



OPERATING STANDARD

SUBJECT/TITLE: Medication Preparation and Administration for Undergraduate Nursing Students		PAGE: 1 of 7
RELATED OPERATING STANDARD: Supervision of Clinical Competencies for Undergraduate Students		DATE ESTABLISHED: April 7, 2010
AUTHORIZATION: Practice Procedure & Guidelines Sub-Committee Undergraduate Programs Committee Nursing Council	DATE LAST REVIEWED: October 3, 2024 February 13, 2024	LAST REVISED: February 15, 2024

This operating standard applies to all undergraduate students in the Faculty of Nursing.

*For students enrolled in Terms 7 and 8, also refer to the RELATED OPERATING STANDARDS referenced above.

Agency policies supersede this operating standard.

Purpose

- To support the provision of safe and effective medication administration in a variety of practice settings.
- To promote a safe learning environment for nursing students during preparation and administration of medications.

Definitions

In this operating standard:

“HEALTH CARE PROFESSIONAL” means a nurse or other regulated health professional who is qualified by education, training, and provincial/federal licensure/regulation and who practices within their professional determined scope of practice.

- A. **“UNDER DIRECT SUPERVISION”** means that the Instructor/ Preceptor (or a practice site Health Care Professional (see definition) at the discretion of the Instructor/Preceptor) is present in the practice setting at the point of care and is providing supervision at the elbow of the nursing student for only that which falls within the supervising qualified Health Care Professional’s scope of practice.

- B. **“UNDER INDIRECT SUPERVISION”** means that the Nursing Instructor/ Preceptor (or a practice site Health Care Professional at the discretion of the Nursing Instructor/ Preceptor) is readily available on the unit or in the same location for guidance and consultation but is not directly at the elbow of the nursing student, for only that which falls within the supervising qualified Health Care Professional’s scope of practice.
- C. **“INDEPENDENT DOUBLE-CHECK”** is a process where a second health-care professional (HCP) verifies a medication before it is administered to a patient. The result from the first check is not communicated with the HCP performing the second check and the second check must be performed independently (Institute for Safe Medication Practices, 2019). This requires a qualified Health Care Professional to separately check each component of the work process (ISMP, 2013a), including the 7 rights of medication administration (right medication, dose, client, route, time/frequency, documentation and reason [CRNA, 2021]). If a practice site policy requires two independent qualified Health Care Professional signatures for administration of a particular medication, then the student must obtain signatures from two independent qualified Health Care Professionals – **in this case the student’s signature cannot count as one of the independent signatures.**

Operating Standard Statement

1. **Medication Administration:** Nursing students will follow the guidelines for competent medication administration:
 - Students must only function within their level of competence, recognize their limitations, and seek assistance, direction, and/or supervision when needed
 - A student may not administer ANY medications until they have completed the related theory and on-campus practice and has successfully completed the medication calculation exam in term 5.
 - Students must successfully complete a medication calculation exam in Term 5 and Term 6 and in Term 7 and Term 8 as required or needed.
 - Students must complete the 7 rights of medication administration (right medication, dose, client, route, time/frequency, documentation, and reason, [CRNA, 2021]), and 3 checks prior to administering any and all medications. The 3 checks include:
 - 1) Compare the medication label to the MAR (Medicine Administration Record) as you remove the drug from the storage area,
 - 2) Compare the medication label to the MAR as you prepare each drug,
 - 3) Compare the medication label to the MAR at the patient’s bedside before you administer each drug (ATI Nursing Education)
 - Students will initially administer medication Under Direct Supervision in all practice courses.
 - Nursing students cannot be the Co-Signer for someone else.

2. **Independent double-checks by regulated Nurse Health Care Professional (s):** Nursing students administering the following classes of drugs must have them independently double-checked (including co-signature) by a **minimum** of one qualified Health Care Professional.

Including but not limited to:

 - Narcotics (co-signature required on patient chart and narcotic count sheet, including wastage).

- Students are not permitted to administer narcotics via continuous infusion (exception, see #15).
- Insulin (s/c). Students are not permitted to administer insulin via continuous infusion (exception, see #15).
 - Anticoagulants. Students are not permitted to administer heparin via continuous infusion (exception, see #15).
 - Cytotoxics antineoplastics and chemotherapeutic agents. See note #13.
 - All divided doses, e.g. breaking tablets, multi-dose vials.
 - Medications requiring compounding, which means “to mix together two or more ingredients of which at least one is a drug for the purposes of dispensing a drug or drugs but does not include reconstituting a drug or drugs with only water” (Government Organization Act. R.S.A. 2000, c. G-10, Sch. 7.1, 1(b), p. 38).

The nursing student and qualified Health Care Professional must also consult and adhere to any applicable practice site policies.

- If a qualified Health Care Professional is permitted to administer the medication independently, then the nursing student must have the medication independently double-checked by **one** qualified Health Care Professional.
- If a qualified Health Care Professional requires the medication to be independently double-checked, then the nursing student must have the medication independently double-checked by **two** qualified Health Care Professionals - **in this case the student’s signature cannot count as one of the independent signatures.**

- 3. Peripheral Intravenous (IV) Medication Administration:** Students in Terms 6 - 8 **are permitted** to change primary bag solutions and prepare IV medications via mini-bags, including reconstitution, after participating in the related on-campus practice session and demonstrating knowledge of the related policy and procedures to their Nursing Instructor/Preceptor. These skills are to be carried out Under Direct Supervision of the Nursing Instructor (or a regulated Nurse Health Care Professional). Students may administer the same Under Indirect Supervision once deemed competent by the Nursing Instructor/Preceptor. Nursing students must consult with and adhere to any applicable practice site policies, which could supersede or limit this practice.

4. IV Push Medications:

Terms 3 through 7

Nursing students in Terms 3 through 7 are **not permitted** to administer medications via IV push.

Term 8

Please refer to Supervision of Clinical Competencies for UCalgary Undergraduate Students operating standard.

- 5. Peripheral Saline Locks:** Nursing students **are permitted** to flush a saline lock with a saline flush after participating in the related on-campus practice session and demonstrating knowledge of the related policy and procedures to their Nursing Instructor/Preceptor. These skills are to be carried out Under Direct Supervision of the Nursing Instructor/Preceptor (or a qualified Health Care Professional). The

student and Nursing Instructor/Preceptor must adhere to practice agency policy.

6. **Central Venous Catheters (CVC):**

Terms 3 through 7 (See exception below)

Nursing students in Terms 3 through 7 are **not permitted** to administer medications or change solutions via a CVC, catheter, and PICC line under any circumstances.

Exception: Term 7 (Oncology Focus Only)

Under the direct supervision of the NI or primary nurse (who must be CVC certified), nursing students in Term 7 (with an oncology focus only) **may be permitted** to administer IV medications or change solutions **above the pump** via a central venous catheter, and PICC line. Students must follow AHS policy and successfully complete the CVC learning module, medication administration exam, and CVC exam in the Nursing 589 oncology lab.

Term 8

Nursing students in Term 8 **may be permitted** to administer IV medications (above or below the pump) or change solutions above the pump via a central venous catheter, and PICC line. Refer to Supervision of Clinical Competencies for Undergraduate Nursing Students procedure.

7. **Hypodermoclysis:** Nursing students **are permitted** to initiate hypodermoclysis and administer medications via this route after participating in the related on-campus practice session and demonstrating knowledge of the related policy and procedures to their Instructor/Preceptor. These skills are to be carried out Under Direct Supervision of the Nursing Instructor/Preceptor (or a qualified Health Care Professional). Students may administer medications via hypodermoclysis Under Indirect Supervision once deemed competent by the Nursing Instructor/Preceptor.
8. **Weight-Based Medications:** Nursing students **are permitted** to administer weight-based medications (where the weight of the client is included in the calculation of the dosage) after they have completed the related on-campus practice session and demonstrate knowledge of this process.
 - If a qualified Health Care Professional is permitted to administer the weight-based medication independently, then the nursing student must have the medication independently double-checked by **one** qualified Health Care Professional.
 - If a qualified Health Care Professional requires the weight-based medication to be independently double-checked, then the nursing student must have the medication independently double-checked by **two** qualified Health Care Professionals - **in this case the student's signature cannot count as one of the independent signatures.** The nursing student and Nursing Instructor/Preceptor must also consult and adhere to any applicable practice site policies.
9. **Vaccines:** Students must attend mandatory site training (or equivalent) and pass required testing as applicable.
 - If a qualified Health Care Professional is permitted to administer the vaccine independently, then the nursing student must have the vaccine independently double-checked by **one** qualified Health Care Professional.
 - If a qualified Health Care Professional requires the vaccine to be independently double-checked, then the nursing student must have the vaccine independently double-checked by

two qualified Health Care Professionals - in this case the student's signature cannot count as one of the independent signatures.

- 10. Blood and Blood Products:** Nursing students **are permitted** to administer blood and blood products Under Direct Supervision after they have completed the related on-campus practice session and demonstrate knowledge of the related policy and procedures to their Nursing Instructor/Preceptor. The nursing student and Nursing Instructor/Preceptor must also consult and adhere to any applicable practice site policies.
- If a qualified Health Care Professional is permitted to administer the blood product independently, then the nursing student must have the blood product independently double-checked by **one** qualified Health Care Professional.
 - If a qualified Health Care Professional requires the blood product to be independently double-checked, then the nursing student must have the blood product independently double-checked by **two** qualified Health Care Professionals - in this case the student's signature cannot count as one of the independent signatures.
- 11. Infusion pumps:** "Dose error reduction software shall be activated and utilized when available. Appropriate drug profiles from the drug library shall be utilized where available" (AHS, Infusion Pumps for Medication & Parenteral Fluid Administration, 2016). Independent double-checking of the pump programming is required for medications that require independent-double checks.
- 12. Patient controlled analgesic (PCA) / Patient controlled epidural analgesic (PCEA):** Nursing students **are not permitted to manipulate or regulate** these pumps or replace cartridges or solutions. Students may check values, but they may not clear the values.
- 13. Chemotherapy:** Nursing students **cannot** give any chemotherapy medications in any form.
- 14. High alert medications (ISMP 2018):** Nursing students **are permitted** to administer High Alert Medications (ISMP 2018) Under Direct Supervision after they have demonstrated knowledge of High Alert Medication to their Instructor/Preceptor. The nursing student and Instructor/Preceptor must also consult and adhere to any applicable practice site policies.
- If a qualified Health Care Professional is permitted to administer High Alert Medication independently, then the nursing student must have the High Alert Medication independently double-checked by **one** qualified Health Care Professional.
 - If a qualified Health Care Professional requires the High Alert Medication to be independently double-checked, then the nursing student must have the High Alert Medication independently double-checked by **two** qualified Health Care Professionals – in this case the student's signature cannot count as one of the independent signatures.
- 15. Term 8 - Directly Supervised Medication Administration:** Nursing students in **Term 8 are permitted** to give the following medications **Under Direct Supervision, if identified** as an acceptable-clinical competency, upon completion of the required learning modules as well as agreement of the Faculty Advisor, Preceptor(s), and Unit Manager/Educator. Refer to Supervision of Clinical Competencies for Undergraduate Students procedure. Nursing students in Terms 5, 6, and 7 are not allowed to administer the following:
- Heparin infusions
 - Insulin infusions
 - Oxytocin infusions (intrapartum)
 - Direct IV push medications
 - Parenteral nutrition
 - Narcotic (opioid) continuous infusions

- Medications above the pump with central lines, mid-line catheters, and PICCs
 - If a qualified Health Care Professional is permitted to administer the medication independently, then the nursing student must have the medication independently double-checked by **one** qualified Health Care Professional.
 - If a qualified Health Care Professional requires the medication to be independently double-checked, then the nursing student must have the medication independently double-checked by **two** qualified Health Care Professionals - **in this case the student's signature cannot count as one of the independent signatures**. The nursing student and Nursing Instructor/Preceptor must also consult and adhere to any applicable practice site policies.

16. Verbal Orders/Transcription of Orders: Nursing students are **not permitted** to receive and /or transcribe verbal orders, in person or via telephone.

References

[Alberta Health Services \(2016\). *Infusion Pumps for Medication & Parenteral Fluid Administration*.](#)

[College of Registered Nurses of Alberta. \(2021\). *Medication Management Standards*.](#)

Government Organization Act. Revised Statutes of Alberta. (2000). Alberta King's Printer.

Institute for Safe Medication Practices – Canada. (2018). *Independent double checks: [Undervalued and misused: Selective use of this strategy can play an important role in medication safety](#).*

Institute for Safe Medication Practices – Canada. (2018). [*ISMP list of high-alert medications in acute care settings*](#).