HAZARDOUS MEDICATION – ADMINISTRATION AND HANDLING

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

This Guideline is to be used in conjunction with the **SCHN Health Monitoring Matrix** and the **SCHN Approved List of Hazardous Medications and PPE Requirements**. See the SCHN Hazardous Medications Intranet Page for more information.

- Hazardous and cytotoxic medications are to be prepared, administered, and disposed in accordance with SafeWork NSW, "Cytotoxic Drugs and Related Waste – Risk Management" 2017 and as defined by SCHN. SafeWork NSW establishes the legislative requirements for Work Health Safety and minimum clinical standards.
- All hazardous and cytotoxic medications whether administered by the oral (PO), intramuscular (IMI), subcutaneous (SCI), intrathecal (IT) or intravenous (IV) route, must be:
  - handled with extreme care,
  - administered by an accredited hazardous/cytotoxic staff
  - managed using appropriate Personal Protective Equipment (PPE)
  - reported if exposures occur by completing Hazardous Exposure Sheet & ims+
- **Checking requirements** for hazardous and cytotoxic medications: See section 5.2
- **Staff education and training requirements**: see Section 4
- **Nurse Accreditation Program** must be completed to administer hazardous and cytotoxic medications. Biennial reaccreditation is required.
- Staff must adhere to waste management and spill management processes.
- **Urgent** management of extravasation is essential.
- **Vinka alkaloids** (vincristine, vinblastine, vinorelbine, vindesine) should always be administered via a minibag, **not** via a syringe. Refer to High Risk Medications Register Policy - for further Vincristine information.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	24th October 2023	**Review Period**: 3 years
Team Leader:	Nurse Educators	**Area/Dept**: Oncology

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CHANGE SUMMARY

- New SCHN guideline: site-based guidelines have been rescinded.
- Nursing changes: Three pathways for accreditation: Medication safety and waste management, Hazardous, and Antineoplastic
- New:
  - list of approved hazardous medications with associated PPE requirements
  - Hazardous Medications Health Monitoring Matrix with associated responsibilities
  - SCHN Hazardous and Cytotoxic Medications Intranet page where other information can be found
  - Hazardous Medications education and training pathway for Medical staff
- Site based homecare guidelines have been changed to a Parent Information Sheet
- **26/04/23**: Minor review.
  - Section 5.2 - addition of HiTH checking of hazardous medications.
  - Section 5.2.1 - checking hazardous medications paragraph re-worded
  - Section 5.2.2 - checking antineoplastic medications (oncology) paragraph re-worded
  - Section 5.5.3 - at SCH section updated to include transport of cytotoxic medications can be undertaken by designated trained staff.
- **17/05/23**: Minor review. Amended wording to *Hazardous and Cytotoxic Medication- Nursing Education- Hazardous Meds Accreditation Pathway* education resource. Hyperlink to the pathway updated, see 4.2.2.
- **11/07/23**: Minor review. Changed document "Date Effective" to 1st October 2023.
- **20/10/23**: Minor review.
  - Section 3.1.1- Addition of Fit Testing requirements and resources
  - Section 4.2- Nursing staff accreditation changed to Step 1,2,and 3.
  - Section 5.2- Checking medications- addition of Endorsed Enrolled Nurse checking. Formatting of checking medications dot points
  - Section 10- Revised administration recommendation
  - Revision of wording as Antineoplastic rather than cytotoxic when referencing oncology specifics.
  - Modification to 7 day excretion rule- incorporating Hazardous medications. Use of appropriate PPE to handle hazardous waste.
- **23/10/23**: Minor review
  - Updated hyperlinks on Section 4.2 Nursing Staffing Accreditation

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- Revision of wording on page 20 from “oral hazardous must never be crushed” to “Oral antineoplastic medications MUST NEVER BE CRUSHED”.

- **14/11/23**: minor review - updated links to the list of approved hazardous medications with associated PPE requirements.
- **08/12/23**: minor review - updated link on page 26 to the list of approved hazardous medications with associated PPE requirements
- **27/03/24**: Minor review. Updated section 5.5.22 Intrathecal medications labelling and packaging. Changed “leur slip syringes” to “Luer lock syringes”. Update education resources – Step 2.2, Step 3, Step 3.1

READ ACKNOWLEDGEMENT

- The following staff must read and acknowledge this document:
  - All staff who prescribe or administer/handle hazardous medications or related waste
  - All staff who care for patients receiving hazardous medications.
- Staff must complete appropriate education and training:
  - Medical staff
  - Nursing staff
  - Pharmacy staff
  - Pathology staff
  - Cleaning/Domestic Services staff.

TABLE OF CONTENTS

1 Related Information and other resources

This document is to be **used** in conjunction with:

- SCHN Approved list of Hazardous Medications with PPE requirements
- SCHN Hazardous and Cytotoxic Medication Health Monitoring Matrix
- SCHN Local Work Procedures
- Other information found on the SCHN Hazardous Medications intranet page: https://intranet.schn.health.nsw.gov.au/medicine-management/hazardous-medications
- Paediatric Injectable Medicines Handbook: http://webapps.schn.health.nsw.gov.au/injectables/
- Australian Injectable Drug Handbook (ADIH) 8th ed: https://aidh.hcn.com.au/browse/about_aidh
- Meds4Kids dosing guide: http://webapps.schn.health.nsw.gov.au/meds4kids/
- Australian Medicines Handbook (AMH) – Children's Dosing Companion: https://childrens.amh.net.au.acs.hcn.com.au/?acc=36422
- Cancer Institute EviQ: https://www.eviq.org.au/
- NIOSH List of antineoplastic and other hazardous drugs, 2016: https://www.cdc.gov/niosh/docs/2016-161/default.html

Related documents:

- SafeWork NSW, "Cytotoxic Drugs and Related Waste – Risk Management" 2017
- SCHN Hazardous Chemicals Procedure
- SCHN High Risk Medicines Register Policy
- SCHN Intravenous Extravasation – Management Practice Guideline
- EviQ extravasation management
- EviQ Safe handling and waste management of hazardous drugs
- American Centres for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH) Hazardous Drug Exposures in Healthcare

Another resource is ChemAlert and is where some Safety Data Sheets (SDS) are located. SafeWork Australia **Factsheet:** Understanding Safety Data Sheets – Hazardous Chemicals. Please note: ChemAlert isn't always up-to-date and may not reflect hospital practices.

2 Introduction

Exposure to hazardous chemicals is preventable. Without the proper controls chemical exposure can cause cancer, respiratory illnesses, skin, and eye irritations, as well as fire and explosion-related injuries[1]. Reducing exposure to hazardous chemicals at work is essential to creating a healthy, safe, and productive workplace.

2.1 Legislative Requirements

- **Work Health and Safety Act 2011, NSW**: A safe workplace must be provided as far as reasonably practicable for the health and safety of workers and provide and maintain a work environment without the risks to their health and safety.
- **Work Health and Safety Regulation 2017, NSW**: Work involving the handling and transport of hazardous medications falls within the scope of the WHS Regulation, specifically Chapter 3, *General Risk and Workplace Management* and Chapter 7 *Hazardous Chemicals*.

2.1.1 Guides to implement the legislative requirements

- **SafeWork NSW guidance** on Cytotoxic Drugs and Related Waste – Risk Management[1], 2017 provides details and practical advice on how to prevent or minimise the risks to health associated with handling hazardous medications and related waste.
- SCHN Hazardous Chemicals Procedure provides local context to the above SafeWork NSW guide.

SCHN Work Health Safety should be contacted to discuss concerns or breaches with SafeWork NSW requirements.

Email: SCHN-WHS@health.nsw.gov.au

Phone: 9845 3646 or 9845 3647

2.2 Definitions

Term	Definition
Antineoplastic medication[2]	An agent used to control or kill cancer cells; includes cytotoxic, hormonal, immune-system-modifying (immunomodifier), some antiviral, biological and molecular targeted therapies.
Anti-Viral medication[5]	Act by interfering with a virus's ability to enter a host cell and/or replicate itself using the host cell machinery, some of which are cytotoxic
Carcinogenic[2]	Ability or tendency to induce cancer.
Chemotherapy[6]	Antineoplastic medication used in the treatment of neoplastic disease
Closed System Transfer Device (CSTD)	Prohibits transfer of environmental contaminants and the escape of HDs or vapor concentrations (Definition from an international body APHON)
Cytotoxic[2]	An agent capable of disrupting the growth and function of both healthy and diseased cells and can be carcinogenic, genotoxic, mutagenic, teratogenic or hazardous to cells in any way. Commonly used in referring to antineoplastic medications that selectively damage or destroy dividing cells.
Exposure[1]	Refers to when a person is exposed to a hazardous or cytotoxic medication if they are in a situation where they absorb or are likely to absorb the substance by ingestion, inhalation or through the skin or mucous membrane – exposure may also occur as a result of percutaneous injuries.
Extravasation[2]	The unintentional instillation or leakage of a drug or substance out of a blood vessel into surrounding tissue. If extravasated or infiltrated, some hazardous /cytotoxic medications cause irritation, ulceration and potential burns. Extravasation can occur peripherally (IV cannula) or centrally (CVAD).
Genotoxic[2]	Toxicity resulting in heritable (passed on to progeny/offspring) changes in the genetic material in germ cells, namely spermatocytes or oocytes via chemical interaction with DNA and/or non-DNA targets. Genotoxins include substances that are mutagenic; substances that induce transmissible changes in DNA structure involving a single gene or a group of genes
Genetically Modified Organism	An organism that has been modified by gene technology or an organism that has inherited particular traits from an organism (the initial organism) because of gene technology. These may include live attenuated vaccines (viral or bacterial), viral vectors or modified somatic cells. These are (bio)hazardous medications.
Hazardous *chemical* [4]	Hazardous chemicals are substances, mixtures and articles that can pose a significant risk to health and safety if not managed correctly. They may have health hazards, physical hazards or both. Hazardous chemicals include paints, pesticides, cleaners, fuels etc. Hazardous medications are part of the hazardous chemical group.

Hazardous *medication*[2]	A medication that exhibits one or more of the following six characteristics in humans and/or animals: • carcinogenicity, or the ability to cause cancer, a carcinogen • genotoxicity, or the ability to cause a change or mutation in genetic material, a mutagen • teratogenicity or other developmental toxicity, or the ability to cause foetal malformation or defects in foetal development, a teratogen • reproductive toxicity or fertility impairment • serious organ toxicity or adverse health effects at low doses • the structure and toxicity profiles of new drugs that mimic existing drugs determined hazardous by the five previous criteria
Immunomodifier[2]	An agent that interacts in some way with the immune system either to stimulate it to recognise and attack cancer cells or to inhibit the production of abnormal immune system cells or molecules present as a result of cancer.
Immunomodulator medication[7]	medications that diminish the immune system by altering the immune ability to produce antibodies or sensitised cells, some of which are hazardous or cytotoxic
Immunosuppressant[8]	Immunosuppressive drugs are used to dampen the immune system, some of which are hazardous or cytotoxic.
Monoclonal Antibodies (MAB)[9]	Monoclonal Antibodies includes Naked Monoclonal, Conjugate and Bispecific antibodies. Pure type of antibodies which target specific antigens, and stimulate the patient's immune system and produce an immunological response with consequential direct or indirect anti-tumour effect, some of which are hazardous or cytotoxic
Mutagenic[1]	genotoxicity or the ability to cause a change or mutation in genetic material
Reproductive toxicity	any effect of agents that would interfere with reproductive ability or capacity (fertility), including effects on lactation
Small Molecule Inhibitor[9]	Targeted therapy medication suffixed with 'ib' e.g., sorafenib or ciclib
Spill[1]	Spills may occur wherever hazardous or cytotoxic medications and related waste are handled, stored, transported or disposed. Spills (or leaking) may involve hazardous or cytotoxic medications in all forms (liquid, powder, broken tablets, tablets or creams etc and may occur during preparation, storage, transportation or administration. Spills may include contaminated body substances and contaminated waste.
Targeted therapies[2]	Agents that block the growth and spread of cancer by interfering with specific molecules involved in tumour growth and progression.
Teratogenic or teratogenicity[2]	Ability to disturb the development of an embryo or foetus. Teratogens can halt a pregnancy or produce a congenital malformation (birth defect).

This document is limited to the administration and handling of hazardous and cytotoxic medications, related waste, and Work Health Safety requirements.

3 Work Health Safety

3.1 Personnel management

The greatest risks of occupational exposure to hazardous medications are during the administration of the medication and handling of the patient or related waste[1]. Therefore, the primary focus of safety during the preparation administration and handling of hazardous and cytotoxic medications, including waste management, must be on the control of the working environment. Safe work procedures should be adopted and emphasise the need to:

- avoid skin contact with a patient's bodily substances
- use closed systems where possible, to prevent generating aerosols
- If a patient has been administered a hazardous or cytotoxic medication in the last seven days then label all specimens for pathology investigation as 'hazardous' or 'cytotoxic', using a purple 'Hazardous' sticker and placed in a hazardous specimen bag.
- ensure spill kits are readily available during transportation of hazardous medications.

3.1.1 Personal Protective Equipment

PPE must be worn for all procedures where hazardous medications are prepared, administered, and handling patients waste and linen.

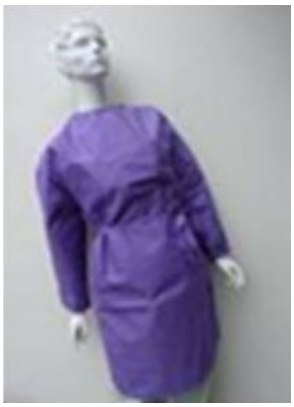
PPE can include:

- **Particulate respirator mask** (P2/N95) not surgical mask.

NB: a fit test must be completed prior to administering any hazardous or cytotoxic medication. All health workers who are required to wear a P2/N95 respirator must have undertaken annual education on the importance of fit checking and know how to fit check. See the Clinical Excellence Commission (CEC) Respiratory Protection Program Manual.

The healthcare worker must not have any facial hair present if use of a tight-fitting respirator is required, including at the time of fit testing. However, the healthcare worker can seek exemption based on medical reasons, cultural or religious observance. See CEC Policy Facial Hair and the use of P2/N95 Respirators.

- **Long sleeved impervious cytotoxic gown with elasticised cuffs** (e.g., Tyvek).



- **Protective eyewear:** can be goggles or protective eyewear with side shields. Visors may be used as additional protection, if available.


- **Hazardous safe gloves** (chemo-protectant gloves).
  - non-sterile nitrile gloves for general procedures
  - sterile nitrile gloves for sterile/surgical ANTT procedures


See **SCHN** **Approved list of Hazardous medications with PPE requirements** for details.

3.1.2 Health surveillance

Refer to the SCHN Hazardous Medication Health Monitoring Matrix for more information.

Pre-employment

- A baseline medical assessment is required at the commencement of employment and includes FBC, UEC and LFT documentation.
- Staff should receive a Hazardous Medications and Chemicals Safety and Wellbeing Information Sheet at orientation.

During employment

- An annual medical assessment is required for the term of employment at SCHN for all staff involved in the preparation and administration of hazardous medications.
- Assessment records must be maintained.
  - Contact the Work health Safety & Injury Management (WHS & IM) Department for further information.
- **Exposure to cyclophosphamide** requires mandatory reporting to NSW Health and is completed by WHS & IM Department.

Post-employment

  - Staff may request an exit statement and eMR exposure records.
  - Staff who may have been exposed to cyclophosphamide will, on termination, receive a cyclophosphamide exit statement, copies of their electronic Cytotoxic and Hazardous Drug Administration sheet and any ims+ records related to an exposure.

3.1.3 Reporting and record keeping of staff exposure

- Under the NSW State Archives and Records Act, exposure records and health surveillance records must be maintained for 30 years[3]. Contact the WHS & IM Department for further information.
- Exposure Records are to be maintained by individual staff members at the time of administration of a hazardous medication. This is done by either manual data entry using a paper-based form or as part of eMR reporting functionality.

- **Note:** in eMR, it's important for the staff member administering the medication to be signed in as the **primary checker**. This will ensure the hazardous exposure record is maintained.
- In case of eMR downtime, or when a medication in eMR doesn't have an exposure sheet associated with it, use a paper version (Hazardous and Cytotoxic Medication Exposure Staff Record). Paper versions are to be scanned and stored in the Ward electronically for up to 30 years.
- Current employees are responsible to **report any side effects or exposure** to the NUM and WHS & IM Department as soon as practicable as well as enter the incident into ims+.
- Report side effects or (possible) exposures into ims+. Managers are responsible for saving a copy of the ims+ record in the staff members' personnel file.
- Hazardous and cytotoxic medication spills or spill equivalent events must be reported in ims+. A spill equivalent event is generally defined as a spill of a substance (i.e., patient waste (vomit, urine, blood, faeces)) that may be contaminated with hazardous medication and should be managed with a spill kit and full PPE.

First Aid if contaminated be a hazardous/cytotoxic medication

- Seek help and apply the following actions:
  - **Skin exposure** - Remove any contaminated clothing and wash the affected skin and flush thoroughly with running water for 15 minutes.
  - **Eye exposure** - immediately flood the eye with clean water by continuous irrigation for a period of 15 minutes
  - **Needlestick injury** - wash thoroughly as for skin exposure and OH&S guidelines
  - If it is a **blood or bodily fluid exposure**, follow the occupational exposure procedure on PROMPTLY.
  - If **spill on staff clothing** then the clothing should be taken off away from the face as to not contaminate the face.
- Notify your NUM / manager
- **Staff**: report to line manager, complete an ims+ and contact WHS
- **Patients**: notify medical officer

Cyclophosphamide Exposure

- Cyclophosphamide exposure must be reported to SafeWork NSW. WHS & IM are to be notified of these incidents and are responsible to report the exposure to SafeWork NSW
- In the event of cyclophosphamide exposure (which could be in the form of a spill or needle-stick) the staff member must arrange to have blood and urine screening tests conducted:

- **At CHW**, go to the Admitting Officer in Emergency Department (ext: 52448, 52450 or 52454).
- **At SCH** go to/call CHESS, (page: 44186 during business hours or call the 'assessor on call' via POW switchboard after hours).

- Samples must be collected between 3-12 hours following exposure. The Cyclophosphamide Exposure Screening form provides details of pathology requirements and the completed form is to be forwarded to WHS & IM Department.
- Cyclophosphamide exposure incidents must be documented in ims+.

3.1.4 Planning parenthood, pregnancy and lactation

- **Pregnant staff or those anticipating pregnancy or those breastfeeding**, that are involved in the preparation or administration of hazardous/cytotoxic medications and handling of related waste are to be informed of the occupational hazards associated with exposure to these medications. Following discussion with their manager, staff in this category may elect not to administer/handle hazardous/cytotoxic medications and alternative duties should be offered.
  - Documentation of the discussion is completed on the Staff Family Planning and Hazardous and Cytotoxic Medications Staff Exposure Form.

3.2 System management

3.2.1 Closed System Transfer Devices (CSTD)

- SafeWork NSW Cytotoxic Drugs and Related Waste – Risk Management Guide recommends using closed systems when handling cytotoxic/hazardous medications.
- Use hospital appropriate CSTD equipment when preparing, administering and handling hazardous medications.
- If a CSTD is not available, or unable to be used according to manufacturing specifications, a risk assessment should be performed in consultation with WHS and other relevant staff and an alternative arrangement should be made. See WHS Risk Assessment Form.
- If products or practices require change, it is essential for the Hazardous group to convene and engage in discussions. This is to guarantee uniformity and the adoption of secure practices across the network.

4 Staff Education and Training

- SCHN is responsible to maintain and retain all staff training records via My Health Learning (for nurses) or locally.
- Training records are to be kept for a minimum of seven (7) years[3]

4.1 Medical Staff Accreditation

4.1.1 Hazardous medications

- Complete local training and education (if available)

4.1.2 Antineoplastic medications

- Complete an initial Accreditation Program to enable prescribing chemotherapy
- Complete ongoing biennial reaccreditation.
- This pathway ensures personal and patient safety regarding hazardous medication administration and spill management.
- CHW medical staff, refer to the CHW Education Pathway. (*SCH pathway in draft*)

4.2 Nursing Staffing Accreditation

There are three tiers to nursing training and accreditation. All Tiers must initially cover personal and patient safety regarding hazardous medication administration and spill management, as well as ongoing biennial re-accreditation.

4.2.1 Step 1: Oral Medication Administration Accreditation Pathway

- Refer to Step 1 accreditation pathway

4.2.2 Step 2: Hazardous Parenteral Medication Accreditation Pathway e.g. immunosuppressants/antivirals/monoclonal antibodies etc.

- Refer to Step 2 accreditation pathway

4.2.3 Step 2.1: Administration of Antineoplastic Medications for Non-Oncology Patients Accreditation Pathway (e.g. rheumatology and renal patients)

- Refer to Step 2.1 accreditation pathway

4.2.4 Step 2.2: Parenteral Reproductive Hazardous Medication Accreditation Pathway

- Refer to Step 2.2 accreditation pathway

4.2.5 Step 3: Antineoplastic accreditation pathway (Oncology)

- Refer to Step 3 accreditation pathway

4.2.6 Step 3.1: Administration of Antineoplastic Medications for Oncology Patients in the Non-Cancer Setting Accreditation Pathway- SCH only

- Refer to Step 3.1 accreditation pathway

4.2.7 Biohazardous medications/Genetically Modified Organisms

RNs who handle and administer (bio)hazardous medications classed as **Genetically Modified Organisms** will be required to complete the and maintain annual biosafety training.

Recognition of Prior learning will be given to nurses who can provide evidence of completing the EviQ Paediatric Antineoplastic Drug Administration Course (ADAC) or an Australasian recognised paediatric oncology centre (i.e., an accredited ANZCHOG site).

4.2.8 Maintenance of Accreditation

- **All Steps:**
  - Complete biennial accreditation of both theory and practical assessment.
- **Steps 2 and 3:**
- Where **re-accreditation requirements are not met**:
  - If not booked in or completed within 3 months of biennial due date, the staff member's accreditation status will reviewed in consultation with the employee's manager and educators.
  - **Staff on leave greater than 1 year**: staff must complete biennial requirements including theory and practical
  - **Staff on leave greater than 2 years:** staff will be required to complete the full accreditation appropriate for ward area again.

4.2.9 Assessors

All assessors must meet the following criteria:

- Hazardous or Cytotoxic accreditation for the appropriate area
- Meet the Clinical Skills Assessment Framework requirements for a staff member to be deemed an accredited assessor in an appropriate area. (i.e., oncology).
  - Within SCHN Oncology; an assessor must complete the Antineoplastic *Train the Trainer Program* endorsed by the Nurse Educator Oncology services. Please refer to the Nurse Educator Oncology services for further information. .

Note: in order to assess staff in the administration of hazardous medications, the assessor must first be observed and endorsed by CNE/NE

4.3 Nursing Documentation

The following information is collected and maintained:

- A list of **personnel approved to administer hazardous medications in Tier 2 and Tier 3**. Sourced from My Heath Learning report and exported to an excel spreadsheet.
- **Training records** which identify date, topics and presenters, attendees, evaluations and assessed competencies.
- **Administration Exposure Record.** Nursing Unit Managers run a report through eMR for each staff member and is to be saved in the member's personnel file.
- Individual employee exposure records and health surveillance records (kept 30 years).
- The responsibility for maintaining these records remains with the relevant Department Heads, Nurse Managers and Nursing Unit Managers, Clinical Nurse Educators and/or the Nurse Educator Oncology Services.

4.4 Pharmacy Training and Education

- Refer to the respective Education Pathways:
  - CHW Pharmacy Education Pathway
  - SCH Pharmacy Education Pathway
- Pharmacy Head of Department is responsible to maintain documentation of pharmacy staff training and education (for 7 years), exposure reports and health surveillance records (for 30 years).

4.5 Cleaning/Domestic Services Training and Education

Staff employed in domestic/cleaning services must complete:

- Waste Management Package
- Review the SCHN Linen Management Procedure (cytotoxic contaminated linen section)
- Cleaning/Domestic Services managers are responsible to maintain documentation of staff training and education (for 7 years) and exposure reports and health surveillance records (for 30 years).

4.6 Pathology Training and Education

All Pathology staff are routinely trained to treat all specimens as infectious and hazardous (i.e., there is no differentiation). Pathology services at SCH is a shared service with Prince of Wales Hospital using SEALS under the governance of NSW Health Pathology: they are responsible to train their Pathology staff as required.

At CHW, the Pathology Quality Manager (or delegate) is responsible to ensure appropriate education and training is in place and maintains documentation of said training (for 7 years) and exposure reports and health surveillance records (for 30 years). Refer to the CHW Pathology Quality Manual for more details.

5 Hazardous and Cytotoxic Medications

Excretion Alert: Once a patient has been identified as hazardous/cytotoxic, an excretion alert must be entered in eMR in the Interactive View, Cytotoxic, Excretion alert section.

5.1 Prescribing

5.1.1 Hazardous medications

- Medications are ordered via the Electronic Medical Record system (eMR) and provide a reference document or link to a dosage guide where appropriate. Refer to Paediatric Injectable Medicines Handbook (PIMH).
- Order errors for hazardous medications must be entered into ims+.

5.1.2 Antineoplastic medications

- Antineoplastic medications are prescribed via the Electronic Medical Record system (eMR).
- In order for medical officers to prescribe chemotherapy in the eMR they are required to attend training and education with the Oncology eMR team. Medical Officers are required to:
  - Read the Prescribing Cytotoxic Manual
  - Attend simulation of mock prescribing of chemotherapy
  - Be observed ordering chemotherapy in eMR
- Oncology eMR team will deem the Medical Officer competent upon successful completion of the above.

  All cytotoxic medications must be prescribed utilising the chemotherapy regimens and PowerPlans and must have a treatment protocol uploaded into eMR for dosage and administration guidelines. **If treatment protocols are not uploaded administration must not proceed**.
- Any errors or omission of required information in the Cytotoxic Medication order will prohibit the medication from being dispensed and administered.
- Order errors for cytotoxic medications must be entered into ims+.

5.2 Checking medications

5.2.1 Step 1-Checking hazardous oral medications

Can be checked by the following staff once completed Step 1 Accreditation Pathway:

- Endorsed Enrolled Nurses – as per their scope of practice,
- All Registered Nurses

5.2.2 Step 2- Checking Hazardous Parenteral Medications (e.g. immunosuppressants/antivirals/monoclonal antibodies etc).

- Must be checked by:
  - 1 accredited RN; the second checker must be a RN either Year 2-8th year thereafter
  - *Note: Any Registered Nurse, if under 2 years clinical experience must have been deemed appropriate by management and education team for an accelerated completion of the Step 2 pathway.*

5.2.3 Checking Antineoplastic medications (Oncology)

- Preferred practice is for antineoplastic medications to be checked by:
  - 2 accredited RN's, or;
  - 1 RN working towards* completing their Step 3 accreditation and 2 accredited RN's, or;
  - 1 RN working towards completing their Step 3 accreditation and 1 accredited CNE/NE/CNS2/CNC, or;
  - 1 accredited RN and oncology fellow

Where these options are not possible, the following practice is recommended: 1 accredited Step 3 accredited RN with the second checker being an RN either year 2-8th year thereafter.

**"Working towards" means the RN has completed a cytotoxic administration study day, a cytotoxic e-learning package and is actively working towards sign off/accreditation*.

Notes:

All SCHN nurses involved in the checking process must be present at the bedside for the commencement of medication administration.

The staff member administering the medication must be signed into eMR as the primary checker. This will ensure the hazardous exposure record is maintained.

- **HiTH staff** are to check medications as per current SCHN HiTH policies and guidelines.
- The below is to be read in conjunction with the SCHN Medication Administration Practice Guideline.

5.2.4 Antineoplastic medications in Oncology Services

In addition to 5.2 (above), the following applies to antineoplastic medications:

- A copy of the patient's treatment protocol must be provided with the medication order to ensure the medication dose, order of administration and infusion time can be checked against the protocol.
- Prior to commencing cytotoxic therapy for the first time and prior to any subsequent course, medical staff must clearly document the patient is ready or fit for hazardous medication administration. This should be documented in the patient's progress notes and also signed off in Chemotherapy regimens and PowerPlans.

- Patients receiving cytotoxic medications must have a weight and height measured for BSA calculation and recorded in the eMR at commencement of cycle of chemotherapy and repeated at least every four (4) weeks for duration of chemotherapy cycle. The medication dosage is adjusted, if necessary, prior to each course.
- An **ONC SCH** double-signed height and weight is required at SCH.
- If the prescribed dosage of cytotoxic medication **differs by greater than 10%,** the consulting medical officer should be contacted regarding changes to dosage prior to administration

5.3 Labelling Hazardous and Cytotoxic medication

Hazardous medications must be appropriately labelled with a sticker identifying them as requiring special precautions when handling and administering. Stickers include:


5.4 Administering hazardous medications

Refer to the relevant Local Work Procedure (LWP) when administering:

- **SCHN LWP**:
  - IV Hazardous or Cytotoxic Medication – Pharmacy Prepared Syringe using CTSD
  - IV Hazardous or Cytotoxic Medication – Preparation of Vials for Administration via Syringe
  - IV Hazardous or Cytotoxic Medication – Removal of Minimum Volume or Volumetric Line
  - IV Hazardous or Cytotoxic Medication – Preparation of Vials for Administration via Bag
  - Oral / Enteral Hazardous or Cytotoxic Medication – Liquid Suspensions
  - Oral Hazardous or Cytotoxic Medication – Whole Tablets
  - Subcutaneous and Intramuscular Hazardous or Cytotoxic Medications
- **CHW LWP**:
  - IV Hazardous or Cytotoxic Medication - Administration via Bag – CHW
  - IV Hazardous or Cytotoxic Medication – Pharmacy Prepared Syringe *(CHW current practice)*
  - Hyperthermic intraperitoneal chemotherapy (HIPEC) *CHW Oncology only*
- **SCH LWP**:
  - IV Hazardous or Cytotoxic Medication – Minimum Volume Line Flush
  - IV Hazardous or Cytotoxic Medication – Pharmacy Prepared Bag – CSTD Single Channel

- IV Hazardous or Cytotoxic Medication – Pharmacy Pre-Prepared Bag (for use prior to CSTD implementation) Single Channel FLUSH
- IV Hazardous or Cytotoxic Medication – Pharmacy Prepared Bag – current practice (to be used prior to CSTD Implementation)
- Oral Hazardous or Cytotoxic Medications – Cutting Tablets
- Oral / Enteral Hazardous or Cytotoxic Medications – Dispersing Tablets

General Principles when administering hazardous and cytotoxic medications

When handling and/or administering hazardous medications (i.e., uncoated oral tablets, syrup or suspension), **appropriate PPE MUST be worn**.

Step 1 and 2:

don't rush to crush - Consult pharmacy and/or Paediatric Injectable Medicines Handbook

Do not crush if pregnant.

Step 3:

Oral antineoplastic medications MUST NEVER BE CRUSHED

Disperse tablets if an oral liquid is not available; this should be undertaken in a HAZARDOUS MEDICATION SAFETY CABINET (CDSC) utilising a closed system

Where possible: Oral hazardous tablets and capsules should be given whole:

Calculated doses should be rounded to the nearest tablet strength (whole or half).

SCH: Breaking or cutting oral hazardous medications should be undertaken in a Hazardous medication safety cabinet

CHW: Breaking or cutting oral hazardous medications must be carried out in pharmacy

5.5 Intrathecal (including Reservoir and Ventricular) Medications

5.5.1 Prescribing Intrathecal Medications

- Oncology Consultants, Oncology Fellows, and at CHW, Oncology Treatment Centre (OTC) Career Medical Officers (CMO's) are the only members of the medical staff authorised to prescribe intrathecal (IT) medications.
- All intrathecal medications should be prescribed via the intrathecal phase on the chemotherapy PowerPlan and checked by the Oncology Pharmacist prior to dispensing.
- Methotrexate, Cytarabine and Hydrocortisone are the most common **medications prescribed for intrathecal administration**. Carboxypeptidase–G2 can be given intrathecally in rare cases of intrathecal methotrexate overdose. Additional agents may be given intrathecally after discussion and approval by the oncologist and pharmacy.

5.5.2 Labelling and Packaging

- All medications for intrathecal administration are drawn up in Luer lock syringes.
- All intrathecal medications are clearly labelled with a prominent warning label on the syringe and outer bag to identify **'FOR INTRATHECAL USE ONLY'**.
- All intrathecal medications are packaged and dispensed separately from other cytotoxic medications.

5.5.3 Transport and Storage

- All intrathecal medications are stored in the Pharmacy Department in designated areas for intrathecal medications only.
- Intrathecal medications are only to be delivered by a designated person trained in spill management to the designated clinical area or designated clinician who is performing the lumbar puncture.
- **At CHW**:
  - Transported by Oncology Pharmacist or medical staff
  - Outside of the Pharmacy Department, intrathecal medications are stored in the designated intrathecal medication fridge.
  - Syringes of standard doses of intrathecal methotrexate and cytarabine are available in the dedicated medication fridge for use in emergency situations. The Oncology pharmacist should be notified each time this stock is accessed.
- **At SCH**:
  - Transported by cytotoxic accredited nursing/medical staff and hospital staff trained in cytotoxic spill management (i.e. PSA/AIN)
  - Outside Pharmacy, intrathecal medications are stored in the intrathecal medication labelled box in the cytotoxic allocated fridge
  - Intrathecal medications must ONLY to be removed from the fridge by the clinicians undertaking the procedure.

- If chemotherapy medications are required out of hours, it MUST be sourced through the on-call sterile pharmacy staff so that the relevant clinical checks can be performed prior to supply.

5.5.4 Checking and Administration

- Intrathecal medications should **only be administered within 'normal working hours'** when a full range of specialist expertise, knowledge and support is readily accessible. If urgent, administration out of normal working hours may occur if clinically indicated and safe to do so.
- Only accredited medical staff are permitted to administer intrathecal medications.
- The staff member administering the intrathecal medication must be signed into powerchart as the **primary checker**. This will ensure the hazardous exposure record is maintained.
- The fully cytotoxic accredited RN (second checker) for intrathecal medication is to remain present to observe patency of the CSF fluid and administration until the delivery of intrathecal medication is complete. A Cytotoxic timeout must be completed.

High-Risk Medications:

INTRAVENOUS VINCA ALKALOIDS (vincristine, vinblastine, vindesine or vinorelbine) are NEVER prescribed on the same day as the administration of INTRATHECAL medications.

Vinca alkaloids (vincristine or vinblastine) are clearly labelled with a prominent sticker which states 'FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES'

Vinca Alkaloids should always be administered via a minibag, not via a syringe

6 Patient and Family Education

Patient and family education must be completed prior to administration of hazardous or cytotoxic medications[1]. Education should include but not limited to:

- Hazardous or cytotoxic medication information
- Concomitant medications and fluids
- Cytotoxic treatment protocol and cycle of treatment
- Potential side effects and symptom management
- Waste Management in the home
- Adverse and long terms side effects
- Pregnant or breastfeeding mothers or parents trying to conceive are to be educated on hazardous or cytotoxic medication being used.
- On discharge, patients, parents and/or family members are provided with the Parent Information Sheet: Safe Handling of Hazardous and Cytotoxic Medications and Related Waste in the Home.

7 Transporting Patients

Whilst infusions are in progress, patients receiving hazardous medication should remain on the ward and where possible transportation of patients should be avoided. If a patient is transported whilst a hazardous medication infusion is in progress, a staff member trained in spill management and a spill kit must accompany the patient. [1] The IV pole should be clamped to the bed and raised off the ground during transportation. The height of the pole should be adjusted to allow safe passage through doorways.

8 Packaging, transporting and storage

- Hazardous medications should be packaged and transported so as to provide adequate physical and chemical protection for the drugs and protection to handlers in the event of a spill[1].
- SafeWork NSW is explicit in the packaging, transportation and storage requirements of hazardous and cytotoxic medications.
    - **Medication packaging**: primarily the responsibility of manufacturers but is also applicable to SCHN. Refer to SafeWork NSW Cytotoxic Drugs and Related Risk Management, section 6.8.1 for details. Staff should wear hazardous rated gloves when handling outer bag containing the hazardous medication
    - **Medication storage**: see section 6.3.3 SafeWork NSW Cytotoxic Drugs and Related Risk Management.
    - **Medication transport inside and outside the hospital**: see section 6.8.2 SafeWork NSW Cytotoxic Drugs and Related Risk Management.

- **At SCHN:**
  - **Transporting** Pharmacy or Ward prepared hazardous medications should be packaged and transported in sealed leak/puncture proof containers and labelled appropriately with a hazardous medication warning label or cytotoxic medication label.
  - **Storing** hazardous medications in Ward medication rooms should be stored in a designated area or automatic dispensing cabinet (ADC) (if available) to facilitate quick and efficient containment if a spill should occur (refer to Section 12 Spill Management).
    - **For intrathecal storage, see above.**
- Refer to NIOSH and EviQ resources for risks, safety phrases and basic health and safety information about the medication.
- For further information on requirements for packaging and transport of Genetically Modified Organisms (GMO) refer to SCHN Procedure: Transport Waste & Spill Management of Medicinal Products containing GMOs

9 Extravasation

- Extravasation is defined[2] as the unintentional instillation or leakage of a drug or substance out of a blood vessel into surrounding tissue.
- To avoid extravasation injuries, refer to the below Patient Monitoring section.
- Refer to SCHN Intravenous Extravasation Management Practice Guideline for managing extravasations.

All extravasations are to be reported in ims+

10 Patient Monitoring and Nursing Care

- Refer to the respective Hazardous Medications Local Work Practices patient monitoring requirements.
- Adhere to SCHN Between The Flags (BTF): Clinical Emergency Response System (CERS) Procedure for observations, monitoring and escalation requirements.
- Blood backflow must be confirmed when accessing a CVAD prior to administering medications. If blood flow is difficult, refer to SCHN CVAD Practice Guideline.
- Antecubital veins should be avoided as extravasation in this area can cause serious tissue injury and potential long-term damage.
- **In *Oncology*:**
  - When administering a vesicant via a peripheral cannula, the peripheral cannulas should be no more than 24 hours since insertion and assessed as patent by both checkers observing good blood flow. Refer to SCHN Peripheral Intravenous Catheters – Clinical Standard Practice Guideline.

11 Waste Management

11.1 Hazardous and cytotoxic medication waste

Hazardous medication waste includes any residual hazardous medication following a patient's treatment, and the materials or equipment associated with the preparation, transport or administration of the medication therapy.

Hazardous medication waste includes:

- hazardous medications (in all forms), contaminated stock, and any hazardous medication returned from a patient, or expired stock.
- contaminated waste from preparation processes including:
  - sharps and syringes, ampoules and vials
  - intravenous infusion sets and containers
  - empty hazardous medication bottles
  - contaminated personal protective equipment – e.g., gloves, disposable gowns, shoe covers, respirators
- used HEPA or chemical filters and other disposable contaminated equipment
- swabs, cloths, mats and other materials used to clean hazardous contaminated equipment, or to contain spills.
- contaminated body substance receptacles – e.g., disposable vomit bags
- dressings, bandages, nappies, incontinence aids and ostomy bags
- cotton wool from nappies containing hazardous medication
- heavily soiled and contaminated bedding that is unable to be cleaned. See Contaminated Linen section for more details.
- contaminated pathology specimens

11.2 Patient waste

11.2.1 Exposure to hazardous and cytotoxic waste

Exposure may occur through:

- removing or inserting catheters
- handling vomitus, blood, excreta, or fluid drained from body cavities
- handling bedpans, urinals, emptying urinary catheter bags, colostomy or urostomy
- vomit bags, wet nappies and incontinence pads, and wet dressing materials
- handling bed linen or clothing soiled with a patient's waste, or potentially contaminated with the medication or active medication metabolites

- cleaning spills
- tracheal suctioning

Excretion routes and times vary, so as a general rule a 7-day excretion protection period for hazardous agents should be observed. This means, from the commencement of hazardous medication treatment staff should wear appropriate PPE when handling patient bodily fluids until 7 days post the last hazardous medication.

11.2.2 Safe work procedures and PPE

Safe work procedures should be adopted and emphasise the need to:

- avoid skin contact with a patient's bodily substances
- use hospital appropriate closed systems to prevent generating aerosols
- Label all specimens sent to the laboratory as contaminated with Hazardous, using a 'Hazardous' sticker and placed in a Hazardous specimen bag.

Appropriate PPE is required to be worn when:

- Containing and cleaning-up spills using appropriate spill kit
- Disposing of waste, such as urine or faeces into a pan steriliser
- Disposing of contents of colostomy or urostomy
- Disposing of Hazardous bags, incontinence aids, disposable nappies and heavily exuding dressing materials into bags and in a Hazardous waste bin
- When managing Hazardous contaminated equipment or body waste during medication excretion period wear personal protective equipment
- Attending to urinalysis or stool collection
- Collecting blood samples from patients regardless of peripheral or from central venous access device.
- Appliances such as colostomy, ileostomy or urostomy bags, urinary catheters or incontinence aids, disposable nappies and heavily exuding dressing materials are double bagged prior to weighing and placed into the appropriate Hazardous/hazardous waste bin. Nappies should be placed in a Hazardous zip locked waste bag and transferred to the dirty utility for disposal into the Hazardous waste bin.

  NOTE: Urine is NOT decanted into a jug for measurement due to the risk of aerosol contamination.

For more details, contact Pharmacy and/or refer to Hazardous and Cytotoxic Medications and PPE Requirements.

11.2.3 Toilets

Patients using the toilets should be instructed to:

- sit when urinating (to reduce the risk of splashes and aerosol contamination)
- close the toilet lid and to use a full flush (where water restrictions are not in place).

11.2.4 Hazardous and Cytotoxic Waste in the Home

On discharge, patients, parents and/or family members are to be provided with an appropriate Parent Information Sheet. Refer to Section 6 (above) Patient and Family Education.

11.3 Contaminated Linen

- Refer to SCHN Linen Management Procedure for details of hospital processes.
- Inpatient bed mattresses contaminated with patient excreta should be cleaned by nursing staff trained in spill management using a cytotoxic spill kit.

12 Spill Management

A cytotoxic or hazardous spill requires immediate management and must be effectively controlled so as to avoid unnecessary contamination of the environment and exposure to staff. These spills include any spill, whether it is powder or liquid, and spills of patient waste such as urine/vomit, blood and faeces.

The following applies:

- All areas where hazardous medications are prepared, stored or administered must have a Cytotoxic Medication Spill Kit in the patient area and sodium hypochlorite available.
- Nursing staff working in these areas should be trained in spill management.
- **Cytotoxic Medication Spill Kits** are available from stores:
  - **At CHW**: the order number is 503189
  - **At SCH**: order through barcoding
- EviQ provides a step by step guide on how to safely clean up a Hazardous spill, and:
  - Notify Pharmacy of the incident naming the medication and extent of the spill.
  - Notify the Consultant/Fellow of the spill to assess the patient's medication dose requirements.
  - Complete an ims+ incident report.
- Cyclophosphamide spills:
  - must be reported to SafeWork NSW. WHS is responsible to notify SafeWork NSW.
  - Refer to Cyclophosphamide Exposure for details.
- Exposure records must be included into the staff surveillance records.
- For further information on spill management of **Genetically Modified Organisms (GMO)** refer to SCHN Procedure: Transport Waste & Spill Management of Medicinal Products containing GMOs

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