UNIVERSITY OF UTAH HEALTH CARE
HOSPITALS AND CLINICS

POLICY MANUAL

Safe Handling of Hazardous Drugs

Review Date: 05/19/10 **Revision Date**: 05/19/10
Chapter: Medication Management

I. PURPOSE:

A. This policy outlines the procedures for handling these products safely and in a manner that minimizes exposure. Hazardous drugs (such as chemotherapy) pose special hazards for workers handling these agents. The main routes of exposure are through inhalation, dermal absorption, accidental injection, and ingestion through contact with contaminated food or contaminated hands. Opportunity for exposure may occur at many points during handling.

II. DEFINITIONS:

A. Aseptic: Free from living organisms or infected material capable of causing disease.

B. Biological safety cabinet (BSC), Class II: An open-front ventilated cabinet that protects personnel, medications, and the environment. Airflow is directed inward to protect personnel. Laminar airflow within the cabinet is directed downward through a high-efficiency particulate air (HEPA) filter to protect product. Exhausted air is HEPA-filtered air to protect the working environment.

C. Chemotherapy glove: An FDA-approved medical glove used for handling hazardous drugs (such as chemotherapy).

D. Chemotherapy waste: Any discarded item which has been used for preparing and administering chemotherapy. Waste items may include gloves, gowns, masks, IV tubing and sets, empty bags or drug vials, needles, or syringes.

E. Closed-system drug transfer device: A safety device system, such as the *PhaSeal* system, for the preparation and administration of hazardous drugs. The device mechanically prevents environmental contaminants from entering and hazardous drugs or vapors from leaving the system. When used properly, the device minimizes the exposure to hazardous drugs by providing a leak-free drug transfer. The *PhaSeal* drug containment device uses a double membrane to keep drugs enclosed during transfer from a vial through a *Luer-Lok* and into a bag or syringe. The *PhaSeal* system can be used for both compounding and administration of some, but not all, hazardous drugs. Closed-system drug-transfer devices are not a substitute for ventilated BSCs.

F. Cytotoxic agent: For the purposes of this policy, this term includes all chemotherapy agents, antivirals, biotherapy, and immunosuppressive agents that have demonstrated cytotoxic potential.

G. Decontamination: Inactivating, neutralizing, or removing hazardous drugs from an area. In Pharmacy areas, decontamination is a 4-step sequential process using (1) water and a detergent, (2) sodium hypochlorite solution, (3) a neutralizing agent (eg, *Surface Safe*), and (4) isopropyl alcohol. In other areas, the same sequence is used, with the exception that the isopropyl alcohol step is eliminated (ie, 3-step process).

H. Hazardous drug: Any drug identified as causing cancer, teratogenic effects, developmental impairment, reproductive toxicity, organ toxicity, or genotoxicity at low doses in humans or animals. Includes any new drug that is similar to an existing hazardous drug in chemical structure or spectrum of toxicity. Refer to Appendix A for a list of hazardous agents that may require safe handling precautions.

I. Health hazard: A chemical with statistically significant evidence of potential acute or chronic adverse health effects with occupational exposure. These include gene therapy products, carcinogens, toxins, teratogens, irritants, corrosives, sensitizers, and agents that produce target organ effects such as epinephrine, nicotine, nitroglycerin, or physostigmine, as well as chemotherapy.

J. Material safety data sheet (MSDS): A document provided by the manufacturer describing the product's chemical properties and hazards, as well as methods for minimizing occupational exposure.

K. Personal protective equipment (PPE): Items or garments worn to protect personnel from exposure to hazardous drugs, such as gloves, goggles, gowns, respirators, masks, or face shields.

III. **POLICY**:

A. All staff will handle hazardous drugs in such a way as to minimize risk of exposure, in accordance with the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and the American Society of Health-System Pharmacists (ASHP) as delineated in the following procedures.

B. A list of hazardous drugs is included in Appendix A.

IV. **PROCEDURE**:

A. Training
   1. All employees with potential exposure to hazardous drugs will be informed by their department of the potential risks and the need to follow the procedures related to the handling of these drugs. These personnel will complete and demonstrate competence in a comprehensive safety training program (including, but not limited to, training in

closed-system drug transfer devices, such as *PhaSeal*) that deals with the safe handling of hazardous drugs, including work practices, use of PPE, ventilation control, and hazardous waste containment and disposal. Such personnel will also be educated to reduce occupational exposure to other high-risk agents (eg, avoid frequent exposure to ionizing radiation).

2. The employee's department will provide training in the appropriate handling policies. Safety training will be updated annually per department guidelines.

B. Receiving and unpacking of hazardous drugs
    1. All hazardous drug packages received from the manufacturer or distributor, another pharmacy, or medical clinic should be in separate, properly labeled totes with a distinctive identifier notifying personnel to wear appropriate PPE (eg, chemotherapy-certified gloves, eye covering) when handling them. The label must display, in striking color, an unambiguous, succinct logo and a short, informative description. Only personnel trained in the handling of hazardous drugs should receive or unpack these deliveries.
    2. Place packages and vials in a clean sealed plastic bag upon receipt in the pharmacy, since many commercial hazardous drugs have contamination on the outside of their packages and vials when they are received in the pharmacy.
    3. Wear chemotherapy-certified gloves and eye covering while:
        a. Opening the outside packaging and removing the packaging seal.
        b. Opening the secondary packaging (collapsing the cardboard box).
        c. Visually inspecting the secondary packaging for breakage, cracks, or outside contamination.
        d. Placing the drug vials into a clean sealed plastic bag.
    4. Whenever possible, 2 people will unpack all deliveries. One person will unpack the delivery and place drug vials into clean plastic bags. The second person will seal the plastic bags and place the sealed plastic bags in the storage area.

C. Storage
    1. The American Society of Health-System Pharmacists (ASHP) recommends storing hazardous drugs separately from other drugs. The drugs should be stored in closed units that minimize the risk of breakage (eg, closed cytostatic cabinet, refrigerator). The storage area should have sufficient general exhaust ventilation to dilute and remove any airborne contaminants.
    2. Place distinctive labels on drug packages, bins, shelves and storage areas for hazardous drugs that identify the drugs as requiring special handling precautions. Use labels that are clear to non-English readers.
    3. Use storage bins with high walls to protect hazardous drugs from falling out and breaking. Use storage bins of sufficient size to properly contain all stock.
    4. Provide mandatory safety training for all individuals involved with the storage or transport of hazardous drugs, including training in spill management procedures.

D. Preparation and reconstitution of hazardous drugs
    1. For more information on preparing hazardous parenteral agents, see policy and procedures on "Preparing and Reconstituting Hazardous Drugs."

2. The Pharmacy Department will prepare hazardous drugs in a Class II, Type A BSC in accordance with the rules and regulations outlined in United States Pharmacopeia (USP) Chapter <797>, and guidelines established by National Institute of Occupational Safety and Health (NIOSH) and ASHP. Use a closed-system drug transfer device (eg, *PhaSeal* system) where appropriate for parenteral agents.
3. When sending a hazardous drug to a patient care unit, affix a label identifying the drug as a hazardous drug and indicating that it requires special handling (eg, "Chemotherapy: Handle with Gloves. Dispose of Properly" or "Hazardous Drug: Handle with Gloves. Dispose of Properly"). Send infusion bags with a *PhaSeal* infusion adaptor and *Bard* syringes with a *PhaSeal* connector *LuerLok* and injection *LuerLok*. Do not connect the syringe and *Phaseal* connector prior to delivery.

E. Delivery
1. Provide mandatory safety training for all individuals involved with the storage and transport of hazardous drugs, including training in spill management procedures.
2. Have spill kits immediately accessible during delivery.
2. Do not transport hazardous drugs via the pneumatic tube system, under any circumstances.
3. Transport hazardous drug packages in a manner that reduces environmental contamination in case of accidental spillage or breakage.

F. Material safety data sheet: Have an MSDS available for each hazardous drug located in the workplace.

G. Hazardous drug spills: Refer to spill checklists in Appendix B at the end of this policy.
1. Prevent spills when possible.
2. Discontinue administration of the medication and protect the patients from further exposure.
3. Obtain a spill kit. Don PPE, including, but not limited to, 2 pairs of chemotherapy-certified gloves, eye protection, an N-95 surgical mask, a chemotherapy-resistant gown, shoes, and covers.
    a. Wash hands thoroughly before donning protective gloves and immediately after removal.
    b. Extend inner glove inside the cuff of the gown.
    c. Before donning outer glove, inspect it for physical defects. Extend outer glove over the cuff of the gown.
    d. Change gloves at least once every 30 minutes, or more often if visibly soiled, contaminated, torn, or punctured. Immediately discard of used gloves in a yellow chemotherapy waste container.
4. Contain the spill. Do not allow the material to spread. If the substance is a liquid, carefully place an absorbent blue pad or gauze over the spill. If the substance is a powder, carefully place a moist gauze over the spill. Do not attempt to wipe up spill at this time, but leave pad in place so Environmental Services knows where the spill occurred.
5. Move visitors, family, and others in the room as far away from the spill as possible. Consider moving these people out of the room if needed.

- **Important:** The patient receiving the hazardous drug has already been exposed to the drug systemically. Moving this patient may track the spill over a larger area, causing additional exposure of others to the spill.

6. After people are moved, notify Emergency Management (801-585-6121 or on-call staffperson) and Environmental Services (801-585-2216 U of U and 801-587-4085 HCH).
7. Limit access by posting a sign stating "Caution: Hazardous Drug Spill" and warning others of the hazardous spill.
8. If the spill is on a person, remove contaminated clothing and immediately wash affected skin with copious amounts of nonmedicated soap and water for 15 minutes, and rinse thoroughly. If splashed in the eyes or mucous membranes, rinse with water for at least 15 minutes.
9. Pick up broken glass fragments with a scoop, never with the hands. Place fragments in a sharps container.
10. Determine whether the spill contains urine. If the spill contains urine, stop cleaning and ask for help from Emergency Management (585-6121 or on-call person) and Environmental Health and Safety (581-6590). Do not use sodium hypochlorite, chlorine bleach, or *Surface Safe* on urine spills. Toxic gas may form if urine is mixed with these products.
11. Spills on hard surfaces:
    a. Spills inside the Pharmacy Department: Such spills are cleaned up immediately by pharmacy personnel responsible for the spill.
    b. Spills outside the Pharmacy Department: Small spills (smaller than a 3x5-inch index card) on hard surfaces are cleaned up immediately by the person responsible for the spill.
    c. Spills outside the Pharmacy Department: Call Environmental Services (801-585-2216 U of U and 801-587-4085 HCH) to assist if staff have not been trained to clean a spill, the area is difficult to clean, or the spill is larger than a 3x5-inch index card. Do not touch the spill until Environmental Services arrives. The Environmental Services supervisor may also be called as an information resource on cleaning spills.
    d. Wash the area twice using water and an alkaline detergent solution, then decontaminate with 2% or greater sodium hypochlorite and 1% sodium thiosulfate (eg, *Surface Safe*), and then rinse with water. Remove or blot the cleaning solution with disposable towels from the spill kit. Place all towels in a chemotherapy disposable bag and dispose of them as chemotherapy waste.
        - **Important:** Do not use sodium hypochlorite, chlorine bleach, or *Surface Safe* on urine spills; toxic gas may form if urine is mixed with these products.
    e. If spill is on waxed linoleum, strip the wax then reapply wax.
12. Spills on soft surfaces (eg, carpet, upholstery):
    a. Such spills will be cleaned up by Environmental Services (801-585-2216 U of U and 801-587-4085 HCH).
    b. Spill on carpet:
        1) Carefully remove carpet from the spill area, along with a 6-inch margin around the spill area.

2) Wash the exposed floor area twice using water and an alkaline detergent solution, then decontaminate with 2% or greater sodium hypochlorite and 1% sodium thiosulfate (eg, *Surface Safe*), and then rinse with water. Remove or blot cleaning solution with disposable towels from the spill kit. Place all towels in a chemotherapy disposable bag and dispose of them as chemotherapy waste.
   - **Important:** Do not use sodium hypochlorite, chlorine bleach, or *Surface Safe* on urine spills; toxic gas may form if urine is mixed with these products.
3) Replace carpet.

c. Spill on upholstery: Triple clean the upholstery with water and an alkaline detergent solution. Remove or blot cleaning solution with disposable towels from the spill kit. Place all towels in a chemotherapy disposable bag and dispose of them as chemotherapy waste. Allow upholstery to air dry before using.

13. When finished cleaning the spill, place all PPE in chemotherapy disposable bag and thoroughly wash face and hands with nonmedicated soap and water.
14. Place all contaminated linen in a linen bag labeled "Hazardous Drug" for special cleaning. Call Environmental Services for special pickup.
15. Document the hazardous drug spill through the event reporting system (eg, Patient SafetyNet [PSN] system).

H. Acute exposure
1. Refer employees with an acute exposure to hazardous drugs to the University Healthcare OccMed Clinic (see Medical Surveillance Policy 9-19), so they may have a focused health assessment within 2 working days.
2. Have the employee notify their supervisor and complete the Workers' Compensation First Report of Injury or Illness (Form 122) and an incident report (eg, PSN report).
3. If the spill is on a patient, notify the patient's physician.

I. Handling linen
1. Use 2 pairs of chemotherapy-certified gloves ("double glove") to handle linen contaminated with hazardous drugs or body substances (eg, urine, stool, emesis) from a patient who has received chemotherapy within the previous 48 hours.
2. Place contaminated linen in linen bag labeled "Hazardous Drug."
3. Call Environmental Services to transport bags to laundry.
4. Linen Services will handle laundry without direct contact or sorting, using an "isolation wash" to wash the contaminated linen. Contaminated linen will be washed twice.
5. Promptly change contaminated garments (such as those worn by the patient, doctor, nurse, or pharmacist). The laundry will wash contaminated garments if they are bagged; labeled with the owner's name, employee department or patient room number, and telephone extension; and hand carried to Linen Services.

J. Body substances

1. As with all body substances, wear 2 pairs of approved chemotherapy gloves ("double glove") when handling urine, emesis, and other excreta from patients receiving hazardous drugs.
2. Use body substance precautions for all patients receiving hazardous drugs, such as chemotherapy.
3. Dispose of these excreta in the toilet or a sealed mobile bucket labeled "Hazardous Drug Waste".
4. If there is a likelihood of body substances splashing, wear eye and face protection.
5. Spills: Manage spills of body substances in the same manner as other hazardous drug spills.

K. Body substances mixed directly with hazardous agents
   1. Disinfect body fluids mixed directly with a hazardous agent, such as that which occurs with pleural sclerosing. Disinfection renders the solution safe for disposal as a hazardous agent. [Reference: Standard of Care for the Patient with a Chest Tube Undergoing Sclerotherapy.]
   2. Empty collection receptacle prior to draining the fluid from the cavity.
   3. Add a solidifying/disinfecting agent (eg, *Isolyser*) to any collection receptacle after draining a body fluid mixed directly with a hazardous agent. Obtain these products from the storeroom; these agents are substances that disinfect body fluid and turn the fluid into a gel.
   4. Once the solution is gelled, discard with other hazardous waste.
   5. Label the receptacle with a "Caution: Hazardous Drug" sticker, available from the hazardous drug preparation area (ie, in the pharmacy department).
   6. Spills: Manage spills of body substances in the same manner as other hazardous drug spills.

L. Waste disposal
   1. The Environmental Health and Safety department or a contract carrier will dispose of all waste deemed hazardous.
   2. Materials contaminated with substantial amounts of hazardous drugs will be considered potentially mutagenic and carcinogenic and will be disposed of according to guidelines published by the Environmental Health and Safety Department.
   3. Wear 2 pairs double gloves ("double glove") when handling materials contaminated with hazardous waste. Wash hands thoroughly after gloves are removed.
   4. Always use an absorbent mat when working with hazardous drugs.
   5. Hazardous waste disposal: The following distinguishes which materials do and do not have to be disposed of in a special manner:
      a. Materials allowed in **routine waste disposal**:
         1) Empty rubber-stopped vials
         2) Flush bottles and tubing
         3) Clean drapes, mats
         4) Rubber gloves (clean)
         5) Sharps containers
      b. Materials requiring **disposal in black box containers** per the Environmental Protection Agency Resource Conservation and Recovery Act (RCRA):

1) Glass ampules containing residual hazardous drug
2) Partially-filled vials, bags, bottles, and tubing of hazardous drugs
3) Overtly contaminated materials (eg, drapes, mats, gowns, gloves, towels, swabs)
4) Unused doses of hazardous drugs
5) Unused topical or oral dosage forms of hazardous drugs;

c. Materials requiring **disposal in yellow chemotherapy waste containers:**
1) Used but not overtly contaminated PPE
2) Empty infusion bags, tubing, ampules, and needles (confined in a sharps container)
3) Empty infusion bags and tubing not confined in a sharps container
4) Empty syringes
5) Empty bottles used to store or dispense oral hazardous drugs
6) Body fluid mixed with chemotherapy disinfectant and gelled with *Isolyser*
7) Gauze used to wipe down contaminated counting trays
8) Medication packaging (eg, box, enclosed package insert).

6. Hazardous waste disposal in the hazardous drug preparation area (eg, pharmacy clean room):
   a. Dispose of all preparation materials and medication packaging (eg, box, enclosed package insert) in the plastic bag labeled "Hazardous Waste" except for sharp items that may pierce the plastic bag. Dispose of these items (eg, glass ampules, needles) in the plastic bin container labeled "Hazardous Waste."
7. Equipment:
   a. Place all contaminated materials requiring special disposal directly in a designated garbage container marked specifically for hazardous drug disposal. Designated garbage containers are found on all patient care units.
   b. If the materials are to be transported from one area to another (eg, patient room to waste container), first confine them in a plastic bag and then transport them to the nearest hazardous drug waste container. When the 2 specially colored and labeled plastic bags lining the garbage container marked specifically for "Hazardous Disposal" are full, the housekeeping crew leader will transport the bag and container to the pharmacy or other hazardous waste collection area. (The bags are NOT labeled "Biohazard" but should be labeled as "Hazardous Waste. Dispose Of Properly." The disposal of hazardous waste is for drugs and paraphernalia, not for patient excreta.)
   c. Place any potentially sharp items in the nearest puncture-proof sharps container and handle these items in the same manner as other sharps. Such items may include needles, syringes, scalpels, lancets, broken glass, capillary tubes, glass, ampules, blood collection tubes, slides, slide cover slips, pipettes, and breakable items.

REFERENCES:

1. American Society of Health-System Pharmacists. ASHP guidelines on handling hazardous drugs. *Am J Health Syst Pharm.* 2006;63(12):1172-1193.

2. ASHP Technical assistance bulletin on handling cytotoxic and hazardous drugs. *Am J Hosp Pharm*. 1990, 47(5):1033-1049.

3. Department of Health and Human Services. Centers for Disease Control and Prevention. National Institute for Occupational Safety and Health. Preventing occupational exposure to antineoplastic and other hazardous drugs in health care settings. NIOSH Publication No. 2004-165. http://www.cdc.gov/niosh/docs/2004-165/2004-165d.html. Published 2004. Accessed May 4, 2006.

4. Hospital Policy 9-12, Medications That May be Administered by Nurses Using a Parenteral Route of Administration.

5. Jacobson JO, Polovich M, McNiff KK, et al; American Society of Clinical Oncology; Oncology Nursing Society. American Society of Clinical Oncology/Oncology Nursing Society chemotherapy administration safety standards. *Oncol Nurs Forum.* 2009;36(6):651-658.

6. Polovich M, Whitford JM, Olsen M. *Chemotherapy and Biotherapy Guidelines and Recommendations for Practice*. 3rd ed. Pittsburgh, PA: Oncology Nursing Society; 2009.

7. <797> Pharmaceutical compounding – Sterile preparations. In: *The United States Pharmacopeia,* 29th revision. Rockville, MD: The United States Pharmacopeial Convention; 2006:2735-2751.

8. United States Department of Labor. Occupational Safety & Health Administration. OSHA Technical Manual. Section VI. Chapter 2. Controlling occupational exposure to hazardous drugs. http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2_html. Published 1995. Accessed October 9, 2007.

9. United States Environmental Protection Agency. Protection of the Environment. Identification and listing of hazardous waste. Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof. 40 CFR §261.33. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=4990e762d7b81851bef18f82dc851826;rgn=div5;view=text;node=40%3A25.0.1.1.2;idno=40;cc=ecfr#40:25.0.1.1.2.4.1.4. Accessed April 12, 2010.

10. University HealthSystem Consortium. UHC Consensus Statement: Model Hazardous Drug Safety Plan for Institutions. https://www.uhc.edu/docs/003740270_ModelHazDrugSafetyPlanOct09.pdf. Published October 2009. Accessed March 24, 2010.

APPROVAL BODY: Pharmacy and Therapeutics Committee, Medical Board
APPROVAL DATE: 06/07/10
POLICY OWNER: Manager, Drug Information Service

HISTORICAL INFORMATION

ORIGIN DATE: 06/19/89

REVIEW DATES: 05/19/10, 11/18/09, 02/18/09, 01/21/09, 11/21/07, 10/18/06, 05/17/06, 05/19/04, 09/19/01, 07/15/98

REVISION DATES: 05/19/10, 11/18/09, 02/18/09, 01/21/09, 11/21/07, 10/18/06, 05/17/06, 05/19/04, 09/19/01, 07/15/98

APPROVAL DATES: 06/07/10, 12/07/09, 03/02/09, 02/02/09, 12/03/07, 11/6/06, 05/17/06, 05/19/04, 09/19/01, 07/15/98

(More historical information may be obtained from the P&T Committee Minutes)

Appendix: Hazardous Drugs that May Require Safe Handling Precautions

This appendix is divided into the following 3 sections:

1) Drugs that are widely recognized as hazardous. Safe handling precautions are routinely recommended for these agents. Some of these agents may require black box disposal to minimize effects on the environment, per the Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA).
2) Drugs that many practitioners do not consider as hazardous although they may pose health risks in specific situations. Safe handling precautions may be considered for these agents, but are not routinely required. However, practitioners may consider using other handling precautions to minimize risk.
3) Drugs that require black box disposal to minimize effects on the environment, per RCRA. Safe handling precautions may be required for some of these agents.

These lists may not be all-inclusive. New agents with pharmacologic activity similar to existing drugs may pose similar risks and should be handled appropriately.

Table 1. Hazardous Drugs that Require Safe Handling Precautions

Drug	Cytotoxic agent / chemotherapy	Mutagen or potential mutagen	Teratogen or potential teratogen	Hormonal agent, possible teratogen	Immuno-suppressant agent	Biohazard	Radioactive drug	Arbortifacent	Photosensi-tizing Agent
Alefacept (*Amevive*)		X							
Alemtuzumab (*Campath*)	X								
Alitretinoin (*Panretin*)			X						
Altretamine (*Hexalen*)	X								
Ambrisentan (*Letairis*)			X						
Aminoglutethimide (*Cytadren*)				X					
Amonafide*	X								
Amsacrine*	X								
Anastrozole (*Arimidex*)				X					
Arsenic trioxide (*Trisenox*)	X								
Asparaginase (*Elspar*)	X								
Azacitidine (*Vidaza*)	X								
Azathioprine (eg, *Imuran*)			X		X				
BCG live (*TheraCys*, *TICE BCG*)						X			
Bendamustine (*Treanda)*	X								
Bevacizumab (*Avastin*)	X		X						
Bexarotene (*Targretin*)	X		X						
Bicalutamide (*Casodex*)				X					

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
Bisantrene*	X								
Bleomycin (*Blenoxane*)	X								
Bortezomib (*Velcade*)	X								
Bosentan (*Tracleer*)		X	X						
Busulfan (*Busulfex*)	X								
Capecitabine (*Xeloda*)	X								
Carboplatin (eg, *Paraplatin*)	X								
Carmustine (BCNU, *BiCNU, Gliadel*)	X								
Cetuximab (*Erbitux*)	X		X						
Chlorambucil (*Leukeran*)	X								
Chloramphenicol (*Chloromycetin*)		X	X						
Chromic phosphate P32 (*Phosphocol P32*)							X		
Cidofovir (*Vistide*)		X							
Cisplatin (eg, *Platinol-AQ*)	X								
Cladribine (eg, *Leustatin*)	X								
Clofarabine (*Clolar*)	X								
Colchicine (eg, *Colcrys*)		X							
Cyclophosphamide (eg, *Cytoxan*)	X								
Cyclosporine (eg, *Sandimmune, Neoral, Gengraf*)			X		X				
Cytarabine (ara-C; eg, *Tarabine PFS, Cytosar-U*)	X								
Cytarabine, liposomal formulation (liposomal ara-C, *DepoCyt*)	X								
Dacarbazine (DTIC; eg, *DTIC-Dome*)	X								
Dactinomycin (actinomycin, *Cosmegen*)	X								
Dasatinib (*Sprycel*)	X								
Daunorubicin citrate liposomal (*Daunoxome*)	X								
Daunorubicin hydrochloride	X								

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
(daunomycin; eg, *Cerubidine*)									
Decitabine (*Dacogen*)	X								
Denileukin diftitox (*Ontak*)						X			
Dexrazoxane (eg, *Zinecard*)		X							
Diethylstilbestrol (DES)†			X						
Docetaxel (*Taxotere*)	X								
Doxorubicin (eg, *Adriamycin*)	X								
Doxorubicin, liposomal formulation (*Doxil*)	X								
Dutasteride (*Avodart*)			X						
Echinomycin*	X								
Epirubicin (epidoxorubicin; eg, *Ellence*)	X								
Erlotinib (*Tarceva*)	X								
Esorubicin*	X								
Estramustine (*Emcyt*)	X								
Etoposide (eg, *VePesid*, *Toposar*, *EtopoPhos*)	X								
Everolimus (*Afinitor*)					X				
Exemestane (*Aromasin*)				X					
Finasteride (eg, *Propecia, Proscar*)			X						
Floxuridine (fluorodeoxyuridine; eg, *FUDR*)	X								
Flucytosine (*Ancobon*)		X							
Fludarabine (FAMP; eg, *Fludara*)	X								
Fluorouracil (5-FU; eg, *Adrucil*)	X								
Fluoxymesterone (eg, *Androxy*)				X					
Flutamide				X					
Fulvestrant (*Faslodex*)			X						
Ganciclovir (eg, *Cytovene*)		X	X		X				
Gefitinib (*Iressa*)	X								
Gemcitabine (*Gemzar*)	X								

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
Gemtuzumab ozogamicin (*Mylotarg*)	X								
Hydroxyurea (eg, *Hydrea, Droxia*)	X								
Ibritumomab tiuxetan (*Zevalin*)							X		
Idarubicin (*Idamycin PFS*)	X								
Ifosfamide (eg, *Ifex*)	X								
Imatinib (*Gleevec*)	X								
Infliximab (*Remicade*)		X			X				
Interferon beta 1a (*Avonex*)								X	
Interferon beta 1b (*Betaseron*)								X	
Irinotecan (*Camptosar*)	X								
Isotretinoin (eg, *Accutane*)			X						
Ixabepilone (*Ixempra*)	X								
Lapatinib (*Tykerb*)	X								
Leflunomide (*Arava*)			X		X				
Lenalidomide (*Revlimid*)	X		X						
Letrozole (*Femara*)				X					
Lomustine (CCNU, *CeeNu*)	X								
Mechlorethamine (nitrogen mustard, *Mustargen*)	X								
Megestrol (eg, *Megace*)				X					
Melphalan (*Alkeran*)	X								
Menogaril (*Tomosar*)*	X								
Mercaptopurine (eg, *Purinethol*)	X								
Methotrexate (eg, *Rheumatrex, Trexall*)	X								
Methoxsalen (8-MOP; eg, *Oxsoralen, Uvadex*),,		X	X						X
Methyltestosterone (eg, *Android*, *Testred*)				X					
Mifepristone (*Mifeprex*)								X	
Misoprostol (eg, *Cytotec*)			X					X	
Mitomycin (eg, *Mutamycin*)	X								
Mitotane (*Lysodren*)	X			X					
Mitoxantrone (eg,	X								

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
Novantrone)									
Mycophenolate mofetil (*Cellcept*)		X	X		X				
Mycophenolate sodium (*Myfortic*)		X	X		X				
Nelarabine (*Arranon*)	X								
Nilotinib (*Tasigna*)	X								
Nilutamide (*Nilandron*)				X					
Oxaliplatin (*Eloxatin*)	X								
Paclitaxel (eg, *Onxol, Taxol*)	X								
Paclitaxel, nanoparticle albumin-bound (*Abraxane*)	X								
Palifermin (*Kepivance*)		X	X						
Panitumumab (*Vectibix*)	X								
Paroxetine (eg, *Paxil*)			X						
Pazopanib (*Votrient*)	X								
Pegaspargase (*Oncaspar*)	X								
Pemetrexed disodium (*Alimta*)	X								
Pentamidine for inhalation (*NebuPent*)		X				X			
Pentetate calcium trisodium			X						
Pentostatin (2'-deoxycoformycin, *Nipent*)	X								
Perphosphamide*	X								
Pimecrolimus (*Elidel*)		X			X				
Pipobroman*	X								
Piritrexim*	X								
Piroxantrone*	X								
Plicamycin (*Mithracin*)†	X								
Podofilox (eg, *Condylox*)	X	X	X						
Podophyllum resin (*Podocon-25*, *Podofin*)	X								
Porfimer (*Photofrin*)	X								X
Pralatrexate (*Folotyn*)	X								
Prednimustine*	X								
Procarbazine (*Matulane*)	X								
Pyrazofurin (*Pyrazomycin*)*	X								
Raloxifene (*Evista*)		X	X	X					

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
Raltitrexed*	X								
Ribavirin (eg, *Rebetol*)			X						
Risperidone (eg, *Risperdal*)		X	X						
Romidepsin (*Istodax*)	X								
Samarium SM 153 lexidronam (*Quadramet*)							X		
Sirolimus (*Rapamune*)					X				
Sodium iodide I 131 (eg, *Iodotope*)							X		
Sodium phosphate P32							X		
Sorafenib (*Nexavar*)	X								
Streptozocin (*Zanosar*)	X								
Strontium-89 chloride (*Metastron*)							X		
Sunitinib (*Sutent*)	X								
Tacrolimus (*Prograf*)		X			X				
Tamoxifen (*Nolvadex, Soltamox*)				X					
Temozolomide (*Temodar*)	X								
Temsirolimus (*Torisel*)					X				
Teniposide (*Vumon*)	X								
Testolactone (*Teslac*)				X					
Thalidomide (*Thalomid*)	X		X						
Thioguanine	X								
Thiotepa (eg, *Thioplex*)	X								
Topotecan (*Hycamtin*)	X								
Toremifene (*Fareston*)				X					
Tositumomab and iodine I-131 Tositumomab (*Bexxar*)							X		
Tretinoin (eg, *Vesanoid*)	X		X						
Trientine (*Syprine*)			X						
Trimetrexate glucuronate (*Neutrexin*)†	X								
Trypan blue (*MembraneBlue, Vision Blue)*		X	X						
Valganciclovir (*Valcyte*)		X	X		X				
Valrubicin (*Valstar*)	X								
Verteporfin (*Visudyne*)	X								X

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 1. Hazardous Drugs that Require Safe Handling Precautions									
Drug	**Cytotoxic agent / chemotherapy**	**Mutagen or potential mutagen**	**Teratogen or potential teratogen**	**Hormonal agent, possible teratogen**	**Immuno-suppressant agent**	**Biohazard**	**Radioactive drug**	**Arbortifacent**	**Photosensi-tizing Agent**
Vinblastine (eg, *Velban*)	X								
Vincristine (eg, *Oncovin*)	X								
Vindesine*	X								
Vinorelbine (eg, *Navelbine*)	X								
Vorinostat (*Zolinza*)	X								
Zidovudine (eg, *Retrovir*)		X							
Zonisamide (*Zonegran*)		X	X						

Key: * Investigational agent. † Discontinued agent, included for reference only.

Table 2. Drugs For Which Safe Handling Precautions May be Considered

Monoclonal Antibodies These agents are not listed as potentially hazardous in the NIOSH Alert and most practitioners do not consider monoclonal antibodies to be hazardous (any exceptions are listed in Table 1). Safe handling precautions are not routinely required for preparing monoclonal antibodies although clinicians may consider using other special handling precautions to reduce risk for health care providers.	
Basiliximab (*Simulect*)	Ofatumumab (*Arzerra*)
Canakimumab (*Ilaris*)	Omalizumab (*Xolair*)
Certolizumab pegol (*Cimzia*)	Palivizumab (*Synagis*)
Daclizumab (*Zenapax*)*	Ranibizumab (*Lucentis*)
Eculizumab (*Soliris*)	Rituximab (*Rituxan*)
Golimumab (*Simponi*)	Tocilizumab (*Actemra*)
Muromonab-CD3 (*Orthoclone OKT-3*)	Trastuzumab (*Herceptin*)
Natalizumab (*Tysabri*)	Ustekinumab (*Stelara*)
Key: * Discontinued agent, included for reference only	

Immune-modulating Agents Agents in these pharmacologic classes are listed as potentially hazardous in the NIOSH Alert. However, most practitioners do not consider interleukins and interferons to be hazardous (any exceptions are listed in Table 1). Safe handling precautions are not routinely required for preparing these agents although clinicians may consider using other special handling precautions to reduce risk for health care providers.	
Aldesleukin (interleukin-2, *Proleukin*)	Interferon alfacon-1 (consensus interferon, *Infergen*)
Interferon alfa-2a (*Roferon-A*)*	Peginterferon alfa-2a (*Pegasys*)
Interferon alfa-2b (*Intron A, Rebetron*)	Peginterferon alfa-2b (*PEG-Intron*)
Interferon alfa-n3 (*Alferon N*)	
Key: * Discontinued agent, included for reference only	

Table 2. Drugs For Which Safe Handling Precautions May be Considered

Hormonal and Oxytocic Agents Agents in these pharmacologic classes are listed as potentially hazardous in the NIOSH Alert. However, many practitioners do not consider them hazardous (any exceptions are listed in Table 1). Safe handling precautions are not routinely required for preparing these agents although clinicians may consider using other special handling precautions to reduce risk for health care providers.	
Abarelix (*Plenaxis*)*	Follitropins (*Follistim AQ*, *Gonal-f*)
Cetrorelix (*Cetrotide*)	Ganirelix
Chorionic gonadotropin (eg, *Novarel*, *Pregnyl*)	Goserelin (*Zoladex*)
Degarelix (*Firmagon*)	Histrelin (*Supprelin LA, Vantas*)
Dienestrol	Leuprolide (eg, *Eligard*, *Lupron*, *Viadur*)
Dinoprostone (eg, *Cervidil*)	Menotropins (*Humegon*, *Menopur*, *Pergonal*, *Repronex*)
Ergonovine (*Ergotrate*)	Methylergonovine (*Methergine*)
Estradiol (various, this includes many systemic and topical hormone replacement products such as *Climara*, *Estrace*, *Estraderm*, *Estring*, *Menostar*, and *Vivelle*)	Nafarelin (*Synarel*)
Estrogen-progestin combinations (various, this includes most oral contraceptives and some hormone replacement products such as *Climara Pro*, *Combipatch*, *PremPhase*, and *PremPro*)	Oxytocin (eg, *Pitocin*)
Estrogens, conjugated (eg, *Cenestin*, *Premarin*)	Progesterone (eg, *Crinone*, *Prometrium*)
Estrogens, esterified (eg, *Menest*)	Progestins – drospirenone, levonorgestrel, norethindrone, norgestimate (various, this includes most oral contraceptives and some hormone replacement products such as *Climara Pro*, *Combipatch*, *PremPhase*, and *PremPro*)
Estrogens, esterified combinations (eg, *Estratest*, *Syntest*)	Testosterone (eg, *Androderm*, *Androgel*, *Delatestryl*, *Depo-Testosterone*, *Striant*, *Testim*)
Estrone (various)	Triptorelin (*Trelstar*)
Estropipate (eg, *Ogen*)	
Key: * Discontinued agent, included for reference only	

Other These agents are not listed as potentially hazardous in the NIOSH Alert and many practitioners do not consider them hazardous (any exceptions are included in Table 1). Safe handling precautions are not routinely required for preparing these agents, although clinicians may consider using other special handling precautions to reduce risk for health care providers.	
Aprepitant (*Emend*)*	Fosaprepitant (*Emend IV*)*
Key: * Aprepitant was carcinogenic in rats at doses resulting in an area under the plasma concentration-time curve (AUC) equivalent to 0.7 to 1.6 times the usual human AUC with oral doses of aprepitant 125 mg/day. Fosaprepitant is a prodrug which is converted to aprepitant.	

Table 3. Drugs Which Require Black Box Disposal Per RCRA

Agent	Are Safe Handling Precautions Also Required?
Partial dose chemotherapy waste	Yes
Arsenic trioxide (*Trisenox*)	Yes
Choral hydrate (eg, *Somnote*)	No
Chlorambucil (*Leukeran*)	Yes
Cyclophosphamide (eg, *Cytoxan*)	Yes
Daunorubicin hydrochloride (daunomycin; eg, *Cerubidine*)	Yes
Diethylstilbestrol*	Yes
Lindane (gamma benzene hexachloride)	No
M-cresol-containing products (insulin lispro [*Humalog*])	No
Melphalan (*Alkeran*)	Yes
Mitomycin (eg, *Mutamycin*)	Yes
Nicotine (eg, *Commit, Habitrol, Nicorette, Nicotrol inhaler, Nicotrol NS*)	No
Paclitaxel (eg, *Onxol, Taxol*)	Yes
Paclitaxel, nanoparticle albumin-bound (*Abraxane*)	Yes
Phenol	Yes (irritant, extremely corrosive chemical)
Phentermine hydrochloride (eg, *Adipex-P, Ionamin, Pro-Fast HS, Pro-Fast SR*)	No
Physostigmine salicylate	No
Reserpine	No
Selenium (eg, *Sele-Pak, Selepen*)	No
Selenium sulfide (eg, *Selsun, Selsun Blue*)	No
Silver nitrate	No
Silver sulfadiazine (*Silvadene, SSD cream, Thermazene)*	No
Streptozocin (*Zanosar*)	Yes
Thimerosal-containing products, including some influenza vaccines	No
Trypan blue (*MembraneBlue, Vision Blue*)	Yes
Warfarin sodium (eg, *Coumadin, Jantoven*)	No
Key: * Discontinued agent, included for reference only	

References

American Society of Health-System Pharmacists. ASHP guidelines on handling hazardous drugs. *Am J Health Syst Pharm.* 2006;63(12):1172-1193.

ASHP Technical assistance bulletin on handling cytoxic and hazardous drugs. *Am J Hosp Pharm.* 1990;47(5):1033–1049.

Department of Health and Human Services. Centers for Disease Control and Prevention. National Institute for Occupational Safety and Health. Preventing occupational exposures to antineoplastic and other hazardous drugs in health care settings. NIOSH Publication No. 2004-165. http://www.cdc.gov/niosh/docs/2004-165/2004-165d.html. Published 2004. Accessed October 9, 2007.

Jacobson JO, Polovich M, McNiff KK, et al; American Society of Clinical Oncology; Oncology Nursing Society. American Society of Clinical Oncology/Oncology Nursing Society chemotherapy administration safety standards. *Oncol Nurs Forum.* 2009;36(6):651-658.

McEvoy GK, Litvak K, Welsh OH, et al., eds. *AHFS 2009 Drug Information*. Bethesda, MD: American Society of Health-System Pharmacists; 2009.

National Institute for Occupational Safety and Health. Process for updating the list of hazardous drugs (Appendix A) for the NIOSH Alert on hazardous drugs. NIOSH Docket #105. http://www.cdc.gov/niosh/review/public/105/default.html. Published 2004. Accessed July 9, 2007.

National Institute for Occupational Safety and Health. NIOSH Alert. Process for Updating the List of Hazardous Drugs (Appendix A) for the NIOSH Alert on Antineoplastic and Other Hazardous Drugs in Health Care Settings. NIOSH Docket #105-A. http://www.cdc.gov/niosh/review/public/105-A/default.html. Published 2009. Accessed March 24, 2010.

Polovich M, Whitford JM, Olsen M. *Chemotherapy and Biotherapy Guidelines and Recommendations for Practice*. 3rd ed. Pittsburgh, PA: Oncology Nursing Society; 2009.

<797> Pharmaceutical compounding – Sterile preparations. In: *The United States Pharmacopeia*, 29th revision. Rockville, MD: The United States Pharmacopeial Convention; 2006:2735-2751.

United States Department of Labor. Occupational Safety & Health Administration. OSHA Technical Manual. Section VI. Chapter 2. Controlling occupational exposure to hazardous drugs.. http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2_html. Published 1995. Accessed October 9, 2007.

United States Environmental Protection Agency. Protection of the Environment. Identification and listing of hazardous waste. Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=4990e762d7b81851bef18f82dc851826;rgn=div5;view=text;node=40%3A25.0.1.1.2;idno=40;cc=ecfr#40:25.0.1.1.2.4.1.4. 40 CFR §261.33. Accessed April 12, 2010.

Wickersham RM, Novak KK, eds. *Drug Facts and Comparisons*. St. Louis, MO: Wolters Kluwer Health, Inc.; 2009.

Appendix B: Checklists for Managing Hazardous Drug Spills

Hazardous Drug Spill Checklist (for Spill Kit)

SAFETY	□ Stop administration of the drug.
	□ Put on Personal Protective Equipment (PPE). Wear 2 pairs of gloves (double glove).
	□ Contain the spill with a *ChemoSorb* pad or gauze.
	  □ Liquid spill: carefully place pad or gauze over the spill.
	  □ Dry spill: carefully place moist gauze over the spill.
	□ Move visitors and family away.
	□ Report all spills to Environmental Services: 585-2216 UU, 587-4085 HCH.
	□ Post sign that says: "Caution Hazardous Drug Spill."
	□ Continue to clean if spill does not contain urine. If the spill contains urine, STOP and ask for help from Environmental Health and Safety (581-6590).
	□ Continue to clean if spill is smaller than a 3x5-inch index card. If spill is larger than this:
	  □ Wait for Environmental Services to arrive.
	  □ Report spill to Hospital Supervisor: 585-2713 / 339-7379 UU, 587-4324 / 339-7982 HCH.
	  □ Hospital Supervisor will consider reporting spill to Emergency Management (585-6121 or on-call person) and Environmental Health and Safety (581-6590).

CLEAN SPILL	□ Spills on hard surfaces
	  □ **Remove**
	  □ Use scoop to pick up any broken glass. Dispose of glass in biohazard container.
	  □ Remove *ChemoSorb* pad or gauze and place in yellow chemotherapy disposal bag.
	  □ **Wash –** Wash area 2 times with water and soap solution, using towels in the spill kit.
	  □ **Decontaminate –** Wipe area with *Surface Safe* packet #1, then wipe area with *Surface Safe* packet #2.
	  □ **IMPORTANT:** Do NOT use *Surface Safe* on urine spills. Harmful gas may form if you mix urine with *Surface Safe*.
	  □ **Rinse –** Rinse area with water, then blot or wipe dry with towels from spill kit.
	□ Spills on soft surfaces, such as carpet or upholstery, are cleaned by Environmental Services.
	□ Spills on bed linens or clothing: Remove linens from bed and change clothing.
	  □ Place items in bag labeled "Hazardous Drugs."
	  □ For clothing, label bag with owner's number, employee department or patient room number, and telephone extension.
	  □ Call Environmental Services to transport to laundry. These linens will be washed twice.
	□ Spills on a person will be cleaned by nursing staff: remove contaminated clothing and immediately wash affected area. Wash skin for 15 minutes with nonmedicated soap and water. Rinse eyes and mucous membranes for at least 15 minutes with water.

DISPOSE	**Immediately after cleaning the spill:** □ Place all used cleaning supplies (pads, wipes, towels) in yellow chemotherapy disposal bag. □ Place drug bag in black waste bin (RCRA container). □ Remove all PPE and place in yellow chemotherapy disposal bag. □ Wash hands then face with soap and water.

REPORT	□ Document spill in the incident reporting system (eg, Patient Safety Net [PSN] system).
	  □ Select "other" when asked if the report involves a patient, visitor or other.
	  □ Hazardous drug spills are a type B "Environmental Hazard" event.
	□ Order new spill kit.

Hazardous Drug Spill Checklist – Large Spills on Hard Surfaces
Environmental Services Use ONLY

SAFETY	**For spills larger than a 3x5-inch index card:** □ Put on Personal Protective Equipment (PPE). Wear 2 pairs of gloves (double glove). □ Ask hospital staff if the spill has urine. If spill has urine: □ Do NOT clean spill with bleach or *Surface Safe*. □ Stop and ask for help from Environmental Health and Safety (581-6590). □ **Check spill size –** Can you clean the spill with 1 or 2 spill kits? □ **YES –** Go on to next steps. □ **NO,** more than 2 kits are needed – Stop cleaning. Call Emergency Management (585-6121 or on-call person) and Environmental Health and Safety (581-6590). **If not already done:** □ Contain the spill with a *ChemoSorb* pad or gauze. □ Liquid spill: carefully place pad or gauze over the spill. □ Dry spill: carefully place moist gauze over the spill. □ Move visitors and family away. □ Post sign that says: "Caution Hazardous Drug Spill."
CLEAN SPILL	**Spills on hard surfaces:** □ **Remove** □ Use scoop to pick up any broken glass. Dispose of glass in biohazard container. □ Remove *ChemoSorb* pad or gauze and put in yellow chemotherapy disposal bag. □ **Wash** – Wash area 2 times with water and soap solution, using towels in the spill kit. □ **Decontaminate –** Wipe area with *Surface Safe* packet #1, then wipe area with Surface Safe packet #2. □ **IMPORTANT:** Do NOT use bleach or *Surface Safe* on urine spills. Harmful gas may form if you mix urine with bleach or *Surface Safe*. □ **Rinse –** Rinse area with water, then blot or wipe dry with towels from spill kit. □ **Wax –** If spill is on waxed linoleum floor, strip the wax, then reapply wax. **Spills on soft surfaces, such as carpet or upholstery:** Use other checklist.
DISPOSE	**Immediately after cleaning the spill:** □ Place all used cleaning supplies (pads, wipes, towels) in yellow chemotherapy disposal bag. □ Place drug bag in black waste bin (RCRA container), if not already done. □ Remove all PPE and place in yellow chemotherapy disposal bag. □ Wash hands then face with soap and water.

Hazardous Drug Spill Checklist – Spills on Soft Surfaces
Environmental Services Use ONLY

SAFETY	**For spills on soft surfaces, such as carpet or upholstery:** □ Put on Personal Protective Equipment (PPE). Wear 2 pairs of gloves (double glove). □ Ask hospital staff if the spill has urine. If spill has urine: □ Do NOT clean spill with bleach or *Surface Safe*. □ Stop and ask for help from Environmental Health and Safety (581-6590). **If not already done:** □ Contain the spill with a *ChemoSorb* pad or gauze. □ Liquid spill: carefully place pad or gauze over the spill. □ Dry spill: carefully place moist gauze over the spill. □ Move visitors and family away. □ Post sign that says: "Caution Hazardous Drug Spill."
CLEAN SPILL	□ **Remove** □ Use scoop to pick up any broken glass. Dispose of glass in biohazard container. □ Remove *ChemoSorb* pad or gauze and put in yellow chemotherapy disposal bag. **Carpet spills:** □ **Cut carpet:** □ Cut out spill area plus 6 inches of carpet around the spill. □ Remove cut carpet and put in yellow chemotherapy disposable bag. □ **Wash –** Wash the uncarpeted floor area 2 times with water and soap solution, using towels in the spill kit. □ **Decontaminate –** Wipe area with *Surface Safe* packet #1, then wipe area with *Surface Safe* packet #2. □ **IMPORTANT:** Do NOT use bleach or *Surface Safe* on urine spills. Harmful gas may form if you mix urine with bleach or *Surface Safe*. □ **Rinse –** Rinse area with water, then blot or wipe dry with towels from spill kit. **Spills on upholstery:** □ **Wash –** Wash spill area 3 times with water and soap solution, using towels in the spill kit. □ **Dry –** Blot or wipe area dry with towels from spill kit. Then let area air dry.
DISPOSE	**Immediately after cleaning the spill:** □ Place all used cleaning supplies (pads, wipes, towels) in yellow chemotherapy disposal bag. □ Place drug bag in black waste bin (RCRA container), if not already done. □ Remove all PPE and place in yellow chemotherapy disposal bag. □ Wash hands then face with soap and water.