

Appendices to BC Cancer Provincial High-Alert Medications Policy

Appendix A: High-Alert Medications List (October 2021)*

Medications:
Oncology high-alert medications (see table A below)
methotrexate oral (all indications)
Insulins
Over 100 units per mL
IV continuous infusions
Neuromuscular blocking agents e.g. succinylcholine, rocuronium, cisatracurium
Concentrated Electrolytes
calcium salts for injection at concentrations of 10% or above
magnesium sulfate for injection at concentrations above 20%
potassium (all salts) for injection at concentrations of 2 mmol/mL or more
sodium acetate and sodium phosphate for injection at concentrations of 4 mmol/mL or more (of sodium)
sodium chloride for injection at concentrations above 0.9%
Heparins in High-dose Formats
heparin for injection containing 10,000 units or more per container
Low molecular weight heparin for injection, multidose vials
Opioids in High-dose Formats
Opioids, parenteral vials or ampoules containing <u>more than</u>
fentanyl 100 mcg
morphine 15 mg (adults)
morphine 2 mg (pediatrics)
HYDROMORPHONE 2 mg
diacetylmorphine injectable
methadone oral liquid
Other Medications
sterile water for injection in containers of 100 mL or more
Medications by specific routes:
Epidural
Intrathecal
Perineural
Patient Controlled Analgesia (IV- PCA, Epidural - PCEA, Perineural - PCPA)

*As per Vancouver Coastal/Provincial Health Services/Providence Health Authorities (VPP) High-Alert Medications List

Table A: Oncology High-Alert Medications List

Follow link to most current list:

<http://www.bccancer.bc.ca/drug-database-site/Documents/Oncology%20High%20Alert%20Medications%20List.pdf>

Appendix B: BC Cancer High-Alert Oncology Medications Evaluation Criteria

INCLUSIONS

Scope

1. BC Cancer Benefit Medications, and,
2. Other non-formulary oncology medications used at the Clinical System Transformation (CST) sites of Vancouver Coastal Health, Providence Health Care, and Provincial Health Services Authorities (VPP)

Drugs associated with serious toxicities in intended or unintended patients

1. Drugs with narrow therapeutic index, such as cytotoxic drugs, defined as drugs with primary activity through indiscriminate and direct killing of both malignant and normal cells, based on fulfilling all three criteria below.[5]
 - a. Mechanism of action – directly disrupts DNA structure or mitotic function to cause cell death (e.g., intercalation, clastogenicity, spindle destruction), usually described as genotoxic or clastogenic.
 - b. Does not selectively target malignant cells or differentiate in susceptibility between malignant and normal cells.
 - c. Toxicity is not specific or significantly preferential to malignant cells based on in vitro and animal studies or clinical studies.
2. Potential for acute serious toxicities (e.g., febrile neutropenia, anaphylaxis, hypersensitivity reactions, infusion reactions, immune-related toxicities, tumour lysis syndrome), including drugs designated as vesicant/irritant or associated with flare reactions
3. Potential for delayed serious toxicities (e.g., immune-related toxicities, QT prolongation, fetal abnormalities)

Parenteral drugs requiring patient assessment prior to cyclical administration

These include the following routine pre-treatment assessments:

1. Specific pre-medications required to prevent side effects (e.g., nausea and vomiting, cholinergic responses, hypersensitivity reactions)

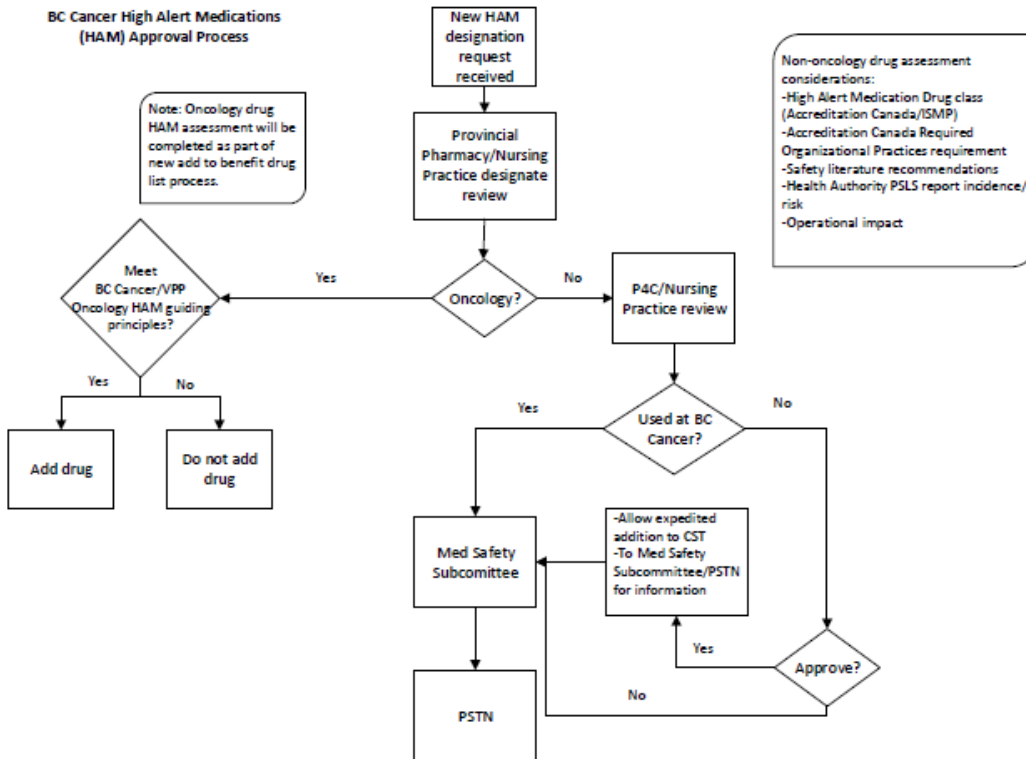
2. Dose limiting side effects and performance status (e.g., presence of infection, mucositis, hand-foot syndrome, high or low blood pressure, rash, diarrhea, immune responses, proteinuria)
3. Specific laboratory findings, imaging (e.g., blood counts, renal, hepatic or cardiac function [echo, MUGA])
4. Drugs associated with high possibility of incorrect route of administration leading to significant patient harm (e.g., vinca alkaloids, rituximab, bortezomib).

EXCLUSIONS

The following drug products are generally assumed to pose limited risk of harm to patients:

1. Oral drugs administered continuously or cyclically, or parenteral depot injections that do not require regular assessment for serious toxicities.
2. Topical application products with limited toxicities if inadvertently administered to unintended patients.

Appendix C: BC Cancer High Alert Medications Approval Process



Communication	<p>Provincial Pharmacy designate:</p> <ul style="list-style-type: none"> -Communicate decision to BC Cancer/VPP stakeholders as per established process -Once timing of go-live date determined: <ul style="list-style-type: none"> -Update BC Cancer HAM list -Announce in: <ul style="list-style-type: none"> -Systemic Therapy Update -Nursing Practice Newsletter as needed
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Definitions:

- CST= Clinical Systems Transformation
- ISMP= Institute for Safe Medication Practices
- P4C= Provincial Pharmacy Professional Practice Council
- PSTN= Provincial Systemic Therapy Network
- PSLS= Patient Safety Learning System
- VPP = Vancouver Coastal/Providence/Provincial Health Services Authorities

Appendix D: High-Alert Medications (Labelling, Storage and Wardstock Requirements)

Medications	Labelling on drug/IV bags	Labelling on medication bins	Stored in Separate Red Bin (Yes/No)	Wardstock/Variations
Oncology medications (See Appendix A for complete list)	High Alert*	N/A	No	Not permitted
Oncology medications with additional requirements: Liposomal or target conjugate chemotherapy/immunotherapy agents e.g. DAUNOrubicin liposomal DOXOrubicin liposomal PACLitaxel-nab vinCRISStine liposomal trastuzumab emtansine	High Alert*	High Alert	Yes	Not permitted
Concentrated Electrolytes calcium salts for injection at concentrations of 10% or above e.g. <ul style="list-style-type: none"> calcium chloride 10% vials/syringes calcium gluconate 10% vials/syringes magnesium sulfate for injection at concentrations above 20%: e.g. <ul style="list-style-type: none"> magnesium sulphate 50% vials potassium (all salts) for injection at concentrations of 2 mmol/mL or more sodium acetate and sodium phosphate for injection at concentrations of 4 mmol/mL or more (of sodium) sodium chloride (IV) greater than 0.9 % e.g. <ul style="list-style-type: none"> sodium chloride 3% bag. 	High Alert	High Alert	Yes	Not permitted Provincial Systemic Therapy Network (PSTN) approval required for exceptions. (See Appendix D)
Unfractionated heparin for injection containing 50,000 units or more per container e.g. heparin 50,000 units/5 mL vials	High Alert	High Alert	Yes	Not permitted

<p>Unfractionated heparin for injection containing 10,000 units or more per container</p> <p>Greater than or equal to 10,000 units total per container (e.g. 10,000 units/ 1 mL; 10,000 units/10 mL; 30,000 units/30 mL)</p> <p>a. Intravenous premixed bags e.g 25,000 units/500 mL; 20,000 units/500 mL</p>	High Alert	High Alert	Yes	<p>Not permitted.</p> <p>PSTN approval required for exceptions (See Appendix D)</p>
<p>Low Molecular Weight Heparin</p> <p>Multidose vials (Not to dispense for patient use at BC Cancer. Only permitted in critical care for treatment doses as per Accreditation standard)</p>	N/A	N/A	N/A	N/A
<p>High Potency Opioids</p> <p>a. fentanyl amps or vials with total dose greater than 100 mcg per container</p> <p>b. HYDROMorphone amps or vials with total dose greater than 2 mg</p> <p>c. morphine amps or vials with total dose greater than 15 mg</p>	High Alert	High Alert	Yes	<p>Not permitted.</p> <p>PSTN approval required for exceptions (See Appendix D)</p>
<p>a. methadone oral liquid</p>	High Alert	High Alert	Yes	Per usual ward stock policy requirements
<p>Neuromuscular Blocking Agents e.g. succinylcholine, rocuronium, cisatracurium, atracurium, mivacurium, pancuronium, vecuronium</p>	High Alert; Paralytic agent	High Alert; Warning: Paralyzing Agent Causes Respiratory Arrest. Patients Must be Ventilated.	Yes (red bin with plastic lids)	Per usual ward stock policy requirements
<p>Insulin</p> <p>Over 100 units/mL IV Continuous infusions</p>	High Alert	High Alert	Yes	Not Permitted
<p>Sterile Water for Injection (in containers of 100 mL or more</p>	High Alert	High Alert	Yes	<p>Not permitted.</p> <p>STP approval required for exceptions (See Appendix D)</p>

*For sites on live on Clinical Systems Transformation (CST)

Appendix E: Provincial Systemic Therapy Network (PSTN) Approved Exceptional Wardstock Storage Indications and Locations

	Approved Indications for Availability as General Wardstock	Approved Locations for Wardstock Storage
Restricted Concentrated Electrolytes		
calcium chloride 10% (1 g/10 mL)	Life threatening arrhythmias	Vancouver Centre OR Emergency Cart (Abbotsford): Supplied by Abbotsford Regional Hospital
	Malignant Hyperthermia	Vancouver Centre OR Brachytherapy (RT)— Abbotsford; Kelowna
calcium gluconate 10% (1 g/10 mL)	Life threatening arrhythmias	Vancouver Centre OR
Restricted High Dose Format Opioids		
fentanyl 250 mcg/5 mL vial	Induction; procedural sedation by anesthesiologist	Vancouver Centre OR Kelowna Centre Brachytherapy
HYDROMorphone 10 mg/mL vial	Pain Control Patients who require more than 4 mg/dose units	Vancouver Centre Inpatient Unit
High Dose Format Heparins		
heparin 10,000 units/10 mL	Urgent bolus doses of heparin Initiation of heparin protocol	Vancouver OR
Sterile Water for Injection (in containers of 100 mL or more)	Reconstitution of dantrolene for treatment of malignant hyperthermia	Vancouver OR Brachytherapy--Abbotsford; Kelowna

OR = Operating Room; RT= Radiation Therapy

Appendix F: Automated Dispensing Cabinet (ADC) Alerts

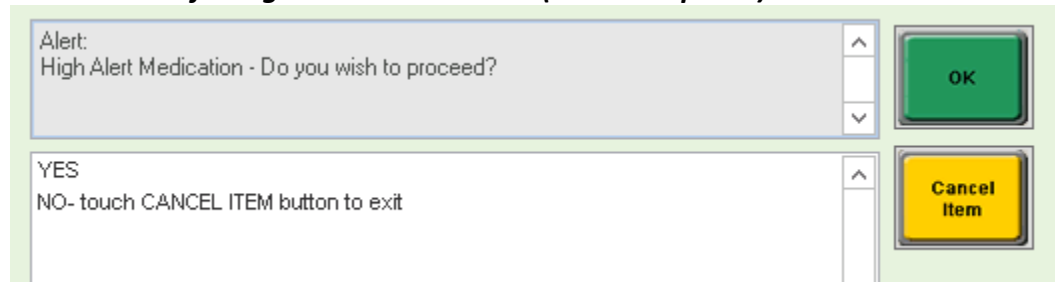
1. General Principles

- ADC alerts system set up described below for High-Alert Medications do not negate the BC Cancer High-Alert Policy requirements outlined in this policy. Only permitted medications (see Appendices [C](#)) will be placed in ADC cabinets.
- Alerts will:
 - Be used judiciously to prevent alert fatigue.
 - Fire upon removal of high-alert medications approved to be stored in ADC cabinets. Positive user acknowledgement is required.

2. ADC alerts verbiage

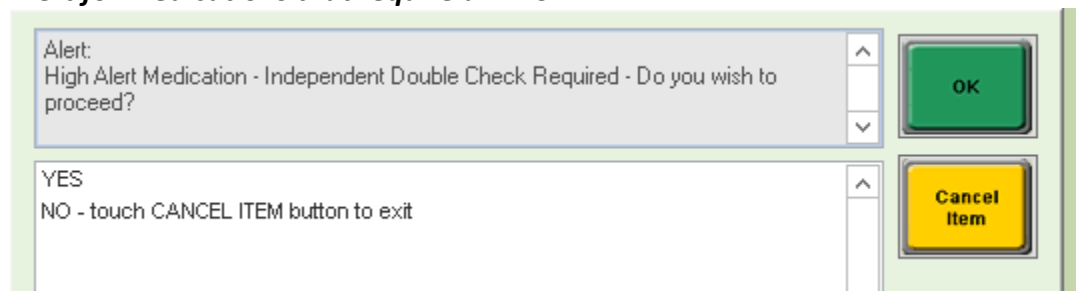
- Two types of alerts will be created in the system:
 - High Alert Medication
 - High Alert Medication—Independent double check (IDC) required.

General alert for high alert medications (no IDC required):



The screenshot shows a user interface for a general alert. The main text area contains the following text: "Alert: High Alert Medication - Do you wish to proceed?". To the right of this text are two buttons: a green "OK" button and a yellow "Cancel Item" button. Below the main text area, there is a section for "YES" and "NO" options. The "NO" option is followed by the instruction "NO- touch CANCEL ITEM button to exit".

Alert for medications that require an IDC:



The screenshot shows a user interface for an alert requiring an independent double check (IDC). The main text area contains the following text: "Alert: High Alert Medication - Independent Double Check Required - Do you wish to proceed?". To the right of this text are two buttons: a green "OK" button and a yellow "Cancel Item" button. Below the main text area, there is a section for "YES" and "NO" options. The "NO" option is followed by the instruction "NO - touch CANCEL ITEM button to exit".

- Medications/medication class will be matched with appropriate alert as per High-Alert requirements in Appendix A and IDC requirements in <http://shop.healthcarebc.ca/phsa/BCCancer/Nursing/70003.pdf>. (See Table 1)

Table 1: ADC Alerts

Medication	Alert
Antineoplastic agents	IDC
Methotrexate oral	IDC
Insulins for greater than 100 units/mL	General Alert
Insulin IV continuous infusions	IDC
Ketamine IV route	IDC only (not High Alert Medication) – verbiage pending
Lidocaine IV route	IDC only (not High Alert Medication) – verbiage pending
Sterile water for injection, in containers of 100 mL or more	General alert
Concentrated Electrolytes	
Concentrated electrolytes	General alert
Calcium salts for injection at concentrations of 10% or above	General alert
Magnesium sulfate for injection at concentrations above 20%	General alert
Potassium (all salts) for injection at concentrations of 2 mmol/mL or more	General alert
Sodium acetate and sodium phosphate for injection at concentrations of 4 mmol/mL or more (of sodium)	General alert
Sodium chloride for injection at concentrations above 0.9%	General alert
High Dose Format Heparins (To be further reviewed)	
Heparin for injection containing 10,000 units or more per container	IDC
Low molecular weight heparin for injection, multidose vials	IDC
High Dose Format Narcotics	

Methadone oral liquid	IDC
Diacetylmorphine injectable	IDC
Hydromorphone 50 mg/mL	IDC
Midazolam – for subcutaneous infusion	IDC only (not High Alert Medication) – verbiage pending
Opioids, parenteral vials or ampoules containing more than Fentanyl 100 mcg or Morphine 15 mg (adults) Morphine 2 mg (pediatrics) HYDROmorphine 2 mg	General alert
Neuromuscular Blocking Agents	
Eg. succinylcholine, rocuronium, cisatracurium, atracurium, mivacurium, pancuronium, vecuronium	General alert