

Title: Spill Management of Cytotoxic Agents		Number: V-30
Effective Date: September 1, 1997 Revised August 1, 2000 April 1, 2009, 1 Aug 2009	Approved By: Provincial Systemic Program Committee	

RATIONALE

To minimize the exposure of staff, patients and visitors to the Regional Cancer Centres to hazardous drugs, spills must be managed appropriately, according to established policies and procedures

DIRECTIVE.

These procedures will be followed for any uncontained spill of a hazardous drug or body waste of a patient receiving cancer treatment.

A contained hazardous drug spill (e.g. drug solution absorbed into bed linen) should be handled as disposable or non-disposable hazardous drug waste. A contained body waste spill (e.g. urine absorbed into bed linen) should be handled using standard body substance procedures.

New nursing and pharmacy employees will be advised of this Directive and will be required to demonstrate competence in spill control. Training and competency assessment will be documented. Re-familiarization and re-certification for all nursing and pharmacy employees will be documented as deemed appropriate.

Spill size will determine who is authorized to conduct the cleanup and decontamination and how the cleanup is managed.

Spill kit stations will be located in all areas where exposures may occur. These areas should include but are not limited to hazardous drug mixing area, dispensing area, storage area, receiving area, and administration area.

SPILL KIT CONTENTS

Spill kits bought from a commercial source should be carefully reviewed to ensure they contain all items required under this directive. The contents of the kit should be, wherever possible, latex free.

Spill kits will contain NIOSH-certified respirators. All employees who work in areas where HD spills could potentially occur must participate in a respiratory protection program that includes fit-testing of respirators available in the workplace. Fit testing of all potential respirator users must be performed and recorded prior to initial use and retested at least every 2 years, when there is a change in the respirator face piece, or when a user's physical condition changes the fit of the respirator (CSA standard Z94.4-02-Selection Care and Use of Respirators). Arrangements for fit-testing should be made through the PHSA Employee Wellness and Safety contact person at your Centre. Surgical masks do not provide adequate protection from hazardous drug exposure.

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PPE

1. Disposable gown, made of material that is sufficiently impermeable to hazardous drugs, with long sleeves and tight-fitting cuffs, closed-front, covers back and fastens/ties in the back
2. Two pair of chemotherapy gloves
3. Disposable safety eye glasses or goggles
4. Shoe covers
5. Hair bonnet
6. N95 (e.g. 3M 1870[®] Respirator Mask) or better disposable respirator mask

Supplies

1. Disposable scoop and scraper
2. Sharps container
3. Incinerable, absorbent material (gauze pads, spill towels, absorbent polymer, etc) in sufficient quantity
4. Two large plastic HD waste disposal bags (4 mil* or thicker) [*Note: 4 mil = 0.004 inches = 0.1 mm]
5. Decontaminating agent (detergent and water or commercial equivalent decontamination pads)
6. Warning sign and plastic "caution" tape (to quarantine spill area)
7. Puncture and leak resistant HD waste container (e.g. CHEMO GATOR[®])

Documents

1. Laminated copy of BCCA Provincial Systemic Spill Management of Cytotoxic Agents Policy V-30
2. Laminated copy of applicable Site Directives

PROCEDURES

Personnel Contamination

In the case of any spill, if there is, or potentially is, personnel contamination, either from the spilling or the clean-up of the spill, the following procedures should be followed:

1. Immediately remove contaminated PPE or clothing and discard or label for laundry according to Site Directive.
2. Immediately cleanse the affected skin with soap and water. Use shower if appropriate.
3. In the case of eye exposure, gently flush affected eye(s) at an eyewash station or with water or isotonic eyewash designated for that purpose for 15 minutes. Hold your eye(s) open with your thumb and finger and look directly into the water stream. Do not rub your eye(s).
4. Obtain medical attention according to Site Directive.
5. The employer will document the exposure in the employee's exposure record. The employee will
6. inform their family doctor or general practitioner of the exposure.
7. [Report incident in Patient Safety Learning System.](#)

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This directive is arranged into three categories of spills:

- I. spills within a biological safety cabinet (BSC)
- II. spills outside of a BSC that may reasonably be contained and cleaned within the Centre's capacity
- III. spills outside of a BSC that are of a size or extent large enough to be beyond a Centre's capacity to contain and clean

I. Clean-up of spills within a BSC

1. Cease all compounding activity.
2. Inform supervisor that a spill has occurred.
3. If personnel contamination has occurred, follow Personnel Contamination Procedure. This procedure takes precedence over clean-up of the spill itself.
4. Restrict movement of personnel near the BSC to optimize proper airflow of the BSC and minimize the risk of air spillage, i.e. moving air out the front of the BSC and into the room.
5. If outer gloves have been contaminated by the spill, remove them immediately, within the BSC, and deposit them in the garbage container within the BSC. Remove arms from the BSC and don a new pair of outer gloves before proceeding further.
6. Obtain spill kit.
7. Don additional PPE that is required for spill cleanup (ie. respirator mask)
8. Use contents of spill kit, as appropriate, to clean the spill within the BSC. Liquids should be blotted with absorbent material (gauze pads, spill-control pads, pillows, etc.) Solids should be wiped with wetted absorbent material in such a way as to limit their spread.
9. Any broken glass fragments should be picked up using a scoop (never the hands) and placed in a sharps container. The container should then go into an HD disposal bag, along with all other contaminated waste.
10. The spill area should be decontaminated by cleaning three times using a basic (i.e. pH 8-9) detergent solution followed by water (Detergent-Water-Detergent-Water-Detergent-Water).
11. If the HEPA filter has been contaminated, the BSC should be left running and labeled as contaminated, until the filter can be changed and disposed of properly by trained personnel wearing appropriate PPE.
12. All clean-up materials should be in sealed containers prior to removal from the BSC and ultimately contained in a rigid closed container labeled as HD waste. PPE used during the clean-up should at the completion of the job be contained in the same manner. Containers should be disposed of in an appropriate manner in accordance with all applicable federal, provincial and municipal regulations.
13. Spills within a BSC necessitate decontamination of all interior BSC surfaces after completion of the spill clean-up. Allow the BSC to purge for 5 minutes prior to decontaminating. Following decontamination, aseptic conditions should be re-established by cleaning with a disinfectant (70% alcohol) then purging circulating air for thirty minutes prior to use for compounding.
14. Following spill clean-up, wash hands with soap and water.
15. Report incident in Patient Safety Learning System.
16. Document incident in exposure records of employees involved in the spill and/or cleanup.
17. Replace all used items at Spill Kit station immediately following the clean-up.

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- II. Clean-up of spills outside of a BSC that may reasonably be contained and cleaned within the Centre's capacity
1. Isolate the area and alert all individuals in the area of the spill so as to prevent spread of the spill.
 2. Reasonably restrict the number of personnel involved in the clean-up. Never work alone.
 3. Inform supervisor that a spill has occurred.
 4. If personnel contamination has occurred, or potentially has occurred, follow Personnel Contamination Procedure. This procedure takes precedent over clean-up of the spill itself.
 5. Obtain spill kit
 6. Don PPE, as appropriate to the spill
 7. Limit spread of the spill through use of absorbent sheets or spill control pads. If a powder is involved, damp cloths or towels should be used
 8. Avoid aerosol generation and dispersal of powder or liquid spilled
 9. Use contents of spill kit, as appropriate, to clean the spill. Liquids should be blotted with absorbent material (gauze pads, spill-control pads, pillows, etc.); solids should be wiped with wetted absorbent material in such a way as to limit their spread.
 10. Any broken glass fragments should be picked up using a scoop (never the hands) and placed in a sharps container. The container should then go into an HD disposal bag, along with all other contaminated waste
 11. The spill area should be decontaminated by cleaning three times using a basic (i.e. pH 8-9) detergent solution followed by water (Detergent-Water-Detergent-Water). This process should be done by Pharmacy, Nursing or Housekeeping staff as has been delineated in site-specific Housekeeping contracts – refer to Site Directive.
 12. All clean-up materials should be placed in sealed containers and ultimately contained in a rigid closed container labeled as HD waste. PPE used during the clean-up should at the completion of the job be disposed of in the same manner. Dispose of all spill cleanup materials in an HD waste container in accordance with all applicable federal, provincial and municipal regulations.
 13. Linen should be disposed of normally and any soiled patient clothing should be placed in a plastic bag to be taken home by the patient to be laundered (not dry cleaned)
 14. Following spill clean-up, wash hands with soap and water.
 15. Report incident in Patient Safety Learning System.
 16. Document incident in exposure records of employees involved in the spill and/or cleanup.
 17. Replace all used items at Spill Kit station immediately following the clean-up

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III. Clean-up of spills outside of a BSC that are of a size or extent large enough to be beyond a Centre's capacity to contain and clean

1. Alert all individuals in the area of the spill so as to prevent spread of the spill and then isolate the area to prevent personnel exposure to the HD
2. Avoid aerosol generation and dispersal of powder or liquid spilled
3. Inform supervisor that a spill has occurred.
4. If personnel contamination has occurred, or potentially has occurred, follow Personnel Contamination Procedure
5. Upon confirming the size of the spill, the supervisor will call for the external Hazardous Material (HazMat) Response Team according to the Site Directive e.g. Code Brown.
6. Remain available to the HazMat team to provide details as to the HD spilled, the quantity spilled and the circumstances and extent of contamination.
7. Report incident in Patient Safety Learning System
8. Document incident in exposure records of employees involved in the spill and/or cleanup.
9. Replace any used items at Spill Kit station immediately following the clean-up

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GLOSSARY

body waste

- any waste excreted by or originating from any patient's body (e.g. blood, feces, urine).

body waste, contained

- any body waste which is confined within a holding vessel, absorbed into material or restricted in such a manner that it cannot expand or be dispersed.

body waste, uncontained

- any body waste which is not restricted or confined in any way but exists in such a manner that it could spread or be dispersed.

chemotherapy gloves

-gloves must meet the ASTM standard D 3578 or an equivalent standard (as required by the USA FDA). Usually they are 0.1 mm or more in thickness (more than the 0.08 mm minimum allowed for examination gloves)

decontamination

-the removal or inactivation of hazardous drug from a surface, through chemical inactivation, or removal from a non-disposable surface to a disposable surface (e.g. gauze) by use of a cleaning agent.

genotoxic

- possessing ability to damage DNA, thereby causing mutations or cancer.

hazardous drug (HD)

Drugs that exhibit one or more of the following characteristics in humans and/or animals: carcinogenicity, teratogenicity or other developmental toxicity, reproductive toxicity, organ toxicity at low doses, genotoxicity and structure and toxicity profiles of new drugs that mimic existing drugs determined hazardous by the five previous criteria. In addition, if there is no information found and the drug is primarily used as an antineoplastic agent, it will be deemed as hazardous.

HEPA filter

- High Efficiency Particulate Air filters found in most Biological Safety Cabinets that trap approximately 99.9% of particulate matter 0.3 micron size or greater to provide ultra clean air.

personnel contamination

-contamination of personal protective equipment (PPE) or clothing, or direct skin or eye contact

PPE

-Personal Protective Equipment – Items such as gloves, gowns, respirators, goggles, face shields, and others that protect individual workers from hazardous physical or chemical exposures.

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respirator

-a type of PPE that prevents harmful materials from entering the respiratory system, usually by filtering hazardous agents from workplace air, and meeting NIOSH and OSHA standards for use with hazardous drugs.

spill

-any unintentional, uncontained dispersal of a compound

spill kit station

-designated location where supplies and personal protective equipment (PPE) are stored in preparation for cleaning up a spill. Each station should be clearly identified with a label that includes the words "Hazardous Drug Spill Kit". If kits are stored within a cupboard, the outermost door of the cupboard must be labeled.

teratogenic

- possessing ability to cause birth defects in a developing fetus.

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British Columbia Cancer Agency

POLICY

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