Cytotoxic Drugs Policy



1. Cytotoxic Drugs

- The most common forms of cytotoxic drugs are known as antineoplastic. The terms “antineoplastic” and cytotoxic are used interchangeably.
- cytotoxic drugs are primarily used to treat cancer. Cytotoxic drugs can prevent the rapid growth and division of cancer cells. They can also affect the growth of other quick dividing cells in the body.

2. Danger / Risks

- The harmful toxicity of cytotoxic drugs are plentiful:

- detectable levels of cytotoxic drugs in the air of hospital areas where the drugs are prepared without adequate biological safety cabinets.
- health care workers preparing the drugs without adequate precautions have tested positive for cytotoxic drugs in their urine.
- exposure to cytotoxic drugs have been reported to cause increased frequency of chromosome damage in exposed workers.
- exposure can cause acute skin, eye, and mucous membrane irritations including nausea, headaches and dizziness.
- negative health effects for developing fetuses, including higher incidences of spontaneous abortions, congenital malformation, low birth weight and infertility.

- employees who are pregnant, breastfeeding or intend to conceive a child must be part of a protective reassignment in the workplace.

3. Exposure to Cytotoxic Drugs

- any one who works with patients receiving cytotoxic drugs is at risk of exposure including those employees who prepare, administer, or transport drugs, handle patient waste, transport and dispose of waste or clean spills.

4. POLICY

- Comprehensive plan and procedure to train, educate and protect anyone who prepares, administers, transport drugs, handles patient waste, transports and disposes of waste or cleans spills; and
- Ensure the safety of any person who cares for patients who have received cytotoxic drugs.

5. PURPOSE

- to ensure all employees know and appreciate the dangers of exposure of cytotoxic drugs;
- to ensure that all employees report their cytotoxic drug exposure; and
- to ensure that all employees know appropriate first aid action to cytotoxic drug exposure.

6. SCOPE

- This Policy and Procedures is applicable to all employees who have any connection or contact with the use, dissemination, disposal or care of any amount of cytotoxic drug.

7. RESPONSIBILITIES

- **Management / Health and Safety Committee]** is

responsible:

- to develop pre-employment workers training procedures for the proper handling, mixing, and disposal of cytotoxic drugs and waste by-products.
- to ensure proper signages informing all employees of the presence of cytotoxic drugs and their hazards must be developed and displayed in a highly visible location.
- to ensure that all staff are informed as to when and where cytotoxic drugs are being used so appropriate measures can be taken.
- to implement appropriate controls for the housekeeping and custodial staff regarding the potential hazards involved in handling laundry or other materials that may be contaminated with biological fluids contaminated with cytotoxic drugs.
- to ensure that cytotoxic drugs are only prepared by personnel with the proper training in a centralized location. The hierarchy of hazard control should be put into effect to control the hazard as much as possible.
- to train all staff who may handle cytotoxic drugs or waste products created by their use including physicians, nurses, assistants, pharmacists, stores and receiving personnel, housekeeping and maintenance personnel.
- to maintain a record of information on toxicity, exposure treatment procedures, solubility, and general descriptions of the appearance of all cytotoxic drugs that are used in the facility. This record should be easily accessible and available to staff who may come into contact with cytotoxic drugs.

8. Employees / Workers Responsibilities

Employees who handle any cytotoxic drugs should wear the following clothing and apparel:

- Protective gloves made of vinyl or nitrile rubber. Gloves should be changed frequently, or immediately if

punctured, cut, or torn. It is recommended that workers wear two pairs at a time for additional protection;
- A moisture resistant, long sleeved gown with elastic cuffs;
- Chemical splash goggles, and if necessary, full-face protection;
- In cases where there is a possibility of the medication becoming airborne, a powered air purifying respirator is recommended; and
- Protective clothing should not be worn outside of the preparation area in order to prevent the spread of medication.

9. DEFINITIONS

None.

10. REFERENCES and RELATED STATEMENTS of POLICY and PROCEDURE

1. Preventing Occupational Exposures to Antineoplastic Drugs in Health Care Settings, Thomas H. Connor and Melissa A. MacDiarmid, CA Cancer Journal for Clinicians 2006;56;354-365.
2. NIOSH Alert, Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings. DHHS (NIOSH) Publication 165.
3. Cytotoxic Drugs and Related Waste Guide (2008) Prepared by the cytotoxic drugs working party for Workcover, New South Wales Government, Australia.
4. NIOSH Occupational Exposure to Antineoplastic Agents. United States National Institute for Occupational Safety and Health.
5. Cytotoxic Drugs, (Nov 1999) Occupational Health and Safety Division, Government of Saskatchewan.
6. Guidelines for the Safe Handling of Cytotoxic Drugs and Related Waste, Occupational Safety and Health Service, Department of Labour, Wellington, New Zealand, 1997.
7. White, S.K.; Stephens, A.D.; Dowjat, B.; Sugar

baker, P.H. (1996) Safety considerations in the use of intraoperative intraperitoneal chemotherapy. Cancer treatment and research; 82:311-6.
8. Recommendations for the Safe Use of Handling of Cytotoxic Drugs, Office of Research Services, U.S. Dept of Health and Human.
9. Province of British Columbia, Work safe BC, OHS Regulation.
10. Province of Saskatchewan, The Occupational Health and Safety Regulations, 1996.

11. PROCEDURE

- Engineering Controls

The following engineering controls should be put in place where cytotoxic medications are being used:

1. A minimum of a Class II biological safety cabinet with HEPA filter exhaust systems that does not allow air to be circulated back into the room should be used while manipulating cytotoxic drugs.
2. The preparation area within the cabinet should be covered with a plastic backed, absorbent material to reduce dispersion and facilitate the clean-up of any spilled medication.
3. Medications should be isolated and locked out in such a manner that only those properly trained have access to the storage location.
4. CSA approved, puncture proof containers for the disposal of needles, syringes and vials must be provided. Labelled, sealable refuse bags for the puncture proof containers should also be available in the preparation area. Contaminated needles, syringes, and vials should be disposed of intact.
5. Negative pressure rooms that prevent any spilled medication from leaving the room are also recommended.

- **Other Controls**

        - Special controls are required for the housekeeping and custodial staff regarding the potential hazards involved in handling laundry or other materials that may be contaminated with biological fluids contaminated with cytotoxic drugs.
        - Management and the health and safety committee should develop specific pre-employment worker training procedures for the proper handling, mixing, and disposal of cytotoxic drugs and waste by-products. These training procedures must:
    - Be written, posted, and available to all employees.
    - Explain how training is developed, delivered, and evaluated.
    - Describe the roles of supervisors to ensure proper regulations are followed.

A complete training program should cover the following topics:

- Hazards of cytotoxic drugs.
- Methods of preparation.
- Use and disposal procedures.
- Patient care.
- Proper use of protective equipment.
- Spill procedures.
- Maintenance of the facilities and equipment.
- **Safety while caring for patients**
    - Personal care workers who could be exposed to biological fluid from a patient who has received cytotoxic drugs within the previous 48 hours, and workers handling potentially contaminated linen should wear protective gloves and disposable gowns that are discarded after use. It is up to management to ensure that all staff are informed as to when and where cytotoxic drugs are being used so appropriate measures can be taken.
- **Spills**
    1. **Spill Kit**

- A clearly labelled cytotoxic spill kit should be kept wherever cytotoxic medications are being prepared, stored, administered or received (shipping). The kit should contain:

- Fit tested NIOSH certified respirators for any one that would be working in these areas
- At least two sets of surgical gloves
- Disposable eye protection
- Shoe covers
- Scoop and scraper
- Sharps container
- Two large plastic disposal bags (minimum of 4mm thick)
- Warning signs
- Decontamination agent (i.e. a basic detergent of pH 8-9 and water)
- Puncture and leak resistant waste container
- Two sheets of absorbent material at least 30cm square
    - A spill needs to be cleaned by members of the staff that have received the appropriate training and have the appropriate protective equipment; others should vacate the area as soon as it is safe to do so until the spill is cleaned. All spills should be immediately marked with a warning sign to prevent exposure to others. Glass should never be handled by hand; always use a scoop. The cleanup should be done by as few people as feasible, but there should be at least two people involved.

2. **Small spill cleanup**

    - Small spills (less than 5ml or 5mg) that occur outside of a biological safety cabinet should be cleaned immediately by personnel wearing gowns, doubled protective gloves and eye protection.
    - Small amounts of liquid should be wiped with absorbent pads, while solids should be wiped with a wet absorbent gauze. Spill areas should be

cleaned at least three times with the detergent (described above). Broken glass should be placed in a small container and placed in the disposal bags. All contaminated materials should also be placed in the garbage bags.

- Unbroken glassware or reusable items that have been contaminated should be placed in a plastic bag and washed, following the procedures for cleaning reusable items that have been developed for the workplace.

3. **Large spill cleanup**

- For spills that are larger than 5ml or 5mg, the cleaner's initial concern (after personal protection) should be limiting the spread of cytotoxic drugs through the work environment. Cover the spill with an absorbent sheet or spill control pads. If the drug is in powder form, a wet or damp cloth should be used. For large spills, protective clothing should be worn with the addition of the respirator to protect against any airborne powder or aerosols. The use of chemical inactivates is not recommended as they may create a hazardous by-product. As with small spills, all contaminated areas should be cleaned a minimum of three times, and all contaminated products and equipment should be disposed of or cleaned in an appropriate manner.

4. **Spills in a biological safety cabinet**

- After the procedures described above are followed, the interior of the hood may also require cleaning. If the HEPA filter has been contaminated, the unit must be labelled "Contaminated, DO NOT USE". The filter must then be changed and disposed of as soon as possible by trained personnel who are wearing the appropriate protective clothing. Protective goggles (if not disposed of) should be thoroughly cleaned with an

alcohol wipe after cleanup.

12. Waste Disposal

- Plastic bags that are at least 2mm thick (if polypropylene) or 4mm thick (if polyethylene) should be used to collect potentially contaminated materials. Bags should be color-coded and labelled with a cytotoxic warning label. All sharps should be placed in puncture proof containers before bagging. All workplaces should have a policy for segregating waste materials resulting from cytotoxic drug preparation and administration. These plans must meet or exceed the provincial regulations for hazardous waste disposal.
- Housekeeping staff should wear protective gloves while handling waste containers. Cytotoxic waste must be handled differently than regular garbage and must be disposed according to provincial regulations. In cases where the waste is to be incinerated, it should be noted that completely sealed (airtight) containers that could build pressure and explode must be avoided. Temperatures of 1,000°C to 1,600°C should be used to render the cytotoxic drugs harmless.

13. Storing and Transport

- Areas where cytotoxic drugs are stored should be separated from regular storage, and clearly marked. Engineering controls (locks, limited access key card systems) should be in place to prevent unauthorized personnel from entering the storage area. An inventory of the cytotoxic drugs that is frequently reviewed should be kept in the room, along with instructions for cleaning spills. Where possible, other drugs should not be stored with cytotoxic drugs. Clear warning labels should

be used to identify the cytotoxic drugs and point out their hazards. Shelves should also be fitted with a lip or back slope that prevents the drugs from falling to the floor.

14. Damaged / Broken Material

- When a damaged container is found, it should only be handled by trained personnel with personal protective equipment described previously. Broken containers and contaminated packing material should all be placed in the appropriate puncture proof container and disposed of as cytotoxic biological waste.

15. Packaging / Labelling

- Cytotoxic drugs should be securely capped and sealed and should be packed in impervious packing material. Labels of all boxes, containers and vials should indicate that the substance is a cytotoxic drug.

16. Complete First Aid Action and notify your manager / supervisor

1. **Splash to Eyes:**

- Flush eyes immediately at eyewash station for at least 15 minutes. If eyewash station unavailable, flush with copious amounts of water or normal saline for at least 15 minutes.

1. **Splash to Skin (intact or non-intact)**

- Remove contaminated clothing immediately
- Flush area with copious amounts of water for at least 15 minutes.
- Follow with washing area with soap and water
- Launder services to launder your uniform for you. If a replacement uniform is not available on your unit, call SPD to arrange pick-up of a decontamination uniform.

17. Breach or Non-Compliance of Policy

- Non-compliance with this policy will result in a review of the incident. A review for non-compliance may result in disciplinary action, up to and including termination of employment or privileges; fines and / or prosecution of individuals under and OHS Regulations and provisional legislation.

18. ATTACHMENT

None