

TITLE

ADULT STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATIONDOCUMENT #
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Standardized Medication Concentrations for Parenteral
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Provincial Medication Management CommitteeCATEGORY
Patient Safety

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

OBJECTIVE

- To provide a consistent process for ordering, preparing, and administering **standardized medication concentrations** for adults.

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. Ordering Medications**

- 1.1 **Authorized prescribers** shall follow this process when writing/entering orders for medications that have established standardized medication concentrations for adults.
- 1.2 **IF** specifying a medication concentration in a medication order, the authorized prescriber shall choose one of the standardized medication concentrations for adults.
- 1.3 **IF** a medication order is written/entered without a concentration specified, and only one standardized medication concentration for adults exists, that shall be the concentration that has been ordered.

- 1.4 When a clinical situation occurs where it is in the best interests of the patient's health to use a non-standardized medication concentration, the authorized prescriber should:
- indicate, on the order why a standardized medication concentration will not meet the clinical needs of the patient; and
 - indicate the preferred medication concentration.

2. Processing Medication Orders

2.1 By Health Care Professionals –

- If a medication order is written/entered without a concentration specified and only one standardized medication concentration for adults exists, the **health care professional** shall document that concentration per Zone/site process.
- If a medication order is written/entered without a concentration specified and more than one standardized concentration exists, the health care professional shall determine the most appropriate standardized medication concentration for the patient and document the concentration per Zone/site process.

2.2 By Pharmacy –

- If a medication order is written/entered without a concentration specified and only one standardized medication concentration for adults exists, the Pharmacy staff shall document that concentration per Zone/site process.
- If a medication order is written/entered without a concentration specified and more than one standardized concentration exists, the Pharmacy staff shall determine the most appropriate standardized medication concentration for the patient and document the concentration per Zone/site process.

2.3 If an order is written/entered for a non-standardized medication concentration the health care professional shall review the order to ensure that the authorized prescriber has included:

- why a standardized medication concentration will not meet the clinical needs of the patient; and
- the preferred medication concentration.

3. Preparing Medications

3.1 By Pharmacy –

- Pharmacy shall provide medications in the standardized medication concentrations for adults to patient care areas in **ready-to-administer** formats by:

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- purchasing those medications/concentrations that are available in ready-to-administer formats from the manufacturer; or
 - compounding the standardized medication concentration for adults in Pharmacy when and where pharmacy sterile compounding services are available.
- b) When more than one concentration of a medication infusion is provided as wardstock in a patient care setting, Pharmacy shall attach a “Caution: High Concentration” auxiliary label to the higher concentration to assist in differentiation. (See Appendix A *Labels – Standardized Medication Concentrations for Adults.*)
- c) Pharmacy shall compound medications in a non-standardized concentration only if:
- the criteria in section 1.4 of this document have been met; and
 - sterile compounding services are available.
- d) When compounding a non-standardized medication concentration, Pharmacy shall:
- perform an **independent double-check**; and
 - attach a “Custom Concentration” auxiliary label to the infusion as a safety strategy. (See Appendix A *Labels – Standardized Medication Concentrations for Adults.*)

3.2 By Health Care Professionals –

- a) When sterile compounding services are not available from Pharmacy, the appropriate health care professional shall be responsible for mixing medications in the standardized concentrations in the patient care setting:
- using aseptic technique; and
 - following the instructions in the Alberta Health Services *Provincial Parenteral Manual* monographs for mixing adult standardized medication concentrations; and
 - completing and attaching the appropriate medication label per Zone/site processes.
- b) When sterile compounding services are not available from Pharmacy, the appropriate health care professional shall be responsible for mixing non-standardized medication concentrations in the patient care setting:

- if the criteria in section 1.4 of this document have been met; and
- using aseptic technique; and
- ensuring an independent double-check is performed; and
- completing and attaching the appropriate medication label per Zone/site processes; and
- attaching a “Custom Concentration” auxiliary label to the infusion as a safety strategy. (See Appendix A *Labels –Standardized Medication Concentrations for Adults.*)

4. Administering Medications

- 4.1 Sites utilizing dose error reduction software (DERS) or SMART pumps:
- a) For medications with approved standardized medication concentrations for adults, only these concentrations shall be available in the medication library in the pumps.
 - b) The manual programming of non-standardized medication concentrations in the infusion pumps shall be verified through an independent double-check.
- 4.2 Sites not utilizing dose error reduction software pumps:
- a) The manual programming of non-standardized medication concentrations in the infusion pumps shall be verified through an independent double-check.

5. Auditing

- 5.1 The audit of compliance with standardized medication concentrations shall be conducted, at a minimum, annually.
- 5.2 Zone Operations shall be responsible for auditing compliance with standardized medication concentrations for adults by, including but not limited to:
- a) reviewing the concentrations of intravenous infusions purchased, compounded and dispensed by Pharmacy; and
 - b) reviewing medication orders for the concentrations of intravenous infusions ordered by authorized prescribers, and
 - c) reviewing the concentrations of intravenous infusions mixed and administered on the patient care setting by:
 - analyzing the data from the SMART infusion pumps and/or

- manually collecting data from Medication Administration Records (MARs) or patient profiles or patient charts.

5.3 Zone Operations shall be responsible for reviewing the audit results to identify:

- a) where there is lack of compliance with the standardized medication concentrations;
- b) the reason for lack of compliance; and
- c) if any change to the standardized medication concentrations for adults is required.

6. Changes to Adult Standardized Medication Concentrations

6.1 Requests for additions or changes to the standardized medication concentrations for adults:

- a) must include supporting data to validate the request;
- b) shall be directed to the Provincial Pharmacy Services Medication Quality & Safety Team.

6.2 When there is an addition or change to the standardized medication concentrations for adults:

- a) Pharmacy Services Medication Quality and Safety Team shall communicate the addition or change to:
 - Pharmacy Services Procurement & Inventory;
 - Pharmacy Services Drug Utilization;
 - Pharmacy Services Drug Information;
 - Pharmacy Services Informatics; and
 - the Provincial and Zone Medication Management Committees.
- b) Pharmacy Services Procurement & Inventory shall, if affected by the change or addition, amend the medication size/format purchased.
- c) Pharmacy Services Drug Utilization shall update the Provincial Formulary to reflect the addition of a new standardized medication concentration, if it is available from the manufacturer in a ready-to-administer format.
- d) Pharmacy Services Drug Information shall revise the relevant medication monograph in the Alberta Health Services *Provincial Parenteral Manual*.

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- e) Provincial/Zone Information Technology shall update the appropriate computer systems including, but not limited to, pharmacy order entry systems and computerized prescriber order entry (CPOE) systems.
- f) Zone/site “pump medication library” groups or committees shall update the pump medication library information.
- g) Zone/site Biomedical Engineering shall load the updated medication libraries into the SMART pumps.
- h) Zone Medication Management Committees shall oversee the communication, education and implementation of the addition or change.

DEFINITIONS

Authorized prescriber means a health care professional who is permitted by Federal and Provincial legislation, her/his 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.

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

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 he or she expects the second health care professional to see, which would create bias and reduce the visibility of an error.

Ready-to-administer means that the medication is available in a format that can be administered without any further adaptations such as adding medication or diluent.

SMART (pump) means ‘Safer Medication Administration thRough Technology’.

Standardized medication concentrations means medication concentrations that have been established based on stakeholder input for specific formulary parenteral medications, focusing on the Institute for Safe Medication Practices *List of High-Alert Medications*. The medications for which standardized concentrations have been established will differ for adult, pediatric and neonatal patients. For some medications there will be more than one standardized concentration. The standardized concentrations do not apply to all routes of administration for each medication. Refer to the *Alberta Health Services Provincial Parenteral Manual* monographs to ascertain the standardized medication concentrations.

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REFERENCES


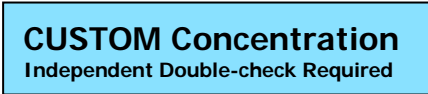
- Appendix A *Labels – Standardized Medication Concentrations for Adults*
- Alberta Health Services *Standardized Medication Concentrations for Parenteral Administration Policy*
- Accreditation Canada *Managing Medication Standards (For Surveys Starting After January 1, 2014)*
- Institute for Safe Medication Practices *ISMP's List of High-Alert Medications (2012)*

REVISIONS

N/A

APPENDIX A

Labels –Standardized Medication Concentrations for Adults

| <p>Auxiliary Labels – to be utilized per procedure.</p> | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wording | Use | Description |
| <p>CAUTION: HIGH Concentration</p> | <p>To be affixed to the <i>higher</i> standardized concentration of wardstock infusions when more than one concentration is stocked in the patient care setting.</p> | <p>Top: Yellow print on black background; Bottom: Black print on yellow background.</p>  |
| <p>CUSTOM Concentration Independent Double-check Required</p> | <p>To be affixed to <u>non</u>-standardized concentrations prepared either in pharmacy or in the patient care setting.</p> | <p>Black print on blue background.</p>  |
| <p>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.</p> | | |