If you have any questions or comments regarding the information in this procedure, please contact the Policy & Forms Department at policy@albertahealthservices.ca. The Policy & Forms website is the official source of current approved policies, procedures and directives.

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 procedure 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). This procedure does not limit any legal rights to which you may otherwise be entitled.

PROCEDURE

1. Storing and Labelling

1.1 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.

1.2 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.
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 generic name, strength/concentration, dosage form, and product size (where applicable) (see Medication Quality and Safety Team Pharmacy Medication Labelling Guidelines).

- 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.

1.3 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.

1.4 Affix additional auxiliary or cautionary labelling to storage containers and products per the Alberta Health Services High-alert Medications Electrolytes Guideline and High-alert Medications Narcotics Guideline.

1.5 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).

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

a) addition of system alerts to 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.

1.7 Label read-alike medications using Tall Man lettering, following the Pharmacy Services Tall Man Lettering Policy (i.e., wardstock and pharmacy stock).

1.8 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.
1.9 Store epidural products separately from intravenous solutions.

2. Prescribing

2.1 The authorized prescriber shall consult local processes, protocols, and guidelines for prescribing high-alert medications, where available.

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

2.3 Information Technology shall build alerts into computerized prescriber order entry systems (CPOE) to warn of minimum and maximum doses of high-alert medications, where possible.

2.4 Verbal or telephone orders shall not be accepted for chemotherapy unless they address holding or discontinuing the medication.

3. Preparing

3.1 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.

3.2 The concentrations and volume options of parenteral high-alert medications shall follow those established in the Alberta Health Services Standardized Medication Concentration for Parenteral Administration Policy.

4. Dispensing

4.1 Pharmacy computer order-entry systems shall identify high-alert medications as ‘High-alert’ and shall indicate minimum and maximum dose limits where possible.

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

4.3 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).

5. Administering

5.1 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.
5.2 **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.

**Note:** Providing appropriate medication information/teaching may not be possible in an emergency situation.

5.3 Complete an **independent double-check** (refer to Alberta Health Services *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) antineoplastic infusions; 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 local policy directs otherwise).

5.4 Zones/sites/care areas may determine that additional medications require an independent double-check and are encouraged to consider the following in determining such:

- a) assessment of local medication-related adverse events;
- b) risks identified in individual care areas/patient populations; and
- c) inclusion of other high-alert medications that have been implicated in significant adverse events in the safety literature.

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

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

6.1 Document completion of an independent double-check per Zone/site/care area direction.

6.2 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).

7. Auditing

7.1 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 Alberta Health Services Management of High-alert Medications Policy, guidelines, and this Procedure, and Zone-produced policy and procedure (if any); and

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

DEFINITIONS

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 provider conducts a verification of another health care provider’s completed task. The most critical aspect is to maximize the independence of the double-check by ensuring that the first
health care provider does not communicate what he or she expects the second health care provider 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.

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, ‘Safer Medication Administration through Technology’.

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

REFERENCES

- Appendix A High-alert Medication Labels
- Alberta Health Services High-alert Medications: Electrolytes Guideline
- Alberta Health Services High-alert Medications: Heparins Guideline
- Alberta Health Services High-alert Medications: Narcotics Guideline
- Alberta Health Services Independent Double-check Guideline
- Alberta Health Services Management of High-alert Medications Policy
- Alberta Health Services Provincial High-alert Medication List
- Alberta Health Services Standardized Medication Concentrations for Parenteral Administration Policy
- Alberta Health Services Standardized Medication Concentrations for Parenteral Administration Procedures
- Alberta Health Services Medication Quality and Safety Team Pharmacy Medication Labelling Guideline
- Alberta Health Services Pharmacy Services Tall Man Lettering Policy
- Accreditation Canada QMentum Program, Medication Management Standards (For Surveys Starting After: January 1, 2014)

REVISIONS

June 16, 2015 - Revised  
January 17, 2017 – Non-substantive
## High-alert Medication Labels

### High-alert Medication Label

<table>
<thead>
<tr>
<th>Label Type</th>
<th>Medication Class</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>All high-alert medications</td>
<td>To be affixed to high-alert medication storage containers (i.e., wardstock and pharmacy stock).&lt;br&gt;May be affixed to automated dispensing cabinets (ADC) compartments containing high-alert medications.</td>
<td></td>
</tr>
</tbody>
</table>

**Exception: Narcotics (opioids)**<br>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 in addition to High-alert Medication Label

<table>
<thead>
<tr>
<th>Label Type</th>
<th>Medication Class</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WARNING:</strong> Paralyzing Agent Causes Respiratory Arrest&lt;br&gt;Neuromuscular blocking agents</td>
<td>To be affixed to the storage containers only (i.e., wardstock and pharmacy stock). No need to label product.</td>
<td></td>
</tr>
<tr>
<td>For <strong>Epidural Use Only</strong>&lt;br&gt;Epidural products</td>
<td>To be affixed to the storage containers and to each ready-to-administer epidural product (including patient-specific).</td>
<td></td>
</tr>
</tbody>
</table>

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](http://www.pharmasystems.com).