Introduction

Purpose

To generate a list of **High Alert Medications for BC Women's and BC Children's Hospitals.**

To outline processes required to reduce the potential for a preventable adverse drug event with high alert medications.

1.1. Scope

All ***medications*** or medication categories listed in Appendix A, which may include:

- Parenteral and oral ***medications*** or ingredients within a mixture.
- Non-prescription (over-the-counter, complementary and alternative medicines orders (e.g. herbal, vitamin and nutraceuticals).

All hospital areas, including inpatient and ambulatory clinical care settings, using or storing ***High Alert Medications***.

1.2. Exceptions

This policy currently excludes medications used in the operating room by anesthesiologists.

Policy

This policy contains four component policy statements:

2.1 High Alert Medication Lists

Any ***medication*** or entire ***medication*** category listed in **Appendix A** shall be considered a ***High Alert Medication***. Such ***medication(s)*** will be treated in the manner outlined within Appendix B of this policy.

2.2 High Alert Medication Safety Processes and Documentation

The procedures associated with listed ***High Alert Medications*** will be reviewed and comply with the safety procedure checklist outlined in **Appendix B** of this policy. The review shall be conducted by each patient program or service area, in consultation with the Pharmacy Department.

Procedures shall apply to all stages of the medication system, including:

- Storage, labelling and transport
- ***Prescribing*** and ***Prescription*** verification
- ***Prescription*** dose processing
  - drug selection
  - compounding
  - calculation
  - dispensing
- Administration
- Patient monitoring
- Patient rescue procedures

2.3 High Alert Medication Safety Orientation for Healthcare Staff

Staff, including prescribers, orientation within Programs and Service Departments will include a training checklist for the safe handling and administration of listed ***High Alert Medications***.

2.4 High Alert Medication Standard Concentrations and Order Sets

Where possible, patient care programs will utilize standard parenteral concentrations for ***High Alert Medications***, and develop aligned standardized ***order sets,*** which will include recommended patient monitoring criteria and patient rescue procedures as appropriate.

Responsibilities

The Pharmacy, Therapeutics, and Nutrition Committee (PT&N) is responsible for this policy. The implementation and monitoring of this policy is delegated by PT&N to Pharmacy, Program Quality & Safety Leaders, Program Managers, and Program Medical Directors.

Compliance

Monitoring of compliance to this policy is delegated to BCCH and BCWH Quality & Safety Leaders, Program Managers, Program Medical Directors and the Pharmacy Department.

Supporting Documents

Related Policies

- Independent Double Check for Medication Administration Policy C-0506-11-60285 PTN 01.013

Definitions

The following ***italicized bolded*** terms whether used in either singular or plural forms denote the same meaning.

- "***High Alert Medication"*** means any medication that is deemed to possess higher risk of causing significant harm in a patient even if used as intended. Risk is increased if the medication is used in error (of any type) or dosed inappropriately. Requires stringent physiological monitoring for patient safety and/or has a narrow dosing or blood/response window of use.

- ***"Emergent Care"*** means a life-threatening situation wherein the patient could suffer significant harm without rapid or immediate therapeutic and/or diagnostic intervention.

- ***"Independent Double Check"*** (or abbreviated as "***IDC***)" means a process in which a second practitioner, alone, conducts a verification of work or a decision of an initial practitioner. Such verifications can be in the presence or absence of the first practitioner but, in either case, the most critical aspect is to maximize the independence (unbiased assessment) of the second check, by ensuring that the first practitioner does not communicate what they expect the second practitioner to conclude is correct. Refer to "Independent Double Check for Medication Administration" PTN Policy 01.013

- ***Medication Order***" means an order for any medication, nutritional agent or compound defined by the institutional policy as requiring an order from a prescriber.

- ***Order Set: (also referred to as a Pre-printed Order or abbreviated as PPOs)*** means one or more orders provided as a set of medication and/or medication-related orders which is/are provided as pre-printed (or electronic set of orders), and designed to simultaneously promote therapeutic and safety consistency of orders (for a given patient condition or circumstance), reduce potential for preventable medication error, and potentially improve system efficiency. Such order sets must involve the following activities by the prescriber;

    - individual patient assessment
    - patient-specific therapeutic review and acceptance or modification of the order set
    - prescriber signature indicating acceptance of order set and any noted changes

- "***Prescription***" has the same meaning as ***Medication Order***.

- "***Telephone order***" means a verbal *prescription* communicated by telephone when the prescriber cannot reasonably attend the patient point of care to *write* (or enter) a medication order, and which is conveyed to a healthcare professional that is authorized to receive a medication order.

- "***Verbal order***" means a *prescription* verbally communicated by a prescriber who is in attendance at the patient point of care, or in an area reasonably close to that place.

- **"*Write, written, or writing*"** means the act of printing or hand-writing a *prescription*, and may include the entry into a technology such as a computer or similar documentation device, but specifically excludes a *verbal order* or *telephone order*.

References

1. Institute for Healthcare Improvement (IHI) "5 Million Lives Campaign. *How-to Guide: Prevent Harm from High-Alert Medications*. Cambridge, MA: Institute for Healthcare Improvement; 2012. www.ihi.org

2. Pediatric Affinity Group and IHI "How-to-guide: Pediatric Supplement" 2008

3. Institute for Safe Medication Practices (Canada) "Definition of Terms" (Website) http://www.ismp-canada.org/definitions.htm

4. Institute for Safe Medications Practices (U.S.) "List of High-Alert Medication List" (2011) http://www.ismp.org/tools/highalertmedications.pdf

5. Institute for Safe Medication Practices (Canada) "Lowering the Risk of Medication Errors: Independent Double Checks." (2005) http://www.ismp-canada.org/download/safetyBulletins/ISMPCSB2005-01.pdf

6. Wachter RM, Pronovost, PJ. Balancing "No Blame" with Accountability in Patient Safety. N Engl J Med 2009;361:1401-1406

7. Amalberti R, Auroy Y, Berwick, D. Five System Barriers to Achieving Ultrasafe Health Care, Ann Intern Med. 2005; 142:756-764.

8. Accreditation Canada Qmentum. Required Organizational Practices: Medication Management. 2020

Appendices

- **Appendix A: High Alert Medications**
- **Appendix B: Hierarchy of Safety Procedures for High Alert Medications**
- **Appendix C: Exceptions to the Accreditation Canada High Alert Medications Stocking Required Organizational Practices**

Version History

DATE	DOCUMENT NUMBER and TITLE	ACTION TAKEN
08-Jun-2021	C-0506-11-62514 PTN.01.010 High Alert Medications	Approved at: Pharmacy, Therapeutics & Nutrition Committee

Disclaimer

Appendix A: C&W HIGH ALERT MEDICATION LIST

Current policies and procedure exist for the following medications:

Anticoagulants
Antineoplastics
Insulins
Concentrated Electrolytes
Opioids / Narcotics
Neuromuscular Blockers
Digoxin
DDAVP
Inotropes/Vasopressors
Investigational drugs/ Special Access drugs
Parenteral Nutrition
Medications administered via intrathecal route

Note: Certain programs / units have specific policies beyond this list.

Appendix B: HIERARCHY OF SAFETY PROCEDURES FOR HIGH ALERT MEDICATIONS

	Required Practices	***Comments***
A: Prescribing and Prescription Verification		
	Review need for and develop ***Order Sets***	- Develop ***Order Sets,*** which include minimally acceptable laboratory tests, patient monitoring criteria and patient rescue procedures as appropriate. - Utilize standardized dosing formats (e.g. Standardized parenteral concentrations: see below) - Orientate all prescribers and RNs to these ***Order Sets*** - Make ***Order Sets*** readily available for use
	Identify Highest At-risk Population	- For patients at elevated risk (e.g., obese patients, low-weight, or end-organ failure patients) develop specialized ***Order Sets***, as above. - Identify these within the ***Order Sets*** title.
	Standardized Parenteral Concentrations	- Work with Pharmacy to utilize site (preferably) standards or, if necessary, program-specific standard parenteral concentrations. - Include these standardized concentrations where possible on the ***Order Sets*** (see above)
	Prescription Verification	- Ensure all prescriptions are verified independently (see independent double check, below) prior to prescription processing, or dose administration.
B: Storage, Labelling and Transport		
	Availability on Area Stock	- ***High Alert Medications*** should only be routinely stocked (e.g., ward stock) in patient care areas after a Pharmacy Department review. - Any Accreditation Canada Required Organizational Practice (ROP) medication, must also receive prior PT&N approval. (See most current Accreditation Canada standards for a complete list.)
	Storage: Patient Care Areas: ***Automated Dispensing Cabinets (ADC)***	- A user warning requiring a positive acknowledgment of item to be removed. - For Accreditation Canada ROP items, two user warnings, with both requiring a positive acknowledgement of item to be removed - Note: All ROP items require prior PT&N review and approval.

	Storage: Patient Care Areas: ***Non-Automated Dispensing Cabinets***	- Where ADC storage is ***not*** possible: - In conjunction with the Pharmacy Department: Separated Bin. - "High Alert" sticker: on front and both sides of red bin - Optional, with Pharmacy review: separated location with other ***High Alert Medications*** - If indicated: locked cupboard for Accreditation Canada ROP medication (e.g., Potassium Chloride) - Note: All ROP items require prior PT&N review and approval.
	Storage: Pharmacy	- Separated on their own designated shelf If indicated: locked cupboard (e.g., Potassium Chloride)
	Storage: Other Areas	- ***High Alert Medications*** are not permitted in other areas of the hospital, except during transit within a sealed container (e.g., sealed manufacturer case, or sealed pharmacy transport container).
	Purchase ready-to-use products or use Pharmacy-made compounds	- Reduce to absolute minimum situations of ward-based mixing. - Where necessary, have mixing calculation sheets available to assist ward-based mixing and reminders of where independent double checks are needed
	Minimize Available Concentrations	- Reduce both concentrated and standardized solution (dilute) concentrations to the lowest possible number.
	TALLman lettering on labels	- As per PT&N review, and where possible, all ***High Alert Medication*** labels should contain TALLman lettering, including: - Bin and Shelf locations - MARs - Patient-specific and Generic Labels.
C: Processing of Prescription and Dose		
	Independent Double Check (IDC) Refer to "Independent Double Check for Medication Administration" PTN Policy 01.013	- Utilize IDC for the following processes: - Prescription verification (by RN or Pharmacy) - Drug Selection, calculation(s), Ingredient measurement (prior to mixing), Label contents (Patient, Drug, Dose, Frequency, etc). - The following ***IDC*** may be conducted separately or in combination, depending on the operational requirements of the area.
	Drug Selection	- ***IDC*** required
	Compounding (Dose Preparation)	- ***IDC*** required

	Calculations	- ***IDC*** required
	Dispensing and Labelling	- ***IDC*** required
	Patient Identification and Dose Administration	- ***IDC*** required - If a home (or an approved self-medication) medication, caregiver/patient can act as double check.
	Pump Programming: Non-Smart Pump	- IDC required, for drug, drug concentration and correct flow rate.
	Pump Programming: Smart Pump (e.g., Alaris)	- Automated Identification (bar code) scan of drug and drug concentration (container) is acceptable as an IDC, however the infusion rate (or duration) must be have an independent double-check (IDC).
	Staff Training	- Ensure staff members are formally trained in ***Independent Double Check*** procedures and where they are required in relation to ***High Alert Medication Practices***.
	Route Verification	- For medications, or medication categories, listed under the ***Wrong Route Medication*** section, additional procedures specific to those therapies will be applied. - And, in such cases the RN administering the medication dose, may be required by such procedures to obtain an IDC on the route of administration from a second individual.
D: Patient Clinical Status Monitoring and Patient/Family Education		
	Documentation and Flow Sheets	- Ensure all events (e.g., compounding, dose administration, patient monitoring events and results) are completely and accurately documented. - Include critical patient monitoring on both **Order Sets** and flow sheets, if specialized flow sheets can be used.

	Critical Clinical Laboratory Results	- Follow-up on any laboratory result that is delayed. Use reminder system to check if result has been received.
		- Ensure critical laboratory results go rapidly to the necessary individual(s), including physicians by;
		  - flagging the result
		  - where appropriate, call the prescriber
		  - notifying on-call supervisor (or prescribers) of delays in the result being reviewed, and/or abnormal results of concern.

	Patient (Caregiver) Education	- Where possible, discuss ***High Alert Medication*** treatments with patient or family, and advise them of any monitoring (e.g. adverse effects) and/or follow-up (where reasonable).

E: Patient Rescue Process		
	Protocols for Rescue	- Pre-develop approved treatment protocols **Order Sets** for the therapeutic reversal of ***High Alert Medication*** adverse events. - Where appropriate, ensure the rescue protocol clearly identifies: - Actions not requiring prescriber approval, and - Actions requiring prescriber approval. - Ensure these are readily available and staff members are aware of their storage location either in a pre-approved hospital medication "kit", or as single stored rescue agents.
	Rescue Reversal Agents	- For each ***High Alert Medication,*** ensure necessary reversal agent(s) are rapidly available.
	Staff Education	- Ensure Prescriber, RN and Pharmacist are orientated to both the signs and symptoms of potential patient harm, and the related rescue procedures

Appendix C: EXCEPTIONS TO THE ACCREDITATION CANDA HIGH ALERT MEDICATION STOCKING REQUIRED ORGANIZATIONAL PRACTICES

The following list of medications have been evaluated and approved by PT&N to be stocked in patient care areas because their removal could negatively impact the delivery of safe patient care (eg. emergent situations):

Product	Area
Calcium Chloride 10% injection pre-filled syringe or vial	Pediatric Critical Care: PICU, Emergency Surgical Suites (BCCH) Surgical Suites (BCWH) Urgent Care Centre (BCWH)
Calcium Gluconate 10% injection	Medical/Surgical Inpatient: T7E Antepartum Evergreen Medical Day Unit Oncology Outpatient Clinic: T8 Pediatric Critical Care: PICU, Emergency Urgent Care Centre (BCWH) Surgical Suites (BCCH) Surgical Suites (BCWH) Labour & Delivery Radiology Department
Fentanyl 250 mcg/5 mL injection	Surgical Suites (BCCH) Surgical Suites (BCWH)
Heparin 10,000 units/10 mL injection	Medical/Surgical Inpatient: T7E Oncology Outpatient Clinic: T8 Pediatric Critical Care: PICU Surgical Suites (BCCH) Radiology Department Renal Dialysis Unit
Heparin 50,000 units/5 mL injection	Surgical Suites (BCCH) Labour & Delivery
Heparin 25,000 units/250 mL infusion bag	Pediatric Critical Care: PICU
Heparin 25,000 units/500 mL infusion bag	Surgical Suites (BCCH)
Magnesium Sulfate 50% injection	Oncology Inpatient and Outpatient Clinic: T8 Pediatric Critical Care: PICU, Emergency Surgical Suites (BCCH) Surgical Suites (BCWH)
Morphine 10 mg injection	Medical/Surgical Inpatient: T6/T7 Oncology Inpatient and Outpatient Clinic: T8 Pediatric Critical Care: PICU, Emergency Surgical Suites (BCCH) Radiology Department
Sodium Chloride 3% 250 mL infusion bag	Pediatric Critical Care: PICU, Emergency