. A spray bottle should not be used to deliver the solution to avoid spreading HD residue.

Cleaning Steps	Purpose	Example Agents
Deactivation	Render compound inert or inactive	As listed in the HD labeling or other agents which may incorporate Environmental Protection Agency (EPA)- registered oxidizers (e.g. peroxide formulations, sodium hypochlorite, etc.)
Decontamination	Remove HD residue	Materials that have been validated to be effective for HD decontamination, or through other materials proven to be effective through testing, which may include alcohol, water, peroxide, or sodium hypochlorite.
Cleaning	Remove organic and inorganic material	Germicidal detergent
Disinfection	Destroy microorganisms	EPA- registered disinfectant and/or sterile alcohol as appropriate for use.

Cleaning Floor/Area After Hazardous Drug Spill Cleanup:

1. EVS/Housekeeping will clean the area using approved detergent solution or bleach wipes followed by clear water (triple rinse with water). *The hospital-approved disinfectant is Alpha HP (1:64).*
2. If the original patient was moved out of the room (to allow cleanup to occur) and is returning, EVS will thoroughly clean the area with the approved detergent (or bleach wipes) and will triple rinse the area with water.
3. If a new patient will be occupying this room, a terminal cleaning after the triple rinse would need to be performed.
4. Use string mop heads. The mop heads need to be disposed after use. Work with Nursing on containment of mop heads for disposal.
5. **Rinse Water:** a few drugs (i.e., P-Listed drugs such as Arsenic Trioxide) will require collection of rinse water. Nursing will advise if rinse water needs to be collected. EVS Manager and/or EVS Hazardous Materials Coordinator will be contacted for assistance.

Most drugs are excreted in body fluids within 48 hours of administration. However, information is not available for all drugs, and some continue to present in urine and stool for up to 7 days.



Hazardous Medication (HD) Precautions

Precauciones para la quimioterapia

Hazardous Medication start time/date _____ (hang sign)

Hazardous Medication end time/date _____ (note disconnect time/date)

Hazardous Medication precautions end time/date: _____ (7 days after end time/date)



**GOWN, DOUBLE GLOVES,
GOGGLES, SURGICAL MASK**

Wear appropriate PPE when:

- Administering, handling and discarding of HDs
- Handling bodily fluids
- Cleaning patient room



**COVER THE TOILET
BEFORE FLUSHING
PATIENT WASTE**

- Close lid of toilet seat or use plastic lined disposable pads (chux)



**DOUBLE BAG ALL
DIRTY LINENS**



CHEMO BIN

Dispose of hazardous drug waste in yellow bin

- Includes bags, tubing, and syringes
- Includes gowns and gloves after each use
- Includes plastic lined disposable pads (chux)



SPILL KIT

Follow standard procedure for spill clean-up

- Always wear appropriate PPE
- Initiate the appropriate response following for cleaning a hazardous drug spill:

Small spills- can be cleaned up using 3 absorbent pads (contents of 1 spill kit) within department.

Large/complex spills- can not be easily removed, cleaned or laundered. Potential to vaporize at room temperature. CALL 5-5555

Linen Handling: PPE should be worn when handling bed linens and towels contaminated by an HD spill or by body fluids following HD administration. Linens should be doubled bagged with a specialty marked linen bag inside an impervious bag on the outside.

SAFE HANDLING FOR PATIENTS & FAMILY MEMBERS

When HDs are prepared, stored during travel, or administered in non-acute care settings such as patient homes, it is important to maintain safe practices. Patients and home caregivers will probably have many questions, and you can be a resource to help answer these. Below are some frequently asked questions by patients and home caregivers.

Home Caregiver FAQs

Do other members of the household need to use a different bathroom? Family members should use separate toilets from the patient for 48 hours after HD administration to eliminate the risk of contact with contaminated body waste. In households with only one bathroom, patients can keep disinfecting sanitizing wipes near the toilet to clean the toilet seat and rim after use. The wiping action physically removes HD residue from surfaces. Following toileting and cleaning, patients should wash their hands with soap and water before touching other surfaces or items. At the end of 48 hours, the toilet and bathroom floor should be washed.

Should caregivers wear gloves when administering medication? Yes. PPE is indicated for family members who participate in the care of patients during HD therapy. When assisting patients with oral HDs, family members should use “no-touch” technique (e.g., pour tablets into the cap of the container) or wear gloves for handling. When preparing and administering HDs for injection, caregivers should wear gloves.

Can disposable gloves be thrown in the regular trash? Yes. Gloves and other items that come into contact with cancer medication or bodily fluids can be thrown away in the household trash. Before putting this waste in the trash, double bag it to help make sure others don’t inadvertently come into contact with it.

What should be done with the packaging the medication comes in? Empty pill bottles from cancer drugs should not be recycled and should not be used again to store other pills or items. Before throwing them out, remove the label or completely cross out any personal information. Check with the local waste management organization for guidance on disposing of items that have come into contact with oral cancer drugs or bodily waste.

What should be done with leftover medication? Usually there should not be extra medication left over, but if there is, it needs to be disposed of as safely as possible. Never throw cancer drugs in the trash or down the drain, and don’t flush them down the toilet. Instead, ask the patient’s healthcare team if unused medication can be returned to the doctor’s office, pharmacy, or treatment center for safe disposal, or check with the local health department or the Drug Enforcement Agency’s website to find out where unused cancer drugs can be safely disposed.

What do I do in the event of a spill at home? Patients should be sent home with a pre-packaged spill kit with easy to follow instructions on how to clean themselves and their environment, how to dispose of contaminated materials, and who, to report the spill.

Items NOT to be collected in the containers

Plain Maintenance IV Solutions such as:

- Potassium chloride
- Saline
- Lactated ringers
- Sodium bicarbonate
- Sodium Phosphate
- Calcium
- Magnesium Sulfate

Empty Containers:

(except for vials & containers that once held coumadin, nicotine, physostigmine & arsenic trioxide)

Follow hospital policy for proper disposal of these items

Controlled Substance CsRx Waste

Controlled Substances such as:

- **Morphine**
- **Fentanyl**

NO syringes or ampules



Witness Waste into CsRx Container

Non-Hazardous Rx Waste No Messaging

Leftover medication such as:

- Most antibiotics
- Lidocaine
- Oxytocin
- Heparin
- Albumin



Dispose in Blue Container

Labeled or Identified as Hazardous/Incompatible Rx by Pharmacy

Hazardous Rx Waste "Special Disposal Required – BLACK"

Leftover medication such as:

- Digoxin injection/oral solutions
- Insulins
- Prednisone oral solution
- Benzoin compound tincture
- Bulk Chemo
- Neo-Syneprine



Dispose in Black Container

P-Listed Rx Waste "Special Disposal Required. P-listed Black Bin. Include Packaging."

Leftover medication AND its packaging:

- Unadministered Coumadin plus the empty blister pack
- Unadministered nicotine plus the peel off the back of a patch
- Unadministered physostigmine and ampule or vial
- Unadministered arsenic trioxide and ampule or vial



Place packaging in P-Listed/
Hazardous Waste Container

Incompatible Rx "Special Disposal Required – RTN to PHARMACY"

Leftover medication such as:

Aerosols

- Inhalers with canister
- Dermoplast

Oxidizers

- Unused silver nitrate

Corrosives

- Pyridoxine HCl



Place in a clear zip lock bag

Bag and Return to Pharmacy

Sharps

- Needles and Broken Ampules
- Empty syringes
- Broken Glass

Red Bag Waste

- Semi-liquid blood or other potentially infectious materials
- Contaminated items that would release blood or other potentially infectious materials

Regular Trash

- Most empty packaging, wrappers, and overwrap that did not contact Rx
- Empty vials and IVs

Chemo

- Gloves, gowns, syringes, empty bags, and other trace material that came in contact with chemo drug

TRAINING TITLE	OBJECTIVE	TRAINING INFO
HD Awareness Training	Required for all individuals who may come into contact with Hazardous drugs within the course of their routine job duties.	<ul style="list-style-type: none"> Course is currently 20 minutes. Required annually Available through MyLearning on NMI
Competency: HD Spill Clean-Up Procedures for Small Spills	Required for all individuals who may respond to a Small HD Spill response.	Required annually
Competency: HD Spill Clean-Up Procedures for Large/Complex Spills	Required for all individuals who may respond to a Large/Complex HD Spill response.	Required annually
Competency: HD PPE	Required for all individuals who may respond to a small or large/complex HD Spill response.	Required annually

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