

TITLE

NEONATAL STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATION

DOCUMENT

PS-45-02

INITIAL APPROVAL DATE

May 16, 2014

PARENT DOCUMENT LEVEL

LEVEL 1

INITIAL EFFECTIVE DATE

June 19, 2014

PARENT DOCUMENT TITLE

Standardized Medication Concentrations for Parenteral Administration Policy

REVISION EFFECTIVE DATE

N/A

APPROVAL LEVEL

Executive

NEXT REVIEW

May 16, 2017

SPONSOR

Provincial Medication Management Committee

CATEGORY

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 neonates.

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 neonates.
- 1.2 IF specifying a medication concentration in a medication order, the authorized prescriber shall choose one of the standardized medication concentrations for neonates.
- 1.3 The ordering of a non-standardized medication concentration by an authorized prescriber should occur only if there is an extenuating clinical situation where the

TITLE	EFFECTIVE DATE	DOCUMENT #	PROCEDURE - LEVEL 1 PAGE
NEONATAL STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATION	June 19, 2014	PS-45-02	2 of 7

standardized medication concentration does not meet the clinical needs of the patient. The authorized prescriber should:

- a) indicate on the order why a standardized medication concentration will not meet the clinical needs of the patient; and
- b) indicate the preferred medication concentration.

2. Processing Medication Orders

2.1 If a medication order for a continuous infusion is:

- a) written/entered without a concentration specified, the **health care professional** shall follow the Zone/site guidelines to ensure the most appropriate standardized concentration is provided to the patient and the concentration is documented per Zone/site process; or
- b) received in Pharmacy without a concentration specified, the Pharmacy staff shall follow the Zone/site guidelines to ensure the most appropriate standardized concentration is provided to the patient and the concentration is documented per Zone/site process.

2.2 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:

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

3. Preparing Medications

3.1 By Pharmacy –

- a) Pharmacy shall provide medications in the standardized medication concentrations for neonates to patient care areas in **ready-to-administer** formats by:
 - purchasing those medications/concentrations that are available in ready-to-administer formats from the manufacturer; or
 - compounding the standardized medication concentrations for neonates in Pharmacy when and where Pharmacy sterile compounding services are available.
- b) When more than one standardized concentration of a medication is provided as wardstock in a patient care setting, Pharmacy shall follow the Zone/site

TITLE	EFFECTIVE DATE	DOCUMENT #	PROCEDURE - LEVEL 1 PAGE
NEONATAL STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATION	June 19, 2014	PS-45-02	3 of 7

safety strategy used to assist in differentiating the high concentration infusions. Zones/sites may adopt the sample "Caution: High Concentration" auxiliary label identified in Appendix A *Labels – Standardized Medication Concentrations for Neonates*.

- c) Pharmacy shall compound medications in a non-standardized concentration only if:
- the criteria in section 1.3 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 Neonates*.)

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 neonatal standardized medication concentrations; and
 - ensuring an independent double-check is performed; and
 - completing and attaching the appropriate medication label per Zone/site guidelines.
- b) When sterile compounding services are not available from Pharmacy, the appropriate health care professional shall be responsible for mixing a medication in a non-standardized concentration in the patient care setting:
- if the criteria in section 1.3 of this document have been met; and
 - using aseptic technique; and
 - ensuring an independent double-check is performed; and

TITLE	EFFECTIVE DATE	DOCUMENT #	PROCEDURE - LEVEL 1 PAGE
NEONATAL STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATION	June 19, 2014	PS-45-02	4 of 7

- completing and attaching the appropriate medication label per Zone/site guidelines; and
- attaching a “Custom Concentration” auxiliary label. (See Appendix A *Labels – Standardized Medication Concentrations for Neonates.*)

4. Administering Medications

- 4.1 For medications with approved standardized medication concentrations for neonates, only these concentrations shall be available in the medication library on the **SMART** pumps.
- 4.2 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 neonates, 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 neonates is required.

6. Changes to Neonatal Standardized Medication Concentrations

- 6.1 Requests for additions or changes to the standardized medication concentrations for neonates:
- must include supporting data to validate the request;
 - shall be directed to Provincial Pharmacy Services Medication Quality & Safety Team.
- 6.2 When there is an addition or change to the standardized medication concentrations for neonates:
- 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.
 - Pharmacy Services Procurement & Inventory shall, if affected by the change or addition, amend the medication size/format purchased.
 - 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.
 - Pharmacy Services Drug Information shall revise the relevant medication monograph in the Alberta Health Services *Provincial Parenteral Manual*.
 - 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.
 - Zone/site “pump medication library” groups or committees shall update the pump medication library information.
 - Zone/site Biomedical Engineering shall load the updated medication libraries into the SMART pumps.
 - Zone Medication Management Committees shall oversee the communication, education and implementation of the addition or change.

TITLE	EFFECTIVE DATE	DOCUMENT #	PROCEDURE - LEVEL 1 PAGE
NEONATAL STANDARDIZED MEDICATION CONCENTRATIONS FOR PARENTERAL ADMINISTRATION	June 19, 2014	PS-45-02	6 of 7

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* [Alberta] or the *Health Professions Act* [Alberta], 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 *ISMP's 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.

REFERENCES

- Appendix A *Labels – Standardized Medication Concentrations for Neonates*
- 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 Neonates

Auxiliary Label – to be utilized, per procedure.		
Wording	Use	Description
CUSTOM Concentration Independent Double-check Required	To be affixed to <u>non-</u> standardized concentrations prepared either in Pharmacy or in the patient care setting.	Black print on blue background. <div style="border: 1px solid black; background-color: #ADD8E6; padding: 5px; text-align: center;"> CUSTOM Concentration Independent Double-check Required </div>
SAMPLE Auxiliary Label - may be utilized per Zone/site procedures.		
Wording	Use	Description
CAUTION: HIGH Concentration	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.	Top; Yellow print on black background; Bottom: Black print on yellow background. <div style="border: 1px solid black; background-color: black; color: yellow; padding: 5px; text-align: center;"> CAUTION HIGH Concentration </div>
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 .		