

Welcome to the Generic Cytotoxic Drugs Self-Learning Package. On completion of this package, 1 hour of professional development will be given.

This package will provide the RN/EN working within the CDHB with knowledge on cytotoxic drugs that will enable them to be handle, administer and dispose of them in a safe manner. This could include oral, sub-cutaneous or intramuscular injections and may also include limited intravenous, intraocular or intra-vesicular administration within a limited scope of practice in specific areas. It will also enable the RN/EN to safety manage waste and spill situations. Refer to Volume 12; CDHB Fluid and Medication Manual for scope of practice and credentialing requirements.

This package does **NOT** entitle nurses to administer any of the intra-venous cytotoxic or biotherapy regimens for patients receiving care for malignant diseases.

To complete this Self Learning Package (SLP), the RN/EN must read this package and achieve 100% to successfully complete the worksheet. This worksheet is to be given to the RN's/EN's Nurse Educator for marking. On completion of the package the RN/EN name will be entered on the CDHB training data-base.

The policy for management of cytotoxic drugs is located in Volume 12; CDHB Fluid and Medication Manual. Other resources are located on the CDHB Cytotoxic and Biotherapies Website which can be accessed from the CDHB Intranet. These resources will assist you to complete this package.

On completion of this module the RN will

- Define the terms cytotoxic, carcinogenic, teratogenic and mutagenic
- Outline the points to consider pre-administration, during administration and after administration
- Outline the handling of cytotoxic waste
- Outline spill management in a variety of settings

Overview of Cytotoxic Drugs

Cytotoxic drugs

Cytotoxic drugs are toxic compounds known to have carcinogenic, mutagenic and/or teratogenic potential. This means they have the potential to cause the development of cancer (carcinogenic); they may interrupt or alter the normal growth of a foetus (teratogenic); or they increase the rate of mutation of cells or organisms (mutagenic). Because of their toxicity, exposure by health-care workers must be minimised.

Cytotoxic drugs alter cellular growth rates and destroy rapidly growing cells. They interrupt various phases of cell cycle division. Rapidly dividing cells are the most susceptible, which is why some cytotoxic agents have the potential to cause bone marrow suppression.

They are used in the treatment of both malignant and non malignant conditions. They may be administered orally, intravenously, intra-muscularly or sub-cutaneous injection. When dispensed by pharmacy, these drugs are identified with a cytotoxic label. Therefore they require handling as outlined in this package.



Potential occupational hazards include direct contact with the drug which may cause irritation to the skin, eyes and mucous membranes. Long-term exposure to cytotoxic drugs increases the risk of developing cancer.

Personal Protective Equipment (PPE) must be worn when handling, administering and disposing of cytotoxic drugs. PPE should include the use of nitrile gloves and long-sleeved impermeable gown for administration and waste disposal.

Patient Consent and Education

Informed consent should be gained prior to the initiation of treatment. Nurses have a role in this process by ensuring that an adequate education process has been undertaken and the patient has appropriate knowledge of the risks and benefits prior to treatment commencing. This will include both written and verbal information. A written consent may be required for some agents.

Education will also need to be given on the safe handling and disposal of waste at home if required. This will include

- Flushing the toilet at home with the lid down with a full flush
- Handling any contaminated material with gloves or no touch technique
- Washing any contaminated material by itself in a hot wash
- Washing any contaminated surfaces with hot water and household cleaner

These precautions will need to continue for 48 hours after the administration of the drug.

Pre-administration Process

Resources (including procedural guidance) that will support you include the pharmacist, CDHB Volume 12; Fluid and Medication Manual, Cytotoxic and Biotherapies Website

- Ensure patient has had education on the treatment and has given consent as required
- Ensure the patient has the appropriate venous access; Peripheral or CVAD
- Any premeds have been given
- Ensure a spill kit is available (from Pharmacy) and the nurse has reviewed how to clean up a spill
- Each nurse checking the drug should be familiar with the effects of each drug including whether they are an irritant or a vesicant

The resources required prior to drug administration are cytotoxic waste bag, plastic backed sheets, disposable foil trays, nitrile gloves, long sleeved impermeable gown and a cytotoxic sharps container if required. A resource kit containing these items is available in most areas. Alternatively the equipment can be obtained from oncology or haematology areas.

- Don personal protective equipment (PPE).
- Cytotoxic drugs should not be removed from plastic bag without first putting on nitrile gloves.
- All syringes and infusion bags used for IV administration should be checked for any leakage or contamination.
- All drugs should be placed in a foil dish and placed on a plastic backed sheet.
- Prime any IV lines with normal saline and label with a cytotoxic label.

Checking Process

This process is carried out by two nurses who have completed this package

- Prescription chart needs to be checked for appropriate medical practitioner's signature, date and that any blood parameters (CBC, biochemistry) or other investigations are recorded and within an acceptable range.
- Check labels on syringe/infusion bag/medication pottle against the prescription. These are to include drug dose, route of administration and expiry, diluents and storage details.
- Prescribed dosages should be checked against body surface area (BSA) or other method if appropriate.
- Check labels on the medication pottle or outer bag of the syringe/infusion bag against the patient's full name, hospital number & date of birth.
- Check the medication details on the syringe/infusion bag/medication pottle against the prescription.
- The patient's name on the prescription and medication must then be checked with the patient.
- Both nurses have the responsibility to complete the documentation required for the checking and administration of these drugs.
- Document drug administration in clinical notes.

In-patients must be identified to all staff as having cytotoxic therapy by a card that sits above the bed. These bed cards are available in the cytotoxic resource kits or from Medical Illustrations: "Please Wear Your Gloves" – purple background with the telophase symbol on it.

Administration

Refer to CDHB Fluid and Medication Manual, vol 12 for full scopes of practice

IV administration

PPE should be worn at all times when preparing, administering, taking down and disposing of cytotoxic drugs or waste. Attention also needs to be given to

- Priming the IV line with normal saline
- Putting a plastic backed sheet on a trolley
- Having the drug contained in a disposable container like a foil dish
- Changing any infusion bags on a horizontal surface, at trolley/waist height

Monitor IV site throughout the infusion for redness, swelling, and/or leakage and encourage patient to report any signs of pain/discomfort. If extravasation is suspected **STOP IMMEDIATELY** and follow guidelines for extravasation management which can be found on the CDHB Cytotoxic and Biotherapies Website which can be accessed from the CDHB Intranet

The procedure on how to administer cytotoxic drugs intravenously can be found on the CDHB Cytotoxic and Biotherapies Website which can be accessed from the CDHB Intranet

Oral medication administration

Oral medication will be administered with a 'no-touch' technique using a medicine pottle and wearing gloves. If tablets are accidentally handled, wash hands thoroughly with warm soapy water. Patient should be encouraged to self administer these drugs. Consult your pharmacist if you need to crush tablets or break capsules

S/C or I/M administration

PPE needs to be worn when administering cytotoxic drugs either S/C or I/M. The drug syringe needs to be contained within a disposable dish like a foil dish. Sharps need to go into a cytotoxic sharps bin and other waste needs to go into a cytotoxic waste bag. The procedure to administer these injections is found in the CDHB Volume 12; Fluid and Medication Manual.

Intraventricular administration

This is a procedure that is undertaken by medical staff only.

Intraocular administration

This procedure is performed in operating theatre; see Fluid and Medication Manual, Volume 12 for scopes of practice.

Waste and Spill Management

The goal of safe disposal of cytotoxic waste and spill management is to minimise the risk of exposure from these cytotoxic to the administrator, patient, other people and surrounding environment. The first 48 hours post administration has been deemed the most hazardous period for drug excretion however many drugs are excreted in body fluids up to seven days post administration.

Safe disposal of equipment

Keep all empty cytotoxic contaminated syringes, IV bags, lines and access devices in the disposable container or bag on the trolley. Once administration is completed, do not disconnect the line from the bag. Enclose the used items within the disposable container, wrap in the plastic backed sheet and place in the cytotoxic waste bag. Medication pottles should also be placed in a cytotoxic waste bag.

Sharps that are used for cytotoxic administration are placed into a cytotoxic sharps container after use. Place all 'non-sharp' materials used in the preparation and administration of cytotoxic drugs such in a cytotoxic waste bag.

Safe disposal of patient waste

Universal precautions should be used at all times when handling any body fluids. Patients should be told to flush the toilet with the lid down. Any pans, jugs or potties contaminated by cytotoxic waste should be sanitised as soon as possible after use. If waiting for

sanitation, this equipment should be covered with a plastic-backed absorbent cover, labelled with cytotoxic stickers and set aside from other equipment.

Non disposable equipment must be washed immediately in warm soapy water and should never be left for another staff member to wash.

Safe disposal of contaminated linen and clothing.

Linen contaminated with body fluid waste or blood from a patient who has received cytotoxic drugs within 48 hours should be treated as hazardous. This requires specific handling measures

- Personnel handling this linen should wear protective gloves and gowns (PPE).
- Contaminated hospital laundry should be double bagged in an alginate bag and red infectious linen bag and sent to the laundry.
- Personal clothing is to be double bagged in plastic and hot washed as soon as possible. Instruct relatives on handling clothing to wash at home (Handle with no touch technique or gloves if available, wash separately in a hot wash).
- If there is a large direct drug spill consider disposal of contaminated materials using cytotoxic waste bag.

Drug contamination of skin and eyes

If any cytotoxic drug that comes into contact with skin immediate action should be taken. **Thoroughly** rinse the affected area with water with soap and water. This may be best achieved in the shower. The shower must be cleaned thoroughly immediately after use.

If eyes are contaminated, remove gloves and immediately **thoroughly** irrigate them with water or saline. This may be best achieved by using an IV infusion set. Seek medical advice immediately (this may include presenting to ED).

Both situations require the completion of incident and OSH forms.

Cytotoxic Spill Management

All staff involved in the handling of cytotoxic drugs must be trained in spill management. All areas where cytotoxic drugs are given should have a cytotoxic spill kit. These kits are available from pharmacy. For procedural guidance of waste and spill management please access the CDHB Cytotoxic and Biotherapies website that can be found on the Intranet.

Spilled cytotoxic material will most likely include

- Tablets accidentally dropped and crushed. The risk of inhaling material is high if tablets are crushed
- Vomit
- Urine spills
- Spiked IV bags

Management of Deceased Patients

Patients who have received cytotoxic agents within 7 days of death should be handled post mortem using cytotoxic precautions. A cytotoxic label should be placed on the mortuary envelope and orderly and mortuary staff made aware of safe handling requirements. The mortuary will notify the undertakers of precautions required and supply cytotoxic waste resources as required.



Complete the work sheet and give to the CNS/NE in your area for marking

Resources

1. Department of Nursing. (2008, June). *Volume 12, Fluid & Medication Manual*. Retrieved from CDHB Intranet.
2. Gulatte, M. M. (Ed.). (2007). *Clinical Guide to Antineoplastic Therapy: A Chemotherapy Handbook* (Second ed.). Pittsburgh: Oncology Nursing Society.
3. *Handling cytotoxic drugs*. (2006). Retrieved June 01, 2011, from Workcover NSW: http://www.workcover.nsw.gov.au/formspublications/publications/Documents/handling_cytotoxic_drugs_public_comment_5031.pdf
4. Oncology Nursing Society. *Chemotherapy & Biotherapy Guidelines and Recommendations for Practice* (2nd ed.). Pittsburgh, PA: ONS.
5. Cytotoxic Administration Wall chart – obtained from Medical Illustrations
6. Canterbury Regional Blood and Cancer Service Website
7. Ward Cytotoxic resources
8. Ward Pharmacist
9. CNS/NE in your area

Canterbury

District Health Board

Te Poari Hauora o Waitaha

Generic Cytotoxic Self Learning Package - Work Sheet

<u>Name</u>	<u>Designation</u>	<u>Work Area</u>
Define the following terms (4 points) <ul style="list-style-type: none">• cytotoxic• Carcinogenic• Mutagenic• Teratogenic	<ul style="list-style-type: none">••••	
What are the potential occupational hazards of handling cytotoxic drugs? (2 points)	<ul style="list-style-type: none">••	
What PPE is required to handle and administer cytotoxic drugs? (1 point)	<ul style="list-style-type: none">•	
List five points that nurses must consider prior to administration of cytotoxic drugs. (5 points)	<ul style="list-style-type: none">•••••	
You are preparing to give a patient, a prescribed dose of cytotoxic drugs. As you read the prescription, what must you know <i>before</i> you give the medication? (8 points)	<ul style="list-style-type: none">•••	

	<ul style="list-style-type: none"> • • • • •
How is an in-patient identified to all staff that they are receiving cytotoxic therapy? (1points)	<ul style="list-style-type: none"> •
Who can check and administer oral cytotoxic drugs? (1 point)	<ul style="list-style-type: none"> •
Outline the technique for administering oral cytotoxic drugs. (1 point)	<ul style="list-style-type: none"> •
For how long after the last dose of cytotoxic drugs would precautions need to be taken with body fluids? (1point)	<ul style="list-style-type: none"> •

RN Specific Section-IV/IM/SC Administration

Locate print and read the procedure for infusion of IV cytotoxic drugs from the cytotoxic/biotherapies website. (1point) <i>Attach it to this answer sheet</i>	<ul style="list-style-type: none"> •
Locate, print and read the Fluid and Medication Management policy (scopes and credentialing section) on the cytotoxic/biotherapies website. (1 point) <i>Attach it to this answer sheet</i>	<ul style="list-style-type: none"> •
What volume of flushing solution is required after an <u>infusion</u> of cytotoxic drug? (1 point)	<ul style="list-style-type: none"> •

<p>Mrs Brown has completed an infusion of ganciclovir via her CVAD.</p> <p>Detail how you will manage taking down the infusion for disposal. Secondly outline the disposal process of all the material used during administration. (3points)</p>	<ul style="list-style-type: none"> • • •
<p>A patient is having subcutaneous cytotoxic injections for rheumatoid arthritis. Once the injection is administered, where does the needle go? (1 point)</p>	<ul style="list-style-type: none"> •
<p>You are removing an empty bag of ganciclovir from an infusion line to put up a flush. You are accidentally splashed in the eyes. Outline the management process taken for a splash incident. (3 points)</p>	<ul style="list-style-type: none"> • • •

Waste & Spill Management

<p>Cytotoxic Spill Kits are available from where? (1 point)</p>	<ul style="list-style-type: none"> •
<p>When handling body fluids what precautions are required? (1 point)</p>	<ul style="list-style-type: none"> •
<p>Describe the management of contaminated linen. (3 points)</p>	<ul style="list-style-type: none"> • • •
<p>Outline the management of contaminated clothing. (3 points)</p>	<ul style="list-style-type: none"> •

	<ul style="list-style-type: none"> • •
<p>A patient receiving cytotoxic therapy has died early on your shift. What is the process for maintaining safety post mortem? (3 points)</p>	<ul style="list-style-type: none"> • • •
<p>State the process for managing accidental exposure of a cytotoxic agent on the skin. (3 points)</p>	<ul style="list-style-type: none"> • • •
<p>There has been a cytotoxic spill in your area and you are called upon to help. What are the steps involved in this process? (6 points)</p>	<ul style="list-style-type: none"> • • • • • •
<p>Marker Name:</p> <p>Marker Signature:</p> <p>Marker Designation: NE / CNS</p> <p>Date:</p> <p>Training credit given: Y/N</p>	