TITLE	
MANAGEMENT OF HIGH-ALERT MEDICATIONS	
SCOPE Provincial	**DOCUMENT #** PS-46-01
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SPONSOR Provincial Medication Management Committee	**REVISION EFFECTIVE DATE** September 28, 2020
PARENT DOCUMENT TITLE, TYPE, AND NUMBER Management of High-alert Medications Policy (#PS-46)	**SCHEDULED REVIEW DATE** September 28, 2023

NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

If you have any questions or comments regarding the information in this document, please contact Policy Services at policy@ahs.ca. The Policy Services website is the official source of current approved policies, procedures, directives, standards, protocols, and guidelines.

OBJECTIVES

- To prevent harm to patients from adverse medication events involving **high-alert medications**.

- To align with Accreditation Canada Required Organizational Practices and other safety-oriented standards with regard to high-alert medications.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS

1. Exemptions

1.1 This procedure does not apply to the following:

a) Emergency Medical Services (EMS);

(i) EMS staff shall continue to follow the AHS *EMS Provincial Medical Control Protocols: Adult and Pediatric* and any other EMS documents with regard to high-alert medications.

b) Home Living, Supportive Living, and facilities operated by contracted Long-Term Care Service Providers (refer to the AHS *Medication Management* Policy [Continuing Care]).

2. Storing and Labelling

2.1 Storing and labelling requirements are a shared responsibility between clinical departments or programs (e.g., nursing or care settings) and Pharmacy Services. Assignment of responsibility shall be determined by the site.

2.2 High-alert medications should be stored in individual containers (i.e., bin) with only one type of medication (e.g., vial[s], ampoule[s], intravenous bag[s]) per storage container.

    a) This applies to stock high-alert medications (i.e., wardstock and pharmacy stock) and not to high-alert medications provided on a patient-specific basis.

    b) Label storage containers (i.e., wardstock and pharmacy stock), at a minimum, with the medication's generic name, strength/concentration, dosage form, and product size (where applicable).

        (i) Where space is an issue, more than one medication may be stored in a single container provided that the medications are separated by a labelled divider.

2.3 Storage Containers (see Appendix A: *High-alert Medication Labels*):

    a) Label high-alert medication containers (i.e., wardstock and pharmacy stock) with a 'High-alert Medication' label.

    b) Label neuromuscular blocking agent containers (i.e., wardstock and pharmacy stock) with a 'WARNING: Paralyzing Agent / Causes Respiratory Arrest' label.

    c) Label epidural containers with a 'For Epidural Use Only' label.

2.4 Affix additional auxiliary or cautionary labelling to storage containers and products per the AHS *High-alert Medications: Electrolytes* Guideline and AHS *High-alert Medications: Narcotics* Guideline.

2.5 Label epidural products (i.e., ready-to-administer) with a 'For Epidural Use Only' cautionary label (this includes labelling patient-specific epidural products; see Appendix A: *High-alert Medication Labels*).

2.6 Where possible, in facilities with automated dispensing cabinets (ADC), additional safeguards should be put in place to minimize the risk of medication errors. Examples may include but are not limited to:

    a) addition of system alerts or attributes to identify high-alert medications and/or caution users;

b) considering placing a 'High-alert Medication' label (see Appendix A: *High-alert Medication Labels*) in the bottom or on the lid of automated dispensing cabinet compartments containing high-alert medications; and

c) not storing high-alert medications in open matrix drawers.

2.7 Label **read-alike medications** using **Tall Man lettering** (i.e., wardstock and pharmacy stock).

2.8 Physically separate **look-alike medications**, on the condition that this separation is not likely to introduce a new risk for error as a result. When physical separation is not possible, local safeguards should be put in place to identify high-alert medications as look-alike to avoid selection errors.

2.9 Store ready-to-administer epidural products separately from intravenous solutions.

3. Prescribing

3.1 The **authorized prescriber** shall follow the AHS *Medication Orders* Policy Suite and, where available, consult other resources (e.g., protocols, guidelines) for prescribing high-alert medications.

3.2 The authorized prescriber shall use approved pre-printed **order** forms or order sets (electronic or paper) for prescribing high-alert medications, where available.

3.3 Computerized prescriber order entry systems (CPOE) shall contain alerts to warn of minimum and maximum doses of high-alert medications, where possible.

4. Preparing

4.1 To limit the necessity of preparing high-alert medications in a patient care area, Pharmacy Services should supply high-alert medications in a ready-to-use format, whenever feasible.

4.2 The concentrations and volume options of parenteral high-alert medications shall follow those established in the AHS *Standardized Medication Concentrations for Parenteral Administration* Policy Suite.

5. Dispensing

5.1 Where utilized, pharmacy computer order-entry systems shall identify high-alert medications as 'High-alert' and shall indicate minimum and maximum dose limits, where possible.

5.2 Prior to dispensing, Pharmacy Services shall label select high-alert medication products with auxiliary or cautionary labelling, per Appendix A: *High-alert Medication Labels*, the AHS *High-alert Medications: Electrolytes* Guideline, the AHS *High-alert Medications: Narcotics* Guideline, and the AHS *Standardized Medication Concentrations for Parenteral Administration* Policy Suite.

5.3 Patient-specific high-alert medications dispensed to patient care areas shall be removed by Pharmacy Services when the medication is no longer required for the care of the patient for whom it was provided (e.g., patient is discharged or transferred, or medication is discontinued).

6. Administering

6.1 Intravenous pumps with automated alerts and **dose error reduction software (DERS)** or **SMART** pumps with **soft stops/limits** and **hard stops/limits** activated, shall be used to infuse high-alert medications, where available.

6.2 **Health care professionals** shall engage the patient and/or family in the process of high-alert medication administration and shall provide appropriate medication information/teaching.

　　a) Providing appropriate medication information/teaching may not be possible in an emergency situation.

6.3 Complete an **independent double-check** (refer to the AHS *Independent Double-check* Guideline) prior to the administration of designated high-alert medications, including but not limited to:

　　a) narcotic (opioid) infusions (continuous only);

　　b) heparin infusions;

　　c) insulin infusions;

　　d) parenteral antineoplastics; and

　　e) **parenteral nutrition**.

Note: An independent double-check is required at the initial preparation/hanging of each infusion bag of the above designated high-alert medications, but is not required for dose titrations once the bag has been checked (unless directed by another Zone/site/program policy).

6.4 Zones/sites/programs may determine that additional medications require an independent double-check and are encouraged to consider the following:

　　a) assessment of local medication-related adverse events;

　　b) risks identified in individual care areas / patient populations;

　　c) inclusion of other high-alert medications that have been implicated in significant adverse events in the safety literature;

　　d) any additional safety strategies that are in place (e.g., bar code scanning);

    e)   workload and workflow implications of additional checking processes; and

    f)   reduced effectiveness if checking processes are overused.

6.5   Those practitioners who have procedural clinical privileges in anesthesia granted by AHS may, in place of an independent double-check, utilize processes which accommodate the specific clinical setting requirements and support safe medication administration.

6.6   In emergency situations, it is understood that a health care professional may not be able to complete an independent double-check for a designated high-alert medication.

7.   Documenting

7.1   Documentation in the patient's health record shall be in accordance with the AHS *Clinical Documentation* Directive and AHS *Clinical Documentation Process* Directive.

7.2   Document completion of an independent double-check per Zone/site/program process and in accordance with the AHS *Independent Double-check* Guideline.

7.3   Assess and document the effects of high-alert medications per any pre-determined parameters, as applicable (e.g., vital signs, laboratory or diagnostic testing results, other observations).

8.   Auditing

8.1   At a minimum, audits shall review that:

    a)   the types of high-alert medications stocked in patient care areas (i.e., wardstock) are specific to the needs of the patients treated, and that any high-alert medications not used regularly shall be removed;

    b)   the quantity of each high-alert medication stocked in patient care areas (i.e., wardstock) is limited to the amount necessary to provide timely care;

    c)   high-alert medication storage and labelling are in compliance with the AHS *Management of High-alert Medications* Policy, guidelines, and this Procedure; and

    d)   safeguards identified in approved Required Organizational Practice exceptions are fully implemented.

DEFINITIONS

Authorized prescriber means a health care professional who is permitted by federal and provincial legislation, their regulatory college, Alberta Health Services, and practice setting (where applicable) to prescribe medications.

Dose error reduction software (DERS) means pre-determined programming for compatible pumps with digital memory, including minimum and maximum doses and minimum and maximum rates of administration for given standard concentrations of solution. Pumps that use this technology are also known generally as 'SMART" or smart technology pumps.

Hard stops/limits means a pre-set alert, in an infusion pump, that will notify the user that the dose, delivery rate, or concentration selected is out of the institution-determined safe range for that medication, and will not allow the infusion to be administered unless the pump is reprogrammed within the acceptable range. (Provincial Infusion Pump Education Working Group, 2010)

Health care professional means an individual who is a member of a regulated health discipline, as defined by the *Health Disciplines Act* (Alberta) or the *Health Professions Act* (Alberta), and who practises within scope and role.

High-alert medications means medications that bear a heightened risk of causing significant patient harm when used in error. (Institute for Safe Medication Practices [ISMP], 2012).

Independent double-check means a verification process whereby a second health care professional conducts a verification of another health care professional's completed task. The most critical aspect is to maximize the independence of the double-check by ensuring that the first health care professional does not communicate what they expect the second health care professional to see, which would create bias and reduce the visibility of an error. (Institute for Safe Medication Practices [ISMP], 2005)

Look-alike medications means pairs of medications that are very similar in terms of their physical characteristics, and may be confused one for the other. Physical characteristics include: size and shape of container, colour of cap, colour of label, volume of container, etc. (Institute for Safe Medication Practices Canada [ISMP] 2013)

Order means a direction given by a regulated health care professional to carry out specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An order may be written (including handwritten and/or electronic), verbal, by telephone, or facsimile.

Parenteral nutrition (PN) means an intravenous provision of nutritional needs for a patient who is unable to take appropriate amounts of nutrition enterally; typical components include carbohydrates, proteins, and/or lipids/fats, as well as additives such as electrolytes, vitamins, and trace elements.

Read-alike medications means pairs of medications whose names are very similar in terms of their spelling (e.g., vinblastine and vincristine, quinidine and quinine), and may be confused one for the other. (Institute for Safe Medication Practices Canada [ISMP] 2013)

SMART means, in relation to infusion pumps, '*S*afer *M*edication *A*dministration th*R*ough *T*echnology'.

Soft stops/limits means a pre-set alert, in an infusion pump, that will notify the user that the dose, delivery rate, or concentration selected is out of the anticipated range for that medication. However, soft stops/limits can be overridden by the user, and the medication can still be infused

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without changing the dose error reduction software pump settings. (Provincial Infusion Pump Education Working Group, 2010)

Tall Man lettering means a type of typographic technique that utilizes selective capitalization of certain letters to help differentiate between read-alike medication names (e.g., dimenhyDRINATE – diphenhydrAMINE).

REFERENCES

- Appendix A: *High-alert Medication Labels*
- Alberta Health Services Governance Documents:
  - *Clinical Documentation* Directive (#1173)
  - *Clinical Documentation Process* Directive (#1173-01)
  - *EMS Provincial Medical Control Protocols: Adult and Pediatric*
  - *High-alert Medications: Electrolytes* Guideline (#PS-46-02)
  - *High-alert Medications: Heparins* Guideline (#PS-46-03)
  - *High-alert Medications: Narcotics* Guideline (#PS-46-04)
  - *Independent Double-check* Guideline (#PS-60-01)
  - *Management of High-alert Medications* Policy (#PS-46)
  - *Medication Management* Policy (Continuing Care) (#HCS-220)
  - *Medication Orders* Policy Suite (#PS-93)
  - *Standardized Medication Concentrations for Parenteral Administration* Policy Suite (#PS-45)
- Alberta Health Services Resources:
  - *Pharmacy Medication Labelling Guidelines* (Medication Quality and Safety Team)
  - *Provincial High-alert Medication List*
- Non-Alberta Health Services Documents:
  - *Medication Management Standards (For Surveys Starting After: January 1, 2019)* (Accreditation Canada QMentum Program)

APPENDIX A

High-alert Medication Labels

High-alert Medication Label		
Label Type	**Medication Class**	**Use**
	All high-alert medications	• To be affixed to high-alert medication storage containers (i.e., wardstock and pharmacy stock). • May be affixed to automated dispensing cabinets (ADC) compartments containing high-alert medications. **Exception: Narcotics (opioids)** It is not necessary to label each storage container within the narcotic (opioid) storage area. A single large icon affixed to the door of the locked storage area (e.g., cart or cupboard) is sufficient.

Cautionary Labels to be used <u>in addition to</u> High-alert Medication Label		
Label Type	**Medication Class**	**Use**
	Neuromuscular blocking agents	To be affixed to the storage containers only (i.e., wardstock and pharmacy stock). No need to label product.
	Epidural products	To be affixed to the storage containers <u>and</u> to each ready-to-administer epidural product (including patient-specific).

All Pharmasystems labels can be ordered by calling Pharmasystems Customer Service Toll Free at 1-888-475-2500

The website can be accessed at www.pharmasystems.com.