



# Administration of Medications

A Self-Assessment Guide  
for Licensed Practical Nurses

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College of Licensed Practical Nurses of Nova Scotia

<http://clpnns.ca>

Starlite Gallery,  
302-7071 Bayers Road,  
Halifax NS B3L 2C2

Tel: (902) 423-8517

Toll-free in NS: 1 (800) 718-8517

Fax: (902) 425-6811

info@clpnns.ca

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## The College of Licensed Practical Nurses of Nova Scotia

### Introduction

The [College of Licensed Practical Nurses of Nova Scotia](#) (CLPNNS), or the College, is the [regulatory body](#) for Licensed Practical Nurses (LPNs) in Nova Scotia. The College's [mandate](#) is to protect the public by promoting the provision of safe, competent, ethical, and compassionate nursing care. The College sets, monitors and enforces standards for entry into the profession, practical nurse education, registration and professional conduct. The College creates [Standards of Practice](#), establishes a [Code of Ethics](#), develops and implements a [Continuing Competence Program](#) and publishes policies and [interpretive documents](#) to support the practice of licensed practical nurses in Nova Scotia.

### How to Use this Guide

This document will provide an overview of information to assist you to perform a self-assessment of your medication administration competence (knowledge, skill and judgement). At the end of each section are reflective practice questions. Ask yourself the following questions as you reflect on your answers.

- **What parts were easy? Difficult? Why?**
- **Do I have the necessary knowledge, skill, and judgment to perform these skills?**  
(Remember: Medication administration is about understanding and applying principles of safe medication administration, which includes knowing when and how to use a reference. There is no expectation that nurses know every detail about every medication on the market today).
- **What are my strengths? What or where are my gaps in knowledge?**
- **What do I need to do to address any gaps in my knowledge?**

The findings of the self-assessment can be used to be used to identify learning goals to help you meet the annual requirements of the Continuing Competency Program (CCP).

**PLEASE NOTE:** This document is a *suggested guide* to helps nurses conduct a self-assessment of their individual competence related to medication administration. Always follow agency policy.

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## Medication Administration: A Self-Assessment Guide for Licensed Practical Nurses

Safe medication administration requires knowledge of pharmacology, client assessment, standards and agency policies. It also requires the knowledge, skill and judgment related to safe practice. Ongoing self-assessments of competence, reflective practice and participation in continuing education activities are also important components of the process.

Competent medication administration practice is more than performing the technical task of giving a pill or an injection to a client. Licensed practical nurses must have competence in order to: assess the appropriateness of medications; administer medications safely and correctly; evaluate the effectiveness of medications; identify and manage adverse reactions; accurately document outcomes; support clients<sup>1</sup> to manage their own health; and, consult other appropriate care providers as needed (CLPNNS, 2013).

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<sup>1</sup> In this document, the word client is to meant to be mean the client, family or substitute decision maker.

## General Medication Administration Guidelines

Medication Administration	Key Aspects
Prescriber orders	<ul style="list-style-type: none"> <li>• Ensure orders are appropriate, legible, current, complete and transcribed accurately.</li> <li>• Complete orders include:               <ul style="list-style-type: none"> <li>○ Client name (and/or other required agency identifiers);</li> <li>○ Name of the medication;</li> <li>○ Dose;</li> <li>○ Frequency of administration;</li> <li>○ Route of administration;</li> <li>○ Additional instructions or assessment parameters as needed; and,</li> <li>○ Agency approved (rather than <a href="#">error prone or high-risk</a> abbreviations).</li> </ul> </li> <li>• All orders must also be accompanied with:               <ul style="list-style-type: none"> <li>○ The date and time the order was written or taken;</li> <li>○ A clearly visible notation about client allergies;</li> <li>○ A legible signature of the prescriber<sup>2</sup>;</li> <li>○ Telephone orders include the receiving nurse's legible signature and professional designation; and,</li> <li>○ Other information as defined by the agency policy.</li> </ul> </li> </ul>
Medication appropriateness	<ul style="list-style-type: none"> <li>• Assess appropriateness by reviewing: purpose, dose range, side effects, risks, contraindications, administration time and interactions with other medications.</li> </ul>
Appropriate and safe preparation	<ul style="list-style-type: none"> <li>• Environmental factors – lighting, clutter free, minimal interruptions, aseptic technique.</li> <li>• Check label <i>at least</i> three times: when removed from storage, immediately prior to removing from container/packaging and when returning to storage.</li> <li>• Ensure dosage calculations are accurate - <a href="#">independent double check</a>, crush/split only if appropriate, do not administer medications from an unlabelled/illegible container, do not administer if prepared by someone else (unless there are extenuating circumstances – e.g., code, mass immunization<sup>3</sup>).</li> <li>• Safe storage and disposal – stored and disposed of appropriately according to agency policy.</li> </ul>
Pre-pouring for later use	<ul style="list-style-type: none"> <li>• Pre-pouring is unacceptable practice in everyday circumstances.</li> </ul>

<sup>2</sup> In the situation of telephone orders, the prescriber may be expected to co-sign telephone orders according to agency policy.

<sup>3</sup> This practice requires an agency policy.

	<ul style="list-style-type: none"> <li>• However, there are limited practice specific contexts where for pre-pouring may be permitted by agency policy, (e.g., a home care nurse filling a client’s weekly medication case).</li> <li>• <b>NEVER</b> leave medication at client’s bedside to be taken later.</li> </ul>
Identification of client	<ul style="list-style-type: none"> <li>• Use the Medication Administration Record (MAR) and at least two client identifiers<sup>4</sup> to ensure correct client.</li> </ul>
Documentation	<ul style="list-style-type: none"> <li>• Document immediately after administering medication, <b>never</b> before<sup>5</sup>.</li> <li>• Include the client assessment and response to medication in documentation.</li> </ul>

*Reflective Practice*

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them?
4. How will having this knowledge improve my daily practice?
5. How will this make it safer for clients and improve outcomes?

<sup>4</sup> As defined by agency policy.

<sup>5</sup> Documenting before administering the medication may blur the line of accountability or create confusion resulting in a medication error.

## A Medication Administration Safety Framework: The Rights of Medication Administration<sup>6</sup>

Licensed practical nurses are accountable to administer medication safely and competently. The *Rights of Medication Administration* is a safety framework which, along with the general principles of medication administration, will maximize accuracy and client safety.

The Rights of Medication Administration	Key Aspects
Right Medication	<ul style="list-style-type: none"> <li>• Ensure correct spelling and concentration of drug.</li> <li>• Verify against the MAR or prescriber order.</li> <li>• Read label at least three times to confirm correct medication before administering to the client.</li> </ul>
Right Time	<ul style="list-style-type: none"> <li>• Refer to agency policy for standard times.</li> <li>• Where possible follow times client has been following at home.</li> <li>• Consider pharmacological impact of time such as:               <ul style="list-style-type: none"> <li>○ with or without food;</li> <li>○ significance of maintaining therapeutic blood levels;</li> <li>○ use of or need for a diagnostic procedure; and,</li> <li>○ date and time of last dose.</li> </ul> </li> </ul>
Right Dose	<ul style="list-style-type: none"> <li>• Ensure the dose is appropriate for the client's age and medical condition.</li> <li>• Utilize <a href="#">independent double check</a> of calculations as necessary<sup>7</sup>.</li> <li>• Ensure right form, correct measuring device and keep in original form unless appropriate to alter (i.e. crush or split).</li> </ul>
Right Client	<ul style="list-style-type: none"> <li>• Check at least two client identifiers<sup>8</sup>.               <ul style="list-style-type: none"> <li>○ <u>Do not</u> rely solely on clients to correctly identify themselves.</li> </ul> </li> </ul>
Right Route	<ul style="list-style-type: none"> <li>• Ensure the prescriber order has a specified route.               <ul style="list-style-type: none"> <li>○ One route may not be substituted for another unless it is explicitly written<sup>9</sup>.</li> </ul> </li> </ul>

<sup>6</sup> The *Rights of Medication Administration* may change from time to time. When there is a difference in documented best practice and this document, documented best practice prevails. LPNs should be aware of their agency policy and best practice.

<sup>7</sup> Independent Double Check: A double-check of calculations by another care provider who does not have knowledge of prior calculations.

<sup>8</sup> As defined by agency policy.

<sup>9</sup> Prescriber order, care directive or policy.

Right Documentation	<ul style="list-style-type: none"> <li>• Ensure timely, clear, concise and accurate documentation.</li> <li>• Use best practices to prevent medication errors by documenting immediately <u>after</u> giving the medication.</li> <li>• Ensure continuity of care by documenting: <ul style="list-style-type: none"> <li>○ pre and post administration assessments;</li> <li>○ type and nature of teaching;</li> <li>○ unexpected outcomes; and,</li> <li>○ consultations with other care providers.</li> </ul> </li> </ul>
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### Consultations with Other Care Providers

The LPN is accountable to engage the appropriate care provider (registered nurse or physician) as soon as possible when:

1. the findings of their pre or post medication administration client assessment<sup>10</sup> is not as expected or unexpectedly changed from baseline;
2. the expected results of the medication are not achieved; or,
3. the client has an unexpected response to a medication.

### Client Refusal of Medications

When a client refuses medication, the LPN is accountable to understand why the client has made this decision. If possible, the LPN ought to provide the client with more education about the medication and attempt to address the issue for the refusal. If the client persists, the nurse is responsible to document scenario appropriately and notify the prescriber for follow up action.

#### *Reflective Practice*

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
4. How will having this knowledge improve my daily practice?
5. How will this make it safer for clients and improve outcomes?

<sup>10</sup> The type, nature, depth and frequency of the assessment is dictated by the client's overall needs, their level of understanding and the medications to be administered. Data gathered in a pre/post assessment is used to guide nursing decisions.

## Dosage Calculation Self-Assessment

Accurate drug and dosage calculation is vital to safe medication administration. Review the following example. Use the 'Dosage Calculations Problems' as part of your self-assessment. Reflect on the ease and completeness of your answers. **The greater the difficulty or the incompleteness of your answer, the more it is likely that you should engage in additional employer based pharmacology education.** Individual nurses are accountable to work with their employers to make certain they have access to the necessary work-place education and support before engaging in a skill.

### One Formula:

**H** = dose on Hand

**V** = Vehicle – tablet or liquid

**D** = Desired dose

**X** = unknown

$$\frac{H}{V} = \frac{D}{X}$$

Cross multiply to solve for X

$$HX = DV$$

$$X = \frac{DV}{H}$$

### Example:

A client is ordered 15mg of Drug X. You have on hand 25mg of Drug X in 2mL solution. What volume of solution would you give?

$$\frac{25\text{mg}}{2\text{ml}} = \frac{15\text{mg}}{X}$$

$$25\text{mg}X = 15\text{mg} \times 2\text{mL}$$

$$X = \frac{15\text{mg} \times 2\text{mL}}{25\text{mg}}$$

$$X = 30 \text{ ml} / 25 = 1.2\text{mL}$$

### IV Rate Calculation:

Drops per Minute (gtt/min)

$\frac{\text{Total volume (mL) to infuse} \times \text{Drop factor (on IV Tube packaging)}}{\text{Time (in minutes)}} = \text{drops/minute}$

Example: 125mL X /hr, drop factor 15 gtt/mL:  $\frac{125\text{mL} \times 15 \text{ gtt/mL}}{60 \text{ min}} = 31.25 (32) \text{ gtt/ min.}$



### Dosage Calculation Problems

1. Order: Drug X 250mg PO. Drug X 100mg is available in tablet form. How many tablets / dose of Drug X will be administered?
2. 640mg of Drug Y has been ordered by the Doctor. It is available in 160mg/5mL of solution. Calculate the number of mL required / dose.
3. The physician ordered Drug X 500mg PO q8h PRN. Drug X is available in liquid as 125mg/ 5mL. Calculate the volume of the dose.
4. A client is ordered 20mg of Drug Y by intramuscular injection. 50mg in 1mL of liquid for IM injection is available. How many mL will you administer?

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#### *Reflective Practice*

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
4. How will having this knowledge improve my daily practice?
5. How will this make it safer for clients and improve outcomes?

#### **Answers**

1. 2.5 tabs
2. 20mL
3. 20mL
4. 0.4mL

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## Frequently Asked Questions

**I have had limited opportunity to administer medications since I graduated seven years ago. I have recently taken a new job where I will be administering medications. Do I have to re-take a pharmacology course?**

All nurses must have the necessary knowledge, skill and judgment (competence) to safely and effectively administer medications. To answer this question, you must perform a self-assessment of your medication administration skills and reflect on your competence. Whether you ought to complete a post-graduate pharmacology course is dependant upon what you determine in your self-assessment.

If you determine you have the necessary knowledge and judgment, but lack the skill (because of inexperience), work with your employer to make sure you have a sufficient orientation to medication administration in your new workplace.

If you determine your knowledge deficit is more significant, you should work with your employer to negotiate a comprehensive orientation inclusive of the necessary education, information and resources to support you to safely and competently administer medications. This may or may not include completing a post-graduate pharmacology course.

**Are there any medications LPNs are not authorized to administer?**

Authorization for LPN practice comes from a number of places:

- The *LPN Act* – defines the professional scope of practice;
- The LPN Competency Profile – identifies the skill sets<sup>11</sup> within the LPN scope of practice; and,
- Employers policy – supports LPN practice within the agency.

In short, to be authorized, the practice must be part of the professional Scope of Practice (LPN Act), the individual skills sets within the scope of practice (competency profile) *and* supported by employer's policy.

Simply put, there are no restrictions on the types of medications LPNs can administer. **However**, there are clinical situations or contexts which may not support the you to administer *certain* medications to a *specific client* via a *specific route* or while experiencing a *specific unpredictable or complex* issue.

Take clinical situations with an unpredictable client for instance. Licensed practical nurses provide care for unpredictable clients in collaboration with other care providers<sup>12</sup>. Collaboration is the process of two or more care providers discussing the needs of the client to determine the best action and the *appropriate classification of nurse* best positioned to provide it. The rationale being, a medication may have an unexpected or unintended impact on an unpredictable client or a client experiencing changes in health status.

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<sup>11</sup> The profile identifies the vast majority of skill sets deemed to be within the practical nursing profession, however there may be skill sets appropriate for the LPN profession not identified in the profile.

<sup>12</sup> When and where possible consult with the RN; however, consultation can be with other care providers with the capacity to provide consultation.

Even when you are familiar with a medication, you should engage the registered nurse (RN) in a discussion about the needs of the unpredictable client *before* administering it to ensure you possess the necessary knowledge, skill and judgment to manage the unpredictable client's response to the medication. It may be, given the client's condition, that the RN is the appropriate classification of nurse to administer the medications.

Another example is if a medication is ordered to be administered via a high risk route. Some routes of administration have a higher degree of risk associated because the potential for unpredictable outcomes is greater. Side effects from a medication administered orally may not appear for 30-45 minutes. On the other hand, for a medication administered intramuscularly, side effects may appear in 20 minutes. However, a client may experience untoward outcomes from IV or IV push medications in a matter of seconds to minutes after administration. High risk is associated with a greater potential for unpredictability. The greater the risk of unknown outcomes associated with a particular skill, the greater the need for a client assessment that is based on the in-depth nursing knowledge associated with the RN.

Sometimes the medication themselves determine the most appropriate nurse. For example:

- **Narcotics** – Peak times are generally well understood or easily anticipated when narcotics are given orally, intramuscularly or subcutaneously. The length of time between administration and potential outcomes allows the LPN to assess the client, evaluate the response and intervene if necessary. When given IV or IV push, narcotics have a very rapid peak time. Untoward outcomes can be severe and appear rapidly. Generally, and in most clinical situations, the RN is the appropriate classification of nurse to administer IV or IV push narcotics.
- **Insulin** – It is appropriate for LPNs to administer insulin subcutaneously. However, like narcotics, the untoward outcomes related to IV administration of insulin, can be severe and rapid. LPNs are not authorized to administer IV or IVP insulin.
- **Chemotherapy** – It may be appropriate for the LPN to engage in the administration of PO chemotherapy. As the route changes to intramuscular or subcutaneous, the potential outcomes for the client changes, and as such the LPN may require more information and education before engaging in this practice. LPNs are not authorized to administer IV chemotherapy.

It is important to recognize the most appropriate classification of nurse to care for a client is based entirely on the needs of *that* client. This means that even though you (or other LPNs) have the necessary knowledge, skill and judgement to administer the medication at hand, the necessary client surveillance, monitoring, assessment or support is better suited for another care provider such as an RN, NP, or physician.

### **Is it within my scope of practice to take a telephone order or transcribe order for medications I am not authorized to administer?**

Often times, telephone orders are necessary to ensure the client receives timely care. In usual circumstances<sup>13</sup> you may take telephone orders for medications you are not authorized to administer **as**

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<sup>13</sup> Everyday practice settings where there is policy permits the practice and sufficient supports and resources are available.

**long as you** possess the competence to administer the medication in a different form. This includes most routine medications, antibiotics, or pain medications. The rationale being is your knowledge of the medication in a form you are authorized to administer, ought to support you to accurately record or question the medication order if necessary.

You may *preliminarily* transcribe orders for medication you are not authorized to administer; however, the transcription must be verified<sup>14</sup> by a care provider competent to administer the medications. Please note: in usual circumstances LPNs *should not take* telephone orders for intravenous chemotherapy or PCA/Epidural pain medication. The rationale is related to the broader complexity of the management of these medications in the IV/Epidural form.

### **A Note About Employers**

Employers, as a condition of employment, may require LPNs to successfully complete their agency-based education in medication administration (which may or may not include a mentored administration experience or other assessments) *in addition* to the medication administration competence attained in an PN education program<sup>15</sup>.

For more information, [click here to review the Medication Administration Guidelines](#).

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<sup>14</sup> Follow agency policy regarding this process.

<sup>15</sup> Core or post-graduate.

## References

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