SAFE HANDLING OF HAZARDOUS MEDICATIONS

Cytotoxic and Non-Cytotoxic

Winnipeg Regional Health Authority
Policy # 110.160.010
By the end of this presentation staff should be able to

1. Understand what information is in the new Safe Handling of Hazardous Medications Policy.

2. Define what a Hazardous Medication is and what some of the risks of occupational exposure are.
By the end of this presentation staff should be able to

3. Use the definitions and the charts in the policy to determine:
   - the classification of the Hazardous Medication
   - the dosage form of the Hazardous Medication
   - how that impacts the handling precautions required to minimize occupational exposure.

4. Identify the steps to be taken when exposed to Hazardous Medication or when a Cytotoxic Spill occurs.
Safe Handling of Hazardous Medications Policy

- To provide direction and describe safety measures for the receipt, storage, preparation, transport, administration, spill clean up and waste management of Hazardous Medications.
Who Does This Safe Handling Policy Apply To?

- **ALL** employees providing direct care to patients receiving Hazardous Medications (nursing assistants, nurses, physicians, physiotherapy, etc.).

- **ALL** employees handling or transporting medication, waste or soiled equipment (e.g. housekeeping, laundry, transport, pharmacy, shipping and receiving, etc.).
Safe Handling of Hazardous Medications Policy Will Assist Staff To

1. Define cytotoxic and non-cytotoxic hazardous medications.

2. Recognize & prevent potential risks and conditions for exposure to potentially hazardous medications.

3. Determine appropriate precautions for safe handling of potentially cytotoxic and non-cytotoxic hazardous medications and associated waste.

4. Classify and manage a cytotoxic spill.
Safe Handling of Hazardous Medications Policy

- A copy of the complete *Safe Handling of Hazardous Medications Policy* can be found on the Medication Quality and Safety Committee page on WRHA INSITE page.

http://home.wrha.mb.ca/prog/medquality/policies.php
What Are Hazardous Medications?

- Medications that are known or suspected to cause adverse health effects from exposures in the workplace.

- They include:
  - antineoplastic and chemotherapy medications used for cancer and other diseases
  - medications to treat auto immune diseases like arthritis
  - antiviral medications, hormones, some bioengineered medication & other miscellaneous medications.
What Are the **Potential** Risks to Health Care Workers?

Working with or near hazardous medications in health care settings can **potentially** cause:

- Skin rashes
- Infertility
- Miscarriage
- Birth defects
- Organ toxicities
- Leukemia or other cancers
How Do Staff Come in Contact With Hazardous Medications?

<table>
<thead>
<tr>
<th>Direct contact</th>
<th>Indirect Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary physical contact with a hazardous medication during preparation or administration or when managing a hazardous medication spill.</td>
<td>Secondary contact with a hazardous medication from body fluids, bed linens, medical equipment, etc.</td>
</tr>
</tbody>
</table>
Direct or Indirect?

1. Touching measurable concentrations of medications present on drug vial exteriors, work surfaces, floors, and final medication products?

2. Changing the diaper of a baby receiving cytotoxic medication for leukemia?
What Can You Do to Protect Yourself?
C.H.O.I.C.E

C.H.O.I.C.E is an easy to remember acronym to help staff remember the necessary steps needed to minimize exposure to hazardous medications.
C.H.O.I.C.E

C  Is the medication Cytotoxic?
H  Is the medication non-cytotoxic Hazardous?
O  Is it a solid Oral intact dosage form?
I  Is it an Injectable or Instillation dosage form?
C  Is it a Compromised dosage form?
E  What Effect will this information have?
“C”

• Is the medication that I’m handling cytotoxic?
“H”

• Is the medication non-cytotoxic Hazardous?

WEAR GLOVES

WEAR GLOVES
DO NOT CRUSH
Cytotoxic & Non-cytotoxic Hazardous

**Cytotoxic**
- Medications that are potentially detrimental or destructive to cells within the body.
- Deemed to pose maximal risk in the event of occupational exposure.

**Non-Cytotoxic**
- Medications (other than cytotoxic hazardous medications) which are deemed to pose a potential risk in the event of occupational exposure and require special handling precautions.
## Cytotoxic & Non-cytotoxic Hazardous Medications

<table>
<thead>
<tr>
<th>CYTOTOXIC HAZARDOUS MEDICATIONS</th>
<th>NON-CYTOTOXIC HAZARDOUS MEDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altretamine</td>
<td>Iloprost</td>
</tr>
<tr>
<td>Amsacrine</td>
<td>Imatinib ³</td>
</tr>
<tr>
<td>Arsenic</td>
<td>Interferons</td>
</tr>
<tr>
<td>Asparaginase</td>
<td>ISOtretinoin</td>
</tr>
<tr>
<td>azaCITIDine</td>
<td>Leflunomide ³</td>
</tr>
<tr>
<td>azaTHIOPrine ³</td>
<td>Letrozole ³</td>
</tr>
<tr>
<td>Bleomycin</td>
<td>Leuprolide</td>
</tr>
<tr>
<td>Bortezomib</td>
<td>Megestrol ³</td>
</tr>
<tr>
<td>Busulfan ³</td>
<td>Methacholine</td>
</tr>
<tr>
<td>Capecitabine ³</td>
<td>MethylTESTOSTERone</td>
</tr>
<tr>
<td>CARBOplatin</td>
<td>Mifepristone</td>
</tr>
<tr>
<td>Carmustine</td>
<td>Misoprostol</td>
</tr>
<tr>
<td>Chlorambucil</td>
<td>Mitotane</td>
</tr>
<tr>
<td>CISplatin</td>
<td>Mycophenolate mofetil</td>
</tr>
<tr>
<td>Cladribine</td>
<td>Nafarelin</td>
</tr>
<tr>
<td>Clofarabine</td>
<td>Nilutamide ³</td>
</tr>
<tr>
<td>Cyclophosphamide</td>
<td>Oxandrolone ³</td>
</tr>
<tr>
<td>Cytarabine</td>
<td>Pentamidine (Aerosol only)</td>
</tr>
<tr>
<td>Dacarbazine</td>
<td>Podofilox</td>
</tr>
<tr>
<td>IDArubicin</td>
<td>Acitretin</td>
</tr>
<tr>
<td>Ifosfamide</td>
<td>Aldesleukin</td>
</tr>
<tr>
<td>Irinotecan</td>
<td>Altretinoin</td>
</tr>
<tr>
<td>Lenalidomide</td>
<td>Anastrazole ³</td>
</tr>
<tr>
<td>Lomustine</td>
<td>Ambrisentan</td>
</tr>
<tr>
<td>Mechlorethamine</td>
<td>Bacillus Calmette Guerin²</td>
</tr>
<tr>
<td>Melphalan</td>
<td>(\text{bladder instillation only})</td>
</tr>
<tr>
<td>Mercaptopurine</td>
<td>Bexarotene</td>
</tr>
<tr>
<td>Methotrexate</td>
<td>Bicalutamide ³</td>
</tr>
<tr>
<td>MitoMYcin</td>
<td>Bosentan</td>
</tr>
<tr>
<td>MitoXANtrone</td>
<td>Buserelin</td>
</tr>
<tr>
<td>Nelerabine</td>
<td>Cetrorelix</td>
</tr>
<tr>
<td>Oxaliplatin</td>
<td>Choriogonadotropin alfa</td>
</tr>
<tr>
<td>PACLtaxel</td>
<td>Cidofovir</td>
</tr>
<tr>
<td>Pegasparaginase</td>
<td>ClomiPHENE</td>
</tr>
<tr>
<td>PEMEtrexed</td>
<td>Colchicine ³</td>
</tr>
<tr>
<td>Pentostatin</td>
<td>cycloSPORINE</td>
</tr>
<tr>
<td>Procabazine ³</td>
<td>Cyproterone</td>
</tr>
<tr>
<td>Raltitrexed</td>
<td>Dienestrol</td>
</tr>
</tbody>
</table>
Cytotoxic & Non-cytotoxic Hazardous Medications

- A copy of the complete *Cytotoxic and Non-cytotoxic Hazardous Medications Chart* can be found in the policy and as a separate copy on the Medication Quality and Safety Committee page on WRHA INSITE page.

http://home.wrha.mb.ca/prog/medquality/policies.php
Cytotoxic & Non-cytotoxic Hazardous

- azaTHIOprine
- cycloSPORINE
- Misoprostol
- Ganciclovir
- Melphalan
- Finasteride
- VinCRIStine
- Colchicine
“O”

• Is it a solid Oral intact dosage form?

Intact (Unopened) Capsules

Whole Tablets
If a solid oral intact dosage form is not appropriate for administration to your patient (can not swallow tablet, medication is administered through a feeding tube, etc.) – DO NOT CRUSH TABLET or OPEN CAPSULE

Contact pharmacy for assistance.
Is it an Injectable dosage form or a dosage form that will be Instilled into a body cavity?

IV, IM, subcut, IT, bladder instillation etc.
"C"

• Is it a Compromised dosage form?
Pharmacy will purchase or prepare a liquid dosage form if required for your patient.

If this is not available, they may suggest the *Dissolve-and-Dose* or *Crush-Dissolve-and-Dose* method of medication administration.

Contact pharmacy for full instructions on using this method and to ensure that the medication can be administered in this manner.
Have you seen?

If you receive a liquid hazardous* (cytotoxic or non-cytotoxic) oral medication from Pharmacy, it is usually prepared as unit doses in blue and white oral syringes marked as oral–use only. This is so the medication does not require further manipulation.

For non-cytotoxic medications, follow the instructions to WEAR GLOVES.

Cytotoxic medications will be labelled as:

For all cytotoxic medications, don “chemotherapy gloves”.

If your patient can take medications orally, administer the medication directly from the syringe. Do not transfer the medication into a cup or any other container. Patients who touch the syringe or medication should wash their hands afterwards.

If your patient has an enteral access device, do not transfer the medication into a different syringe. Add an adaptor to the oral syringe. Depending on the enteral device, you may need only the:

1. “Enteral Adaptor nasal gastric tube” (red) (Available from pharmacy)

   or

2. The red enteral adaptor and an additional “Catheter adaptor”

Dispose of the syringe and all adaptors after one use into the appropriate container. For cytotoxic medication, use a red Cytotoxic Waste Container *.

*See revised WRHA policy: The Safe Handling of Hazardous Medications (Cytotoxic and Non-Cytotoxic) Policy # 110.160.010)

Developed by HSC Central Support Services, Pharmacy and Oncology Nursing Consult Service
August 22 2012
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What Effect will this information have?
# Safe Handling of Medications Chart

## Cytotoxic Hazardous Medications

<table>
<thead>
<tr>
<th>Precautions</th>
<th>Injectable</th>
<th>Solid Oral Dosage Form</th>
<th>Compromised Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration &amp; Disposal</td>
<td>REFER TO SITE-SPECIFIC POLICIES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration restrictions</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
<td>Chemo Gloves</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
</tr>
<tr>
<td>Administration precautions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication waste management</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
<td>Chemo Gloves</td>
<td>Chemo Gloves</td>
</tr>
<tr>
<td>Human waste management</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
<td>Chemo Gloves required Procedure Mask/Chemo Gown recommended</td>
</tr>
<tr>
<td>Spill Management</td>
<td>REFER TO SPILL MANAGEMENT ALGORITHM (Appendix B)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Shoe covers & protective eye wear should be worn whenever there is potential for splashing.*
Safe Handling of Medications Chart

- A copy of the complete *Safe Handling of Medications Chart* can be found in the policy and as a separate copy on the Medication Quality and Safety Committee page on WRHA INSITE page.

http://home.wrha.mb.ca/prog/medquality/policies.php
Summary of Key Points When Handling Hazardous Medications

• Hazardous medications can potentially cause harm to workers.
• Hazardous medications can be classified as cytotoxic and non-cytotoxic.
• C.H.O.I.C.E is an acronym to be used with the safe handling of medications chart to determine proper handling procedures.
Other Points About Safe Handling of Hazardous Medications

• Be familiar with the policy.
• Change gloves every 30 minutes.
• Report any exposure (direct and indirect contact / skin puncture) with hazardous medication to immediate supervisor.
• Discuss concerns about pregnancy, breast-feeding or attempt to reproduce with your supervisor - may lead to temporary reassignment.
When Does This Safe Handling Policy Apply?

- Greatest risk activities: preparation and administration of medication.
- Lesser risk activities: handling human waste of patients known to have received a hazardous medication in the last 48 hours.
- Staff should ensure they are wearing appropriate personal protective equipment (PPE) for each of these levels of exposure.
Preparation of **Non-Cytotoxic Hazardous Medication**

- Prepared by pharmacy or by nurse.
  - Site specific guidelines apply – contact your pharmacy for more information.
- Dispensed medications are labelled and packaged to reflect hazardous nature of medications.

**WEAR GLOVES**

**DO NOT CRUSH**
Administration of Non-cytotoxic Hazardous Medication

• ALL routes of administration pose risk of exposure and all doses – regardless of disease treated – are potentially hazardous.

• Don PPE (wear exam gloves)

• Tablets or capsules shall not be split, or crushed in a patient care area prior to administration.

• Contact Pharmacy for assistance.
Administration of **Non-cytotoxic** Hazardous Medication

- Ensure central or peripheral line is patent and blood return present / adequate when administering IV Non-cytotoxic Hazardous Medication.
- Post-infusion – flush with plain IV solution to ensure it’s clear of Non-cytotoxic Hazardous Medication before disconnecting.
Preparation of Cytotoxic Hazardous Medication

- Prepared by pharmacy.
- Cytotoxic Hazardous Medications (all dosage forms) labelled with Cytotoxic Symbol.
- Packaged in sealable plastic bag (e.g. Ziploc®).
  - Parenteral doses are double bagged.
Preparation of **Cytotoxic Hazardous Medication**

- Syringes – dead end luer-lock syringe cap.
- Parenteral infusion bags:
  - tubing sets attached and primed by pharmacy with solution not containing the Cytotoxic Hazardous Medication (except pediatric preparations).
  - sets sealed with a dead end luer-lock cap.
Items That May Be Required When Administering Cytotoxic Hazardous Medication

- Cytotoxic Spill Kit (different than the regular spill kit)
- Chemotherapy gown
- Procedure mask
- Red cytotoxic waste container
- Chemo gloves
- Plastic backed absorbent pads
- Cytotoxic sign
Administration of Cytotoxic Hazardous Medication

• ALL routes of administration pose risk of exposure and all doses – regardless of disease treated – are potentially hazardous.

• Cytotoxic Signs/Symbols posted during administration (if applicable) & for 48 hours after the last dose administered.
PPE for Administration Cytotoxic Hazardous Medication

- Required for all routes of administration
  - Chemo Gloves – 12 inch cuffs
- Recommended for administration of injectable/instillation & compromised doses
  - Chemo Gown – lint free, low permeability fabric
  - Procedure mask
Administration of Injectable Cytotoxic Hazardous Medication

1. All manipulation (once removed from plastic sealable bag) to take place on plastic backed absorbent pad (absorb side up).

2. Ensure central or peripheral line is patent and blood return present / adequate when administering IV Cytotoxic Hazardous Medication.
3. Post-infusion – flush with plain IV solution to ensure it’s clear of Cytotoxic Hazardous Medication before disconnecting.

4. When disconnecting from med port – 2x2” gauze/alcohol pad used to absorb any droplets – dispose in Cytotoxic Waste container.
Administration of Injectable Cytotoxic Hazardous Medication


6. If essential – Cytotoxic Spill Kit and staff trained in Cytotoxic Spill management to accompany pt.

7. Inter-facility transport of pt – minimized. If essential – RN trained in Cytotoxic Spill mgmt shall accompany pt & remain at all times.
Administration of Injectable Cytotoxic Hazardous Medication

8. Cytotoxic Hazardous Med discontinued / temporarily stopped partway thru’ admin:
   - Clamp tubing and / or apply a dead end luer-lock cap.
   - Storage – discuss with pharmacy if necessary.

9. Place all Bulk Cytotoxic Waste for pharmacy disposal in double sealable plastic bags labelled with a Cytotoxic Symbol – Hand Deliver
Administration of Solid Oral Cytotoxic Hazardous Medication

• **Don PPE** (wear chemo gloves)

• Tablets or capsules shall not be split or crushed in a patient care area prior to administration.
  - Contact Pharmacy for assistance.
Administration of Compromised Cytotoxic Hazardous Medication

- **Don PPE** (chemo gloves required, chemo gown and procedure mask recommended)

- Discuss any administration issues with Pharmacy.
Disposal of **Cytotoxic Medication Waste**

- **Don** PPE (chemo gloves required)
- All items used while handling cytotoxic hazardous medications (parenteral, oral, inhalation, etc.) are considered Medication and/or Human Cytotoxic Waste – shall be discarded in Cytotoxic Waste Container.
  - Cytotoxic Waste Container to be disposed when \( \frac{3}{4} \) full.
  - Cytotoxic Waste Container sealed and labelled with Cytotoxic Symbols prior to collection.
Disposal of **Cytotoxic Human Waste**

- **Don PPE** (chemo gloves require, chemo gown and procedure mask recommended)
- Safe Handling of Human Cytotoxic Waste followed x 48 hrs after last dose – regardless of route of administration.
- Contaminated laundry items – kept separate from other items in waterproof laundry bag and sent to laundry service.
Disposal of Cytotoxic Human Waste

- Personal items / clothing – sent home for cleaning (launder separate from other clothes).
- Laundry bags (plastic) with contaminated clothes – sealed and sent to laundry services.
- Non-disposable items/equipment washed with detergent solution and rinsed with copious amounts of water – while wearing chemo gloves.
Disposal of Cytotoxic Human Waste

• Cover toilets before flushing.

• For toilets with no lids – cover bowl with disposable plastic-backed pad prior to flushing.
  - Disposable pad disposed in Cytotoxic Waste Container.
Exposure to Hazardous Medication

Immediately after all Exposure to Hazardous Medications or Waste.

- **Eyes** - Flush affected eye(s) with copious amounts of clean water or normal saline for a minimum of 15 minutes.

- **Skin** - Remove contaminated clothing immediately. Wash affected area with soap and running water for a minimum of 15 minutes.
Exposure to Hazardous Medication

- **Skin Puncture** - Wash puncture site thoroughly with soap and running water for a minimum of 15 minutes. Squeeze puncture site to encourage bleeding.

Report any Exposure to your immediate supervisor. Appropriate site-specific reporting documentation shall be completed e.g. Patient Safety Event Report (occurrence report), work related injury near miss forms.
Cytotoxic Spills

**Contained/Less Than 25 mL**
- Cytotoxic Hazardous Medication or Human Cytotoxic Waste in an unintended location that is confined in such a manner that it cannot be spread or dispersed

**Uncontained**
- Cytotoxic Hazardous Medication or Human Cytotoxic Waste in an unintended location not confined within a container or on absorbent material; which exists in such manner that it can be spread or dispersed
Cytotoxic Spill Management

• A copy of the *Spill Management Algorithm* can be found in the policy and as a separate copy on the Medication Quality and Safety Committee page on WRHA INSITE page.

http://home.wrha.mb.ca/prog/medquality/policies.php
Spill Management Algorithm - Appendix B

Isolate area and place Cytotoxic Symbols/Signs.

Determine size of Cytotoxic Spill and ability to contain.

Small/Easily Contained Cytotoxic Spill less than 25mL

Gather Equipment:
- Chemo Gown
- 1 pair Chemo Gloves
- 1 pair Exam Gloves
- Procedure Mask
- Plastic-backed absorbent pads (e.g. blue pads)
- Paper towels
- Detergent cleaning solution
- Cytotoxic Waste Container

Procedure:
- Don PPE including double gloves - inner pair shall be worn under the gown cuff; outer pair shall be Chemo Gloves and worn over gown cuffs.
- Cover substance with absorbent pad(s), plastic side up, until completely absorbed. Take care not to splash.
- Wash surface with detergent solution and rinse with clean water using paper towels. Repeat this process a total of 3 times.
- Dispose of all materials and PPE in the Cytotoxic Waste Container.
- Wash any non-disposable items with detergent solution and rinse with clean water. Repeat this process a total of 3 times.
- Wash hands thoroughly with soap and water.
- Contact housekeeping for terminal cleaning.
- Complete Patient Safety Event Report (occurrence report) as needed.

Large Contained/Uncontained Cytotoxic Spill more than 25mL; powdered Cytotoxic Hazardous Medication; Cytotoxic Spills involving glass

Gather Equipment:
- Cytotoxic Spill Kit
- Detergent cleaning solution
- Cytotoxic Waste Container

Procedure:
- Open Cytotoxic Spill Kit and place signage to protect area.
- Don PPE from kit, including face/eye shields and double gloves - inner pair shall be worn under the gown cuff; outer pair shall be Chemo Gloves and worn over gown cuffs.
- Prevent spill from spreading by gently covering with absorbent pads, plastic side up, being careful not to create aerosolization.
- If required, wait for aerosols to settle.
- Pick up solids (powder) with moistened absorbent material (e.g. paper towel) and place in Cytotoxic Waste Container.
- Pick up any sharp or broken objects using scoop (do not use hands) and place in Cytotoxic Waste Container.
- Wash surface with detergent solution and rinse with clean water using paper towels. Repeat this process a total of 3 times.
- Dispose of all materials and PPE in the Cytotoxic Waste Container.
- Use remaining plastic-backed mats to dry area and discard into Cytotoxic Waste Container.
- Wash any non-disposable items with detergent solution and rinse with clean water. Repeat this process a total of 3 times.
- Contaminated personally owned items shall be placed separately from other items in a waterproof laundry bag to be sent home for cleaning. (Do not dry clean).
- Contaminated linen shall be placed in a waterproof laundry bag that can be closed securely and sent to laundry services.
- Following spill clean up, hands and any other exposed skin of people involved should be washed thoroughly with soap and water.
- Contact housekeeping for terminal cleaning.
- Complete Patient Safety Event Report (occurrence report) as needed.

Cytotoxic Spills more than 5 kg/5 L OR smaller amounts that cannot be safely managed with available resources

Initiate Code Brown as per site policy