

Safety Controls for High-Alert Medications	
Service Area: Patient Safety: Medication Safety	Standard Number: XX-XXX-XXX V1.3
Approved by: Provincial Clinical Leadership Team (PCLT)	Original Approval Date: 04/25/2023 Review Frequency: Every 3 years or earlier as required

1.0 **PURPOSE:**

To promote the safe prescribing, distribution, labelling, packaging, storage, preparation, administration, and monitoring of High-Alert Medications.

2.0 **CLINICAL STANDARD:**

2.1 **Special Considerations**

High-Alert Medications necessitate additional safeguards including independent double-checks, specific storage instructions, and label requirements to enhance client/patient safety and reduce errors that may lead to the possibility of serious harm. As with all medication administration, it is the professional responsibility of the Health Care Practitioner (HCP) /Learner who handles high-alert medications to ensure their competency.

- *Anesthesiology*: An independent double-check with visual verification prior to preparation and administration, including all pump settings and line connections, is required for:
 - All neuraxial medications administered by anesthesiologists (single doses and continuous infusions).
 - All local anesthesia medications (e.g. Bupivacaine, Ropivacaine, Lidocaine) including but not limited to additional medications, e.g. Dexmedetomidine and Dexamethasone, when given as a peripheral continuous infusion.
- Learners may perform the first independent double-check, with appropriate level of supervision defined by the academic institution and/or professional regulators. To support safe medication administration it is expected that the Learners follow the High Alert Medication Standard and High-Alert Medication List, and fulfill any requirements identified by their educational institutions or organizations. The second independent double-check must be completed by a licensed Health Care Practitioner.
- Grad nurses and other learners may not perform a self-checking procedure.
- Regional contracting process ensures that distinctive packaging for High-Alert Medications is considered when awarding purchasing contracts.
- Commercially packaged or Pharmacy-prepared pre-mixed solutions of High-Alert Medications are used when available, and when applicable to the client/patient.
- All High-Alert Medications administered as intravenous or epidural infusions are, to the greatest extent possible, done using standardized concentrations.
- SDO audits are completed annually, as a minimum, in client/patient service areas.
- Refer to the SDO Medication Order Writing Policies for standards on prescribing High Alert Medications.

- Information and ongoing training are provided within SDOs for the management of high-alert medications.

The High-Alert Medication List is established and reviewed annually by Medication Quality and Safety Committees. All medications are to be reviewed for High-Alert consideration based on historical problems, complicated dosing or administration, level of toxicity, narrow therapeutic index, or common practice. Future provincial structures are to be determined.

2.2 Procedure

The following independent double-checks and verifications are required when preparing and administering High-Alert Medications:

EXCEPTION: Medications administered in emergency situations follow SDO-specific procedures (e.g. Code Blue).

2.2.1 Calculation

An independent double-check of all calculations is performed when a High-Alert Medication is prepared in a client/patient care area.

EXCEPTION: An independent double-check of all calculations is not required when preparing medications according to standardized recipes detailed in SDO Parenteral Drug Monographs or Pharmacy Batch Compounding Records.

2.2.2 Medication Preparation

2.2.2.1 An independent double-check by visual verification of the following information is performed when a High-Alert Medication is prepared in a client/resident care area.

- Correct medication and concentration.
- Correct volume of medication needed.
- Correct [diluent](#) and volume needed.
- Correct volume and concentration of finished preparation.

Pharmacy staff complies with Pharmacy procedures when performing independent double-checks for medications prepared by Pharmacy.

2.2.2.2 High-Alert Medication infusions are labelled as per SDO labelling policies. The following information is recommended on medication labels.

- Drug name.
- Drug dose.
- Drug volume.
- Diluent (if applicable).
- Diluent volume (if applicable).
- Final concentration.
- Date and time of preparation.
- Client/patient name.
- Initials of calculation and medication preparation:
 - Initials of two individuals who prepared the medication and performed the independent double-check of calculations are placed on the

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preparation label. If Health Care Practitioner is working alone, the Self-Checking with Timeout-Procedure is followed below. Refer to section 2.2.4 below.

- Initials are not required for Pharmacy-prepared or commercially-prepared infusions.

2.2.3 Medication Administration

2.2.3.1 An independent double-check, by visual verification, using the [Medication Administration Record \(MAR\)](#), provider-specific record or provider order as per program procedure, is performed prior to administration of a High-Alert Medication.

- Correct client/patient using two identifiers.
- Correct medication and concentration.
- Correct dose for the client/patient.
- Correct route of administration.
- Correct time.

Infusions ([Intermittent](#) and [Continuous](#))

2.2.3.2 In addition to the above, the following independent double-checks are performed at the bedside, by visual verification, when administering a High-Alert Medication via Infusion.

- Correct rate of administration.
- Correct pump settings.
- Correct administration set and/or connectors (When possible, select and use tubing without injection ports for High-Alert Medications).
- Trace administration set from infusion container, through the pump to the client/patient.

These independent double-checks are performed:

- when establishing an infusion;
- when the rate or dose is changed;
- when the infusion container is changed; or
- when a [transfer of care](#) occurs, excluding temporary coverage referenced in SDO-level handover/transfer of care policies.

EXCEPTION: Independent double-checks are not required when titrating continuous infusions as per prescriber/physician orders of vasopressors, midazolam, and propofol in Adult ICUs, PACUs, Emergency/Urgent Care Departments and with adult Critical Care Transport Teams. See the High Alert Medication List appendix with double asterisks(**) for specific medications

It is required that the Health Care Practitioner/Learner administering the High-Alert Medication is one of the individuals involved in the independent double-check of the preparation unless Pharmacy-prepared.

2.2.3.3 Documentation Requirements of Medication Administration

- The Health Care Practitioner/Learner who performs the independent double-check of the medication administration signs or initials the MAR, or provider-specific record.

Note: When initials are being used in place of a signature they must identify the employee/learner, and their designation, and be recognizable in the chart.

- It is required that one of the Health Care Practitioners/Learners who signs for the medication administration independent double-check is also the Health Care Practitioner/Learners who prepared the medications, excluding preparations from the Pharmacy.

2.2.4 Self-Checking with Time-Out Procedure

A Health Care Practitioner working alone performs the double-check procedures as outlined below.

If possible, another unrelated task should be done between doing the initial calculation, medication preparation and self-checking. This process, known as a time-out, offers a final verification process from a fresh perspective.

2.2.4.1 Documentation Requirements for [Self-Checking with Time-Out Procedure](#)

The Health Care Practitioner performing the Self-Checking and Time-Out Procedure initials the label, MAR, discipline, or provider-specific record, e.g. flowsheet or Pharmacy preparation record twice as an indication that this procedure was performed.

2.2.4.2 Storage and Flagging of High-Alert Medication

- Pharmacy Storage: High-Alert Medications stocked in Pharmacy are flagged through a shelf/bin label or a product label.
- Automated Dispensing Units: Medications dispensed through automated dispensing units are flagged through a clinical alert.
- Ward Stock in Client/Patient Care Area: High-Alert Medications available as ward stock medications are limited to those essential in providing timely care. Concentrations and volumes are made available in limited quantities to reduce errors. All High-Alert Medications available as ward stock are flagged through a shelf/bin label or a product label.
- Client/Patient-Specific Dispensed: Medications dispensed directly from Pharmacy have an auxiliary label on the product or client/patient-specific label. Medications dispensed for patient self-administration at home do not require an auxiliary label.
- Parenteral Drug Monographs: All monographs for High-Alert Medications are identified with a High-Alert Medication symbol.
- IV Infusion Pumps: Drug Error Reduction Software is used to flag all High-Alert Medications where available.
- Electronic Medication Record: Modules within the Electronic Medication Record will flag High-Alert Medications as supported by the software.

- All premixed epidural solutions are clearly labelled, "For [Epidural](#) Infusion Only", and stored separately from all intravenous preparations.
- All medications prepared for Intrathecal use are clearly labelled "For [Intrathecal](#) Use Only" and stored separately from all other intravenous preparations.
- Applicable client/patient care areas are notified by the Pharmacy of changes in manufacturer, labelling, and/or packaging of High-Alert Medications as determined by the Pharmacy program.

3.0 **DEFINITIONS:**

Care Transition: Any point in care where one provider is transitioning care to another provider or location.

Central Venous Access Device (CVAD): A device inserted into a central or peripheral vein with the tip located in the central venous system (i.e. superior or inferior vena cava) e.g. tunneled or non-tunneled catheters, implanted venous access devices (IVAD), dialysis catheters, peripherally inserted central catheters (PICC), umbilical venous catheter.

Client/Patient: An individual and/or their family/care provider who accesses and/or receives healthcare-related services from a facility or program, including affiliate or grant-funded agencies. Clients/patients may be clients/patients in an acute care setting, residents in a personal care home, or clients/patients in a community program or facility.

Continuous Infusion: Method of administering medication continuously intravenously or subcutaneously, through an IV bag, syringe, syringe pump, or infusion pump, at a set amount per route over a longer period of time (e.g. dose/hour).

Diluent: A solution used to dilute or dissolve.

DIN (Drug Identification Number): The 8-digit number located on the label of prescription and over-the-counter drug products that have been evaluated by the Therapeutic Products Directorate (TPD) and approved for sale in Canada.

Epidural: Into the epidural space

Health Care Practitioners: Includes but is not limited to physicians, nurses, allied health and support services staff that by legislation or by Service Delivery Organization (SDO) site or service policy may prescribe, prepare and/or administer medication.

High-Alert Medications: Medications that carry a heightened risk of causing significant client/patient harm when calculated, prepared, or administered in error. Although errors are not necessarily more common with these medications, the consequences of an error with these medications can be more devastating to a client/patient.

Independent Double-Checks: A second Health Care Practitioner checks, in a separate and independent manner from the first practitioner/learner, all calculations needed to prepare a dose of a drug for administration to a client/patient, the preparation process, and administration of the drug. Visual verification is used within the independent double-check process for the preparation and administration procedures.

Intramuscular (IM): Into a muscle.

Intraosseous (IO): Into the bone marrow cavity.

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Intraperitoneal (IP): Into the peritoneal cavity.

Intrathecal (IT): Into a sheath or the subarachnoid or subdural space.

Intravenous (IV): Into a vein.

Intravesical: Into the bladder.

IV Direct (Direct IV): Administration of medication or intravenous fluid, usually over less than 5 minutes, through an injection site adjacent to the needle or catheter, or directly into a vein.

IV Continuous Infusion (Continuous Infusion IV): See Continuous Infusion.

IV Intermittent Infusion (Intermittent IV): Method of administering IV medications using a volume of compatible IV fluids infused over the desired period.

IV Loading Dose: A higher dose of a drug, generally administered once or twice at the beginning of therapy, for the purpose of achieving therapeutic levels more quickly. Can be achieved by Direct or Intermittent administration. Also, can be administered from a continuous infusion bag.

Learners: Individuals registered in a pre-licensure health professions program, including but not limited to Paramedic, Respiratory Therapist and Nursing Students.

Medication Administration Record (MAR): This applies to all records (paper or electronic) used to document medication preparation and administration in client/patient care areas. Some units or services may visually verify a dose directly from the original medication order or other applicable administration records (i.e. flowsheet).

Neuraxial: Pertaining to the central nervous system.

Parenteral: Denoting a route other than the alimentary canal and/or oral route. Common examples included in Parenteral Drug Monographs are IM, subcutaneous, IV, and intranasal.

Prefilled Syringe: A commercially available product that contains a set amount of medication in a set volume of fluid in a syringe. The product has a [DIN](#).

Self-Checking with Time-Out Procedure: A procedure where a Health Care Practitioner working alone performs the double-check of their own medication preparation and administration. If possible, another unrelated task should be done between doing the initial calculation and medication preparation and the second double-check.

"Smart" Pumps: Infusion pumps with dose-checking technology to help prevent potentially harmful errors in medication administration. The role of the smart pump technology is to "remember" the large number of "rules" (dosing limits and other clinical advisories) entered into the drug library and to apply those "rules" during pump programming, warning Health Care Practitioners about potential unsafe medication therapy.

Subcutaneous (subcut): Into subcutaneous tissue.

Visual Verification: A second Health Care Practitioner confirms, by visually checking.

Ward Stock Medications: Medications, including High-Alert Medications, available in client/patient care areas for administration to clients/patients prior to Pharmacy verification of the order.

4.0 **RESOURCES**

Refer to References

5.0 **CONTACT**

Provincial Clinical Service Lead Critical Care, Emergency and Trauma or;
Integrated Workstream Lead for Pharmacy.

SHIntegrationQuality@sharedhealthmb.ca

Appendices/Related Documents:

[Provincial High Alert Medication List](#)

[WRHA Hazardous Medication List](#) (external link)

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Revision & Approval History

<u>Version #</u>	<u>Date</u>	<u>Reviewer</u>
1.0	Summer 2022	Provincial High Alert Medication Task Force
	13-Oct-22	PNLC
	7-Feb-23	Shared Health ERS
	21-Feb-23	PCLT
	25-April-23	PCLT-Approved
1.1	11-Dec-23	J.Lamont, J Walker-Tweed, J.Murawski – revised for clarity
1.2	01-Feb-24	J.Lamont, J Walker-Tweed– revision to section 2.1 (student role)
1.3	13-Jun-24	PNLC-Endorsed. Revisions in 2.1;2.2.2.2; 2.2.3.3, Edits pertaining to learner roles with independent double-check, administration, and documentation. Learners may participate as first double-check if education and skill competency is confirmed with appropriate supervision. Alignment in all affected sections to support this. 2.2.3.1- Edited section to improve clarity pertaining to bedside checks.
	18-Jun-24	PCLT- Approved
	17-Jul-24	Academic Deans-Endorsed

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