

Medication Administration



CLPNA Self-Study Course
2019

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Course Introduction

Purpose

The College of Licensed Practical Nurses of Alberta (CLPNA) has a mandate to ensure licensed practical nurse (LPN) services in Alberta are provided in a manner that protects and serves the public through excellence in practical nursing. As regulated nursing professionals, LPNs have key roles in medication administration. These roles include assessment and monitoring of clients, safe medication administration, and continuous evaluation and documentation of clients' responses to medication. Medication administration also includes identifying risks and precautions and being able to respond to adverse events appropriately and in a timely manner. The purpose of this self-study course is to provide LPNs practicing in Alberta with a review of pharmacology, the role of medication management, and the various components of medication administration.

As members of the College of Licensed Practical Nurses of Alberta (CLPNA), LPNs' authorization to engage in medication administration is governed by provincial and federal legislation, the *Government Organization Act*,¹ and the *Licensed Practical Nurses Profession Regulation*,² created under the *Health Professions Act*. In addition, the *Standards of Practice for Licensed Practical Nurses in Canada*³ and *Code of Ethics for Licensed Practical Nurses in Canada*,⁴ the *CLPNA Practice Guideline: Medication Management*,⁵ and the policies of the employment agency define the legal and professional expectations of LPNs' roles in medication administration. For the purpose of this course, medication is defined as follows:

A medication is a substance used in the prevention, diagnosis, relief, treatment or cure of health alterations...No matter where [clients] receive their health care...nurses play an essential role in preparing and administering medications, teaching [clients] about medications, and evaluating [clients'] responses to medications.⁶

†The terms *drug(s)* and *medication(s)* will be used interchangeably throughout this document.

All **bolded terms** are defined in the glossary located at the end of this course. All *purple italicized* text is quoted directly from *CLPNA Practice Guideline: Medication Management*.

Course Content

This course consists of four modules. After completing this course, learners will have

- examined authorization within legislation, regulation, and scope of practice for safe medication administration;
- listed the sources of drugs, their three different names, and their classifications;
- defined the framework of pharmacology including the pharmacokinetics and pharmacodynamics of medications;
- assessed their understanding of person-centred care in medication administration; and
- reviewed safe practices of handling, storage, and disposal of medications.

Strategies of Effective Learning

There are different strategies for increasing knowledge, skills, and critical thinking in medication administration. As medication administration is a comprehensive area of nursing practice, this course is a broad source of information. Do not try to complete all the course material in one sitting. Individuals learn better and remember more if they pace themselves. This self-study course is available at any time and at any location with an internet connection. Be sure to complete the quizzes included on the course web page.

Finally, there are always opportunities for improving your medication administration practice. Review the materials related to areas you are having difficulty with or where you feel you could advance your knowledge and nursing skills. Options for further study are included in this course. In addition, see CLPNA's website for continuing education providers.

Module 1: Authorization for Medication Administration

Introduction

As members of a regulated health care profession, LPNs have a responsibility to understand and recognize the importance of applicable legislation and regulation in medication administration. This module examines the legislative authority and the standards expected of LPNs. LPNs are required to have the knowledge, skills, abilities, and competence to **administer** medications.

Learning Outcomes

At the end of this module you will be able to

- state the legislation and regulation that informs LPN practice in medication administration;
- identify the provincial and federal drug schedules and their relevance for safe medication administration;
- review the *Standards of Practice* and *Code of Ethics* for licensed practical nurses in Canada;
- review CLPNA's *Medication Management Practice Guideline*;
- identify the purpose of the *Competency Profile for LPNs*, specifically related to medication management; and
- describe the factors for decision-making that include the client, the nurse, and the environment.

Legislative Authority—Federal and Provincial

LPNs in Alberta are required to comply with both provincial and federal legislation and regulations in medication administration. In addition, LPNs are expected to follow employers' policies and procedures in **medication** preparation, administration, evaluation, and documentation. As professional nurses, LPNs are bound by the *Standards of Practice*, the *Code of Ethics*, and the *Competency Profile for LPNs*.⁷ Through these

supporting documents, LPNs have the responsibility and accountability for autonomous nursing practice to provide the public, the employer, and the profession with safe, competent, and ethical care.

LPNs' authorization to administer medication in Alberta is primarily governed by two pieces of provincial legislation, the *Government Organization Act* and the *LPN Profession Regulation*.

The *Government Organization Act*⁸ and the *Licensed Practical Nurses Profession Regulation*⁹ define the roles and responsibilities of LPNs in the delivery of medications. Schedule 7.1 of the *Government Organization Act* contains a list of high-risk health service activities, known as restricted activities. These activities may only be performed by regulated health professionals who have been specifically authorized in their profession's regulation to do so. This requirement ensures that only professions with the necessary competencies can perform the restricted activities defined in the *Government Organization Act*. Although medication administration is not a specific restricted activity, the route or way a medication is administered may be a restricted activity. The *Government Organization Act* does not place restrictions on the administration of medications by non-invasive routes, which include oral, topical, or inhalation.

Section 13 of the *LPN Profession Regulation* permits LPNs to perform the restricted activity of administering anything by an **invasive procedure** on body tissue below the dermis for specific purposes. Therefore, under the *LPN Profession Regulation*, the LPN may prepare, initiate, monitor, titrate, and discontinue the delivery of medications that include, but are not limited to, the following routes: intravenous and injection via intradermal, intramuscular, and subcutaneous routes.

The exceptions to this broad authorization (outlined below) include administration of medication for the purposes of **medical assistance in dying** and administering medications for the purpose of performing renal dialysis and immunization.

NOTE: Please refer to the [Competency Profile for LPNs](#) regarding the LPN scope of practice specific to medication administration.

Medical Assistance in Dying (MAID)

In June 2016 the federal government enacted legislation that allows for the provision of medical assistance in dying under certain circumstances. In Canada, the Criminal Code allows nurses to assist a physician or nurse practitioner (NP) in the provision of MAID as per the direction of their respective regulatory bodies. A nurse who is assisting a physician or NP must also be under the direction of the physician or NP, otherwise they cannot assist. Only a physician or NP can assess eligibility for MAID and only the physician or NP can administer the substance(s) that causes death.

It is essential for the LPN to understand that LPNs will have a limited role in MAID.

The CLPNA recommends that:

- *all LPNs review the [Medical Assistance in Dying: Guideline for Nurses in Alberta](#) document available on the CLPNA website to better understand the associated rights, responsibilities and obligations; and*
- *any LPN who has been asked to participate in MAID contact a Practice Consultant at CLPNA for advice.*

Renal Dialysis & Immunization

In accordance with the LPN Profession Regulation, the CLPNA considers Renal Dialysis and Immunization to be areas of Specialized Practice. In order for LPNs to provide immunizations or practice dialysis nursing they must complete

education approved by CLPNA and receive authorization from the CLPNA Registrar.

LPNs can inform their nursing practice by understanding that drugs are regulated at both federal and provincial levels, with drug management and responsibilities identified in the legislation. The following describes legislation that is relevant to LPN practice in Alberta.

Federal

Drugs in Canada are controlled at a federal level by the [Food and Drug Act](#), the [Controlled Drugs and Substances Act](#), and the regulations associated with those acts, including [Natural Health Products Regulations](#). Health Canada is responsible for regulating food and drugs to establish safety standards and quality through Canada's [Food and Drug Act](#).¹⁰ The [Food and Drug Act](#) regulates the advertising, selling, and importing of foods, drugs, cosmetics, and medical devices.

The [Controlled Drugs and Substances Act](#)¹¹ explains several drug-related offenses that include exporting or importing, trafficking, growing, and possessing drugs. The act also defines activities related to prescription shopping—seeking prescriptions from multiple doctors and pharmacies for drug abuse—as criminal activity.¹²

In Canada, drugs are categorized into three schedules, or four categories:¹³

1. **Schedule 1** drugs require a prescription as a condition of sale.
2. **Schedule 2** drugs are available without a prescription but must be obtained from a pharmacist.
3. **Schedule 3** drugs are available without a prescription from the self-selection area of a pharmacy.
4. **Unscheduled** drugs are not listed in a national or provincial schedule and may be sold from any retail outlet.



Provincial

The Province of Alberta has established legislation to govern the management of medications in the province. In 2000 the *Pharmacy and Drug Act* was passed. This legislation serves to regulate the delivery of pharmacy services to maintain the integrity of the drug distribution system and ensure that pharmacy services are provided safely, effectively, and with accountability.¹⁴

The Province of Alberta, in conjunction with the [National Drug Scheduling Advisory Committee](#), decides how drugs are scheduled (*Scheduled Drug Regulation*) through an online database of the national drug schedules.¹⁵ The regulation organizes drugs into categories according to the level of risk of taking medications with or without the advice of a health care professional. For example, higher-risk medications are placed in Schedule 1, and lower-risk medications are placed in Schedule 3. For information regarding the *Scheduled Drugs Regulation*, see the *Pharmacy and Drug Act: Scheduled Drugs Regulation*.¹⁶

Alberta's provincial drug schedules are generally aligned with the national drug schedules. To view a list of exceptions, visit the Alberta College of Pharmacists' website at <https://pharmacists.ab.ca/drug-schedules>.

Alberta's drug schedules, with some examples, are provided in Table 1.

Table 1. Alberta's Drug Schedules

Alberta's Drug Schedules ¹⁷		
<p>Schedule 1</p> <p>The drugs included in Schedule 1 require a prescription as a condition of sale and must be stored and sold only in the dispensary in a pharmacy. Drugs in this schedule include all federally scheduled drugs and certain others, some of which are specific to Alberta. The latter may appear to be non-prescription drugs (as there will be no symbol directly on the drug product label). Pharmacists must be aware of these products to prevent possible sale without a prescription. Drugs listed in Schedule 1 of the <i>Scheduled Drugs Regulation</i> are subject to all the same considerations as drugs listed in the Prescription Drug List of the Food and Drug Regulations (Canada). The standards of practice that apply to drugs in this schedule are the same standards that apply to all prescription medications.</p>	<p>Schedule 2</p> <p>The drugs listed in Schedule 2 do not require a prescription as a condition of sale. These drugs may be sold only from a licensed pharmacy or an institution pharmacy by a pharmacist or under the direct supervision of a pharmacist. Schedule 2 drugs must be stored and sold only in the dispensary. Standards of practice for assessment of therapy (standards 3 and 4), client counselling (standard 8), and documentation (standard 18) apply to Schedule 2 drugs.</p>	<p>Schedule 3</p> <p>The drugs listed in Schedule 3 do not require a prescription as a condition of sale. These drugs may be sold only from a licensed pharmacy or an institution pharmacy. Schedule 3 drugs must be stored and sold only in the client services area of the pharmacy. A pharmacist must take reasonable steps to aid a client who wishes to purchase a Schedule 3 drug (standard 9).</p>
<p>Examples in Schedule 1 include amlodipine, Altace, citalopram, Lipitor, metoprolol, penicillin, and Tylenol #3</p>	<p>Examples in Schedule 2 include silver nitrate, Gravol, Tylenol #1, codeine, nitroglycerin, and iron >30 mg.</p>	<p>Examples in Schedule 3 include fluoride and its salts, lactulose, acetaminophen in sustained-release formulations, and vaginal yeast infection products.</p>

Note: Unscheduled drugs not listed in Schedules 1, 2 or 3 (e.g., Tylenol, Bayer Aspirin, ibuprofen) may be sold from any retail outlet. More examples are available in the full drug schedules, available from the [National Association of Pharmacy Regulatory Authorities \(NAPRA\)](#).¹⁸

Over-the-Counter Medications

Over-the-counter medications are Schedule 2, 3, and Unscheduled drugs outlined in the *Alberta Pharmacy and Drug Act* and the supporting *Scheduled Drugs Regulation*. These medications can be acquired without a prescription.

The *LPN Profession Regulation* does not authorize LPNs to prescribe medications; having a discussion with a client or family member and making recommendations about over-the-counter

medications may be viewed as pseudo-prescribing. Therefore, LPNs should advise their clients to seek advice about over-the-counter medication from a health care professional who is authorized to provide such information (e.g., an authorized prescriber).

In the event a client has an existing order (e.g., postoperative) for over-the-counter medication from an authorized prescriber, the LPN may discuss and provide education on this over-the-counter medication and suggest that the client or

family pick some up to have on hand upon discharge, only if this advice is consistent with the order in place. This advice would be considered appropriate as there is a covering order from an authorized prescriber in place. To provide this education, the LPN needs to be aware of the client's specific health information and medication history.

LPN Profession-Specific Documents

In all aspects of medication administration, the LPN is expected to follow the *Standards of Practice*, *Code of Ethics*, *Medication Management Practice Guideline*, and the most current *Competency Profile for LPNs*, where competencies specific to medication administration are outlined.

The *Medication Management Practice Guideline* is to provide guidance to LPNs by enhancing the understanding of LPNs' roles and expected practices in medication management. Guidelines are not intended to be exhaustive but are to provide guidance in making informed decisions. The guideline is based on federal and provincial legislation, the *Standards of Practice* and *Code of Ethics* adopted by the CLPNA, and the *Competency Profile for LPNs*. It is also informed by Accreditation Canada's Medication Management Standards, guidelines provided by the Institute for Safe Medication Practices and the Canadian Patient Safety Institute, and the work of other nurse regulators across Canada.¹⁹

The *Competency Profile for LPNs*, 3rd edition, broadly defines the legislated scope of practice for LPNs in Alberta and competencies specific to pharmacological principles of medication administration.²⁰ As autonomous nurses, LPNs have responsibility for their own nursing practices and, depending on their individual knowledge, experience, and workplace settings, will have their own levels of proficiency in applicable competencies in medication administration.

The LPN's Role in Medication Management

Medication administration must be performed in accordance with legislation, regulatory standards and policy documents, and employer policy. The LPN may administer medication under the following conditions:

- The LPN must have the education, knowledge, and competence to accept and transcribe medication orders according to best practice;
- The LPN must have the education, knowledge, and competence to safely prepare, initiate, administer, monitor, titrate, and discontinue medications;
- The LPN must adhere to the core rights and checks of medication administration to ensure client safety; and
- The LPN's decision to administer medications must always include the client's individual needs determined through health assessment, the LPN's competence, and the availability of supports in the practice environment to ensure safe medication administration.

Decision-Making for Safe Medication Management

Medication management is defined as client-centred care that optimizes safe, effective, and appropriate drug therapy provided in collaboration with the client and their health care team.²¹

It is important to consider a number of factors in full utilization of LPN competencies, including an assessment of the client, the nurse, and the environment. These factors are derived from the evidence informed *Decision-Making Framework for Quality Nursing Care*, established by a collaborative working group of representatives from the Canadian Council for Practical Nurse Regulators, the Canadian Nurses Association, and the Registered Psychiatric Nurses of Canada.²²

The Client

The LPN's assessment of the client should be grounded in evidence-based data. This data informs the LPN of the appropriateness of the medication for the client. Some of the assessment factors include, but are not limited to, the client's

- continuity of care; and
- current and anticipated state of acuity and complexity of care needs, based on the client's
 - age (infants, children, older adults);
 - previous medication history;
 - historical and anticipated response to care; and
 - challenges and barriers.

In some circumstances, information about the client may not be readily available or attainable. For example, the client may not be able to communicate information to the nurse due to confusion or cognitive impairment. In this situation, family members can assist with identification, or there may be a previous health record available with a unique identifier. In emergency situations, life-saving medications may be provided, and the client's identity should be obtained as soon as possible afterward. In the meantime, it is common practice to assign a temporary unique identifier to the client.²³

Individual Competence of the Nurse

As members of a regulated health profession, LPNs have the responsibility and accountability for autonomous nursing practice. This means the LPN is responsible for his or her own level of competence. Maintaining competence in medication administration should be evaluated annually. Nursing competency represents the integrated knowledge, skills, behaviours, attitudes, critical thinking, inquiry, and clinical judgments required by LPNs to provide safe, competent, and ethical nursing care.

The expected competencies of an LPN for medication management can be found in the

current [Competency Profile for LPNs](#). LPN competencies specifically related to medication management include understanding of the pharmacokinetics and pharmacodynamics associated with medication administration, relative assessments, safe preparation and administration of medications, monitoring and managing any adverse effect or reaction, teaching clients, and evaluating and documenting/communicating the client's response to medication.

The core importance with the administration of any medication is that the LPN is knowledgeable about the medication, safe recommended dosage, appropriate route, indications, contraindications, side effects, interactions, precautions, onset, duration, excretion, related-lab values, appropriate evaluation and documentation.²⁴

The Environment (Employer Policies)

While the CLPNA has the regulatory authority to define the scope of practice for LPNs in Alberta, employer organizations define the roles of LPNs specific to the practice environment(s). This may vary depending on the specific care requirements, care delivery model, and staff mix in the practice area. LPNs must work within the role articulated by employer job description and policy.

With respect to medication administration, legislation does not specify what medications can be administered by which provider. This allows flexibility for employers to determine what medications are appropriate for certain providers to administer based on client needs, provider competencies, and the resources available in that specific care environment. LPNs must follow employer policy around the medications considered appropriate for them to administer within a given care environment. In certain areas of practice, employers may require LPNs to obtain site-specific education before performing certain activities within their facility.

There are several environmental factors for LPNs to consider, including

- legislation and regulations;
- employer policy and procedures;
- decision-making guidelines;
- care-delivery model;
- evidence-informed practice;
- leadership support;
- staff mix;
- organizational culture;
- organizational resources and support; and
- quality of practice environment.

LPNs should seek out opportunities to communicate and collaborate with interprofessional team members through evaluation of the client's plan of care. Through access to the best available information, data, evidence, and technology (such as electronic health records, medication administration records [MARs], and medication reconciliation systems), LPNs have an important contribution to the knowledge and proficiency of safe medication management.

Concluding Thoughts

This module presented several key factors that guide LPN practice in medication administration. These include regulatory authorization, the client, the nurse, and employer policies. While federal and provincial legislation

and regulation direct medication delivery in health care, it is an LPN's professional responsibility to clearly understand all aspects of medication management.



Module 2: Pharmacology

Introduction

This module provides a brief overview of pharmacology. Included are concepts such as drug sources, classifications, **pharmacodynamics**, **pharmacokinetics**, and **adverse reactions**. LPNs need to consider these concepts when administering medication.

Learning Outcomes

At the end of this module you will be able to

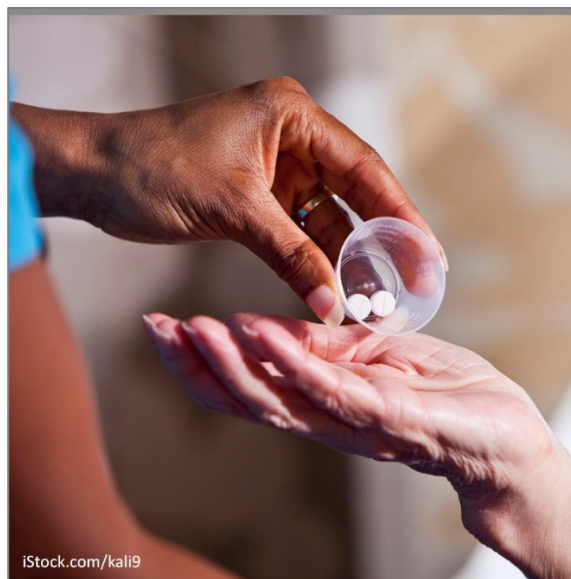
- identify various sources of drugs and the classifications of commonly used medications;
- develop increased knowledge of trade, generic, and chemical names of drugs;
- review definitions of common terminology used in pharmacology;
- explain the processes involved in pharmacodynamics and pharmacokinetics;
- review knowledge of adverse or allergic reactions and the necessary actions for client safety.

Drug Sources

A drug, also called a medication, is a chemical substance used in the prevention or treatment of diseases or pain relief.²⁵ A drug can be inhaled, injected, absorbed, or dissolved by the body. Drugs can be derived from several different sources, including

- plants (*Digitalis*—digoxin, opium poppy—morphine, codeine analgesics);
- animals (insulin from cows and pigs);
- inorganic compounds (antacids—aluminum);
- bacteria (probiotics, neomycin, gentamicin, erythromycin, tetracycline); and
- fungi (lovastatin, atorvastatin, Zocor).²⁶

Today, it is common to find drugs that are synthetically created or genetically engineered.²⁷



Drug Names

Drugs have several names, which can cause confusion. Generally, each drug has three names:²⁸

- **The generic name.** This is the common name a drug is recognized by. This name may be used in any country, by any manufacturer of this drug. Generic names are not capitalized.
- **The brand (trade) name.** The drug's brand name is usually followed by the registered trademark symbol (®) on the manufacturer's packaging. This symbol indicates the name is registered to the manufacturer. This name is made easier to pronounce, spell, and remember. Brand names are usually capitalized.
- **The chemical name.** When a drug is first discovered, it is given a chemical name. This name describes the chemical or molecular makeup of the drug. It provides an exact understanding of the chemical constitution of the drug and the placing of its atoms or molecular groupings.

Tylenol is one example of how a drug can have several names:

- Brand name: Tylenol
- Generic name: acetaminophen
- Chemical name: N-(4-hydroxyphenyl) acetamide

Drug Classifications

Drugs can be classified according to therapeutic use, chemical properties, or the body system affected. Examples of commonly used medications are included in Table 2.²⁹

Table 2. Drug Classifications Examples

Brand Name	Generic Name	Classification
Advil Aleve	ibuprofen naproxen	Nonsteroidal anti-inflammatory
Valium Ativan	diazepam lorazepam	Anxiolytic/benzodiazepine
Capoten Accupril	captopril quinapril	Antihypertensive/ACE inhibitor
Clopra	metoclopramide	Antiemetic
Orencia Imuran	abatacept azathioprine	Immune suppressant/T and B cell suppressor
Risperdal Seroquel	risperidone quetiapine	Antipsychotic (atypical)
Microzide	hydrochlorothiazide	Diuretic (thiazide)
Lasix	furosemide	Diuretic (loop)
Prozac	fluoxetine	Antidepressant (SSRI)
Elavil	amitriptyline	Antidepressant (TCA)
Effexor	venlafaxine	Antidepressant (SNRI)
Epival	divalproex sodium	Anticonvulsant
Coumadin	warfarin	Anticoagulant
Fragmin	dalteparin	Anticoagulant
Lovenox	enoxaparin	Anticoagulant
Lopressor	metoprolol	Beta-selective adrenergic blocker/antihypertensive

Pharmacology

“Pharmacology is the study of the biological effects of chemicals.”³⁰ It examines the effects of introducing drugs (e.g., chemicals) into living organisms. In its broadest sense, “pharmacology is the study and science of drugs.”³¹ This subject is important to LPNs because it provides vital information about the processes by which drugs enter the body and reach their “targets,” as well

as the effects those chemicals have on the human body. Some key aspects of these processes are explained and demonstrated in this course.³²

Pharmacodynamics

“Pharmacodynamics is the process by which a drug works or affects a body.”³³ Drugs do not create new bodily responses—they alter existing physiological activity. This is critical to understand

in nursing practice because the data that LPNs gather or observe during client assessments could be indicators of this process and could point to factors that identify risk as well as benefits to the client: “Some drug effects are therapeutic, or helpful, but others are undesirable or potentially dangerous.”³⁴

Drugs act by forming chemical bonds with specific sites called receptors. The intensity of a drug response is directly related to how well the drug molecule fits into specific receptors and the number of receptor sites that are occupied by the drug molecules. Their actions are also impacted by the amount of drug that binds to molecules in the blood (to proteins) and how much drug is bound versus free. Simply speaking, a bound drug is not available for action.

Some drugs are tightly bound and are released very slowly. These drugs have a very long duration of action because they are not free to be broken down or excreted. Therefore, they are released very slowly into the reactive tissue. Some drugs are loosely bound; they tend to act quickly and be excreted quickly. Some drugs compete for protein binding sites, altering effectiveness or causing toxicity when the two drugs are given together.”³⁵

Drugs are classified differently based on the response they produce once they enter the body:

- Drugs that interact with a receptor and stimulate a physiological response are called agonists.
- Drugs that interact with a receptor but do not stimulate a response are called antagonists.
- Drugs that stimulate a specific response but inhibit other responses are called partial agonists.³⁶

Drugs/medications are introduced into the body through several routes, including

- enteral, where the medication is administered directly into the

gastrointestinal (GI) tract, either orally, rectally, or through a nasogastric tube;

- parenteral, where the route of administration bypasses the gastrointestinal tract and the medication is administered using a subcutaneous, intramuscular, intradermal, or intravenous method; and
- percutaneous, where medication is inhaled into the lungs by a nebulizer, enters the body through sublingual administration, or is administered through the skin or tissue using a topical application, transdermal patch, or vaginal insertion.

Pharmacokinetics

Pharmacokinetics is defined as “the way the body deals with a drug including absorption, distribution, biotransformation, and excretion.”³⁷

Once medications are administered through one of several routes, the medication moves through the body in these four separate stages.

Absorption

In this process, a drug is transferred from the site of entry to the circulating fluids of the body, such as blood or lymph, for distribution. The rate of absorption is dependent on the route of administration, the intensity of blood flow through the tissue in which the drug was administered, and the solubility of the drug. Absorption can also be affected by several extraneous factors such as food, age, and illness.³⁸

Distribution

This is the process whereby a drug is transported from the site of absorption to the target receptors by circulating bodily fluids. Distribution transports the drug throughout the entire body using the blood and lymphatic system. This includes transport from the circulating fluids into and out of the fluids that surround the receptor sites. Major organs such as the brain, heart, liver, and

kidneys receive the drug more rapidly due to the rich blood supplies servicing them, while muscle, skin, and fatty tissue receive the drug at a much slower rate.³⁹

Some drugs are bound to plasma proteins (e.g., albumin). Larger proteins keep medications in the bloodstream and prevent them from reaching the sites of action, metabolism, and excretion. Only the unbound portion of the medication can interact with the receptors and metabolize within the body. Usually, the same proportion of bound and unbound medications are maintained in the bloodstream at all times; however, a decrease in serum drug levels causes higher quantities of bound drugs to be released from proteins to maintain a stable ratio of bound and free drugs.

Circulating drug levels can be measured using a blood sample. Blood level samples are particularly important for certain drugs, such as cardiac glycosides (e.g., digoxin), anticonvulsants (e.g., carbamazepine), or mood stabilizers (e.g., lithium), to ensure that the drug is within the recommended therapeutic range. Should the distribution of medication be low, the medication dosage may be increased or administered more frequently. Conversely, should the distribution be high, the client may develop signs of toxicity that will necessitate a decrease in dosage or reduction in administration frequency.

Medication distribution may be general or selective. Some medications cannot pass certain types of cell membranes, such as the central nervous system (blood-brain barrier—selective) or the placental barrier (selective), while other types of medications pass readily into these tissues (general).⁴⁰

Metabolism (Biotransformation)

The process by which the body transforms, converts, and inactivates drugs is called **metabolism**. The primary site for metabolism of drugs is the enzyme systems of the liver. However, other tissues and organs, such as white blood cells, gastrointestinal tract, and lungs, will also metabolize certain drugs but to a lesser extent. Genetic, environmental, and physiological factors are involved in the body's regulation of drug metabolism reactions. Such physiological factors include age, body weight, and illness.⁴¹

Excretion

The elimination or removal of drug metabolites and, in some cases, the active drug itself from the body describes **excretion**. During this final stage of pharmacokinetics, there are two primary routes of excretion: the gastrointestinal tract and the renal tubules (in the form of urine). Drugs may also be excreted from lung exhalation, saliva secretion, breast milk, and skin evaporation.⁴²

Pharmacokinetics is useful in understanding how drugs can become toxic to the human body as well as the importance of maintaining the drug's therapeutic level in the bloodstream. A factor that influences both toxicity and maintenance of the therapeutic level is the half-life of the drug. A drug's half-life is the measure of time required for 50 percent of the drug to be eliminated from the body. This time period is determined by the individual's ability to metabolize and excrete a particular drug.

Adverse Reactions

An adverse reaction, though often predictable, is a negative, undesirable, and even dangerous response to a medication or a combination of medications.⁴³ The onset of the adverse reaction may be sudden or develop gradually over time.⁴⁴ A mild reaction may cause nausea, drowsiness, or a rash, whereas a severe reaction could include breathing difficulties or an irregular heart rhythm. There are a wide range of possible adverse reactions and symptoms. Some medications have common or expected reactions.

Reactions may occur due to various factors, including

- dosage
- added fillers
- combination of medications
- client (age, disease, hepatic dysfunction)
- idiosyncratic response (genetic-related).⁴⁵

Anaphylaxis is the most severe form of adverse or allergic reaction and is potentially life threatening. Anaphylaxis is not considered predictable and can result from an immediate hypersensitivity to a medication. When an allergic response occurs with the first dose of medication, an anaphylaxis event will take place with the second dose of medication. The client may experience severe breathing difficulties, go into a state of shock, or encounter angioedema (severe swelling of the deep layers of the skin—the dermis, subcutaneous tissue, mucosa, and submucosal tissues). For review or further information about anaphylaxis management, see the [Anaphylaxis Self-Study Course on Study with CLPNA](#).

[Health Canada](#) provides an excellent resource that provides information related to adverse reactions to medications. It considers adverse reactions from a regulatory perspective, while providing information for nurses about types of assessments and information to gather from a client experiencing an adverse reaction.⁴⁶ This resource indicates various levels of reactions, Health Canada's actions in monitoring reactions,

and at what stage Health Canada acts to protect the public. Health Canada also offers health providers regular reports and alerts on the latest information about medications and illicit drugs in Canada (through email alerts). These alerts (called MedEffects) provide warnings about dangerous products, where products have been located, and what actions the public and health providers may take to protect themselves and their clients. These warnings also include risks of frequently prescribed medications in the health care system (e.g., psychotropic, cardiac). Nurses can sign up for these alerts through Health Canada.⁴⁷

If individuals have an interest in exploring adverse reactions, the [Canadian Agency for Drugs and Technologies in Health \(CADTH\)](#)⁴⁸ provides extensive information. Specifically, this group conducts independent reviews of medications in Canada, as well as technologies used in health care.

There are many resources in Canada that identify idiosyncratic responses and allergic and adverse reactions to medications/drugs. Through independent study, nurses can access these resources to keep up to date and stay informed.

Concluding Thoughts

This module covered sources of drugs, drug names, and pharmacology. This information will enhance clinical judgment, skills, and competence to LPNs' practice through increased awareness of the therapeutic effects and interactions of medications. While this information contributes to LPNs' knowledge, it also adds to evidence-based practice.

The administration of medications is determined to a large degree by pharmacological factors. A prime example is the consideration of the pharmacokinetics of a medication in determining the dosage, route, and timing for the client. Further, these key concepts underline the significance of accurate client assessment in providing data that can influence the effects and outcomes of drug therapies.

Module 3: Medication Management

Introduction

This module reviews important information about medication management using a person-centred approach to care. A therapeutic relationship is essential in the application of the nursing process, and this module reviews LPNs' professional responsibility to build and maintain this relationship. Accepting and initiating orders from authorized health professionals, which continues to be an important role for LPNs, is also examined. Managing controlled drugs and substances (including cannabis for medical purposes) and ensuring safe calculation of medication dosages are also discussed. Lastly, this module has an emphasis on clear, concise, and accurate documentation. Complete documentation includes the medication administration record (MAR) and approved abbreviations.

Learning Outcomes

At the end of this module you will be able to

- define *person-centred care* in medication administration including assessment, planning, implementation, and evaluation;
- state the requirements when accepting, transcribing, and initiating an order from an authorized prescriber;
- demonstrate knowledge of order sets, protocols, accepted abbreviations, high-alert medications, PRN orders, and use of range doses;
- apply the rights and checks of medication administration in a systematic manner;
- state the process of medication reconciliation;
- demonstrate knowledge of appropriate ways to prepare medications for administration;
- demonstrate understanding of the administration and management of controlled drugs and substances;

- demonstrate understanding of responsibility when administering medication for research purposes;
- demonstrate knowledge of responsibility when providing medication administration for aesthetic purposes;
- demonstrate knowledge of complementary and alternative therapies;
- explain the regulator authorization in administration of immunizations and vaccines;
- demonstrate understanding of safe and accurate documentation practices in medication administration;
- state LPNs' responsibilities in the supervision and assignment of components of medication administration to Health Care Aides; and
- state LPNs' responsibility when supervising a Practical Nurse student performing a restricted activity.



Person-Centred Care

The definition of *person-centred care* is “an approach to care in which the person is viewed as whole.”⁴⁹ The process of coming to know the whole person is nurtured through the formation of a therapeutic relationship between the person, those significant to that person, and health providers. This approach to care involves advocacy, empowerment, mutual respect, and understanding of the person. Person-centred care includes the person’s right to autonomy, to self-

determine, and to actively participate in decisions about his or her health, illness, and wellness.

A person-centred approach to nursing focuses on the individual's personal needs, wants, desires, and goals so that they become central to the care and nursing process.⁵⁰ It is important to consider how person-centred care and the nursing process (assessment, planning, implementation, and evaluation) intersect when administering medications.

**Client-centered and person-centred are terms used interchangeably in this course.*

Assessment

Establish a therapeutic relationship with the client using verbal and nonverbal communication strategies to build a genuine, trusting, and respectful partnership. Medication administration is a nursing process that should build trust and confidence through client education. Providing the client with accurate information about his or her medications and conducting effective assessments pre- and post-administration will result in a positive outcome for the client. The LPN should encourage the client to participate in discussions about medications with the health team and document information provided by the client relevant to the medications and client preferences.

Planning

Develop a plan of care in partnership with the client that is meaningful within the context of the medications being prescribed.

Engage the client in a participatory model of decision-making, and respect the client's right to choose the preferred interventions (medications) to promote his or her health by

- identifying the client's knowledge of medications and how this affects the client's priorities and goals for health care;

- sharing information to promote an understanding of options for medication use and to ensure the client can make an informed decision in conjunction with the health team; and
- respecting the client as an expert about his or her own life.

Implementation

Personalize the delivery of care and medication administration through collaboration with the client and/or the client's family about

- the client's role and responsibility in medication delivery; and
- maintaining open and continuous communication.

Build a partnership to promote self-management/monitoring of medications based on the client's characteristics and preferences.



Evaluation

Obtain feedback to determine the client's satisfaction with the various aspects of medication administration and medication use. In addition, seek the client's feedback about the care that he or she received. Was the care delivery person- and family-centred?

Medication Orders

Authorized Prescriber

LPNs require an order from an **authorized prescriber** before administering medication to a client. Authorized prescribers may include physicians, medical residents, nurse practitioners, pharmacists, midwives, and dietitians.⁵¹ LPNs are responsible for knowing and staying up to date on who is an authorized prescriber. In order to act on a medication order appropriately, LPNs, as well as other health care professionals, may need to discuss prescribing authority with the prescriber because some health care professionals may have limited prescribing authority.

Components of a Routine Medication Order

Acceptable medication orders are clear, complete, current, legible, and clinically relevant. The LPN should clarify any missing components and unclear directions with the authorized prescriber as soon as possible and before taking any further action. A complete order includes the

- client's full name;
- date prescribed;
- medication name, strength, and dosage;
- route;
- dose frequency (i.e., the right time or how often the medication is to be administered);
- reason the medication is prescribed (for PRN medications); and
- signature of the authorized prescriber.⁵²

If the order is unclear, incomplete, or there is any question of accuracy, the LPN must contact the authorized prescriber for clarification prior to administration.

Errors in accepting an order can occur due to distractions in the immediate environment or because of interruptions to nurses while they are receiving and processing the orders.⁵³

Accreditation Canada's Medication Management Standards state, "Steps [must be] taken to reduce

distractions, interruptions, and noise when team members are prescribing, writing, and verifying medication orders. Examples include having a separate area or posting a 'Do Not Disturb' sign when **transcribing** a medication order."⁵⁴

Abbreviations

Abbreviations and acronyms are a shorthand form of communication often used in medical prescriptions, orders, and documentation (e.g., *mg* for *milligrams*). Although abbreviations and acronyms can seem like quick shortcuts, the use of abbreviations is also one of the most common causes of medication errors.⁵⁵ Nurses working in a variety of facilities, areas of nursing practice, or geographical locations may be familiar with different uses of medical and nursing terms or abbreviations. In the past, this was a major concern due to the preventable medication errors that were attributed, in whole or in part, to it.⁵⁶

The [Institute for Safe Medication Practices \(ISMP\)](#) has several tools to assist health practitioners in avoiding errors. They published a list of [Dangerous Abbreviations, Symbols and Dose Designations](#), and Accreditation Canada⁵⁷ recommends that employers provide a list of abbreviations, symbols, and dose designations that are not to be used in their workplaces. Key information that highlights potential errors and suggestions to avoid abbreviations, such as writing out terms in full, is included.⁵⁸ ISMP is committed to the advancement of medication safety in all health care settings. ISMP's mandate includes analyzing medication incidents, making recommendations for the prevention of harmful medication incidents, and facilitating quality improvement initiatives.⁵⁹

LPNs should familiarize themselves with dangerous abbreviations and symbols and must ensure they follow their workplace policies regarding abbreviations and symbols by clarifying any unapproved abbreviations used in an order before proceeding.

If a medication order contains an unapproved abbreviation and/or symbol, the LPN has a responsibility to clarify the order before continuing with the medication administration process.

Orders Transmitted via Technology

CLPNA supports the appropriate use of technology to communicate a medication order. All components of a complete medication order must be met, regardless of the format. All shared information must be handled in a manner that upholds the privacy and confidentiality of client information. Additionally, medication orders need to be received in a manner that allows the person receiving the order to verify the authorized prescriber who is providing the order. A medication order received via fax or electronic transmission must be transcribed in the appropriate manner.

The LPN must follow employer policy as to

- *when the receipt of faxed or electronically transmitted orders for medications are acceptable; and*
- *how faxed or electronically transmitted orders are to be transcribed.*

The LPN must ensure accurate transcription and recording of all order instructions in a timely manner upon client admission, end of service, transfer to another level of care, or as otherwise required.

The LPN must validate the accuracy, clarity, and completeness of the transcription of the order before assessing the client and administering the medication.

Verbal and Telephone Orders

Although authorized prescribers are expected to provide written orders (or enter the order into the electronic health record) whenever possible, in some situations an authorized prescriber may need to initiate or change medications before they are able to provide the written order in

person. Verbal or telephone orders can be more error-prone than written orders due to the increased potential of miscommunication or misunderstanding.⁶⁰ Verbal or telephone orders should be limited to emergent or urgent situations.

A medication order received verbally or by telephone must be transcribed in the appropriate manner and verified by the authorized prescriber as soon as possible within the timeframe defined by employer policy. If an order has not been verified within this timeframe, the LPN must not proceed with further medication administration until this has been addressed.

In addition to the standard components of a routine medication order, a complete verbal and telephone medication order must also include

- the time and date the order was transcribed;
- a notation that it was a verbal or telephone order;
- the LPN's signature and credentials; and
- identification of the authorized prescriber (by name, practice ID, or as otherwise required by employer policy).⁶¹

The LPN must confirm the accuracy of the order by reading it back in its entirety to the authorized prescriber. The LPN must ensure that accurate transcription and recording of all instructions occurs in a timely manner.

The LPN is to follow employer policy regarding

- *whether verbal and telephone orders for medications can be accepted and in which situations;*
- *which care providers may accept them; and*
- *how verbal and telephone orders are to be transcribed.*

Types of Medication Orders

There are several types of medication orders that can be prescribed:⁶²

Table 4: Type of Medication Orders

Standing or Routine	Administered until the dosage is changed, discontinued, or another medication is prescribed
PRN	Given when the client requires it for a specific condition or symptom
Now	Given when a medication is required, in a timely manner, but not STAT
STAT	Given immediately in an emergency situation
Single Dose	Given one time only for a specific reason

Intermediaries

An intermediary is someone who communicates a verbal prescription between an authorized prescriber and a pharmacist. For example, an LPN may be asked to be an intermediary in a home care setting. Use of an intermediary is not preferred practice because it leads to an increased risk of error; it should be used only if it is the sole option and only if the LPN is supported to act as an intermediary by employer policy.⁶³

LPNs acting as intermediaries must

- understand that both the LPN and the authorized prescriber are responsible for the accuracy and appropriateness of the order; the authorized prescriber should be available to speak with the pharmacist directly if necessary;
- not communicate verbal prescriptions for narcotics or controlled drugs, including benzodiazepines and other targeted substances as defined in the *Controlled Drugs and Substances Act* and its regulations;
- only transmit new prescriptions to a pharmacist verbally if
 - it is an unusual or urgent situation; and
 - the LPN speaks directly to both the authorized prescriber and the pharmacist.

- only transmit an authorized prescriber's authorization to refill an existing prescription
 - if supported by employer policy;
 - if there are no changes to the prescription; and
 - this must be followed by appropriate documentation from the authorized prescriber.
- communicate to the pharmacist the reason for which the medication is being prescribed, as well as the name and credential of the LPN acting as the intermediary; and
- confirm a new prescription that is communicated verbally to a pharmacist as soon as possible through direct communication between the authorized prescriber and the pharmacist or through electronic transmission.⁶⁴

In acting as an intermediary, the LPN must

- *be authorized by the prescriber to communicate a verbal prescription to the pharmacist on behalf of the authorized prescriber; and*
- *simultaneously send an electronic or faxed copy of the prescription to the pharmacy.*

Order Sets

An **order set** is a predetermined evidence-based prescribing tool prepared by authorized prescribers to manage a common state of disease (e.g., hypernatremia) or address a general purpose (e.g., blood component transfusion orders). Across an organization, use of order sets can help to ensure consistency in care, best practice, accurate communication, and client safety.⁶⁵

Order sets must be client-specific, and the authorized prescriber should identify the particular orders that apply to a particular client.

LPNs may implement a client-specific standard order set in an electronic or preprinted format received from an authorized prescriber. The use of “standing orders” that are not client specific is no longer considered best practice.

The ISMP has established guidelines for standard order sets that can help minimize or reduce the potential for medication errors, enhance workflow with specific instructions that are easily and intuitively organized, and ensure clarity when communicating medical orders. However, if standard order sets are not carefully designed, they may actually contribute to errors and increase risk to clients.⁶⁶ ISMP guidelines can be found at ismp.org and should be included in employer policy and practice.

Protocols

A **protocol** is an organizationally approved guide for practice that is to be implemented by health care professionals managing specific client health needs in their practice environment.⁶⁷ For example, the basal bolus insulin therapy (BBIT) protocol was developed to standardize and improve diabetes management in hospitals.⁶⁸ A protocol should be evidence-based and developed using standardized criteria.

In implementing a medication-based protocol, it is essential for the LPN to complete the required client assessment to determine if the client meets the criteria set forth by the protocol. As with all aspects of medication management, the LPN must have the knowledge, skill, and competence required to

- *determine if the protocol is clear, complete, and appropriate for the client in the specific care environment; and*
- *perform any of the intervention(s) outlined within the protocol.*

In addition, the LPN must ensure employer policy supports the LPN in implementing the protocol within that specific practice environment.

Protocols for Schedule 1 Drugs

Before implementing a protocol that requires the LPN to administer a Schedule 1 drug to a client, the LPN must obtain a client-specific order from an authorized prescriber. If the protocol is unclear or missing any of the information listed above, the LPN must seek clarification from the authorized prescriber.



Emergency Situations

In emergency situations where it is not possible to obtain an order before implementing the protocol and delay in treatment would place a client at risk of serious harm, an LPN may implement a protocol according to employer policy while simultaneously contacting the authorized prescriber.

Medication Rights and Checks

Best practice in medication administration involves practicing these eight core medication **rights and checks**. The CLPNA expects LPNs to be aware of and follow any additional medication rights and checks required by employer policy. LPNs must use the following core medication rights, in accordance with employer policy, to ensure safe nursing practice every time a medication is administered:⁶⁹

- Right reason
- Right client
- Right medication
- Right dose
- Right route
- Right time and frequency
- Right to refuse
- Right documentation

Right Reason

The LPN should know the client-specific reason(s) for administering a particular medication. The LPN must also have the knowledge, skill, and judgment to assess the appropriateness of this medication for this client.

Right Client

Client-specific identifiers help eliminate medication errors and ensure clients receive the medication(s) intended for them.

The LPN must follow employer policy for client identification. Best practice supports the use of two client-specific identifiers, although

appropriate identifiers will vary by population, environment, and client preference.⁷⁰

Identifiers can include

- the client stating his or her first and last name (if able);
- the client spelling his or her last name;
- a hospital name bracelet (including personal identification number);
- a recent photograph;
- personal health number;
- date of birth;
- verifying the client's allergies with chart and client; and
- other identification used by the employer's policy (e.g., unique identification number, client's address).⁷¹

Right Medication

The LPN should only administer medications they prepare themselves and are accountable to ensure that the right medication is prepared appropriately for the right client. If there is any uncertainty about whether the client is receiving the right medication, the LPN must withhold the medication and confirm the order with the authorized prescriber.⁷²

Right Dose

The LPN has a responsibility to ensure dosage calculations are accurate (as prescribed) and appropriate. For more information on drug calculation, go to CLPNA's Medication Drug Calculation self-study course.⁷³ For guidelines on administering medication on range dose or sliding scale, see CLPNA's Medication Management Guideline.⁷⁴

If a medication order indicates a dose that requires calculation or conversion, the LPN should have another nurse verify that the dose calculated is correct. This is referred to as an independent double check. For more information on independent checks, see CLPNA's Medication Management Guideline.⁷⁵

The LPN must use additional caution when calculating doses of medication for pediatric clients, since children metabolize medications differently than adults.⁷⁶ Additional considerations must also be given when administering medications to other populations, such as geriatric clients or clients with renal insufficiency, substance abuse, and/or addiction issues.

Right Route

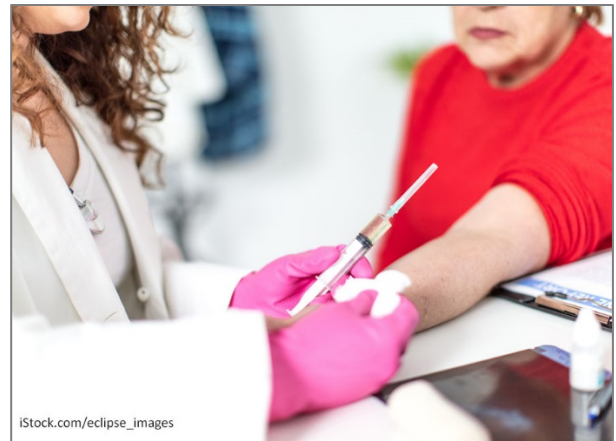
The route of administration is determined in collaboration with the care team and ordered by the authorized prescriber. Under the [LPN Profession Regulation](#), the LPN may perform the restricted activity of administering fluids and medications by injection or infusion. Refer to the [Competency Profile for LPNs](#) to view the full list of routes for medication administration within the LPN's scope of practice. Routes that are shaded within the [Competency Profile](#) are areas of practice that require additional education or training (informal or formal).

LPNs must work within the role and scope articulated by employer policy. For example, in some facilities or under certain circumstances, there may be medications that only a physician or nurse practitioner can administer.

Medication may only be administered by the route specified in the order. If the LPN has reason to question the prescribed route for a specific client or the client cannot take or receive the medication as ordered, it is important to consult with the authorized prescriber and other members of the care team. It may be determined that a new order is required.⁷⁷

Administration by Injection

Administration of medication by injection is within the LPN's scope of practice. The LPN is expected to be competent to administer medication by injection and adhere to best practice and employer policy when doing so.



Administration by Infusion

[Section V](#) of the [Competency Profile for LPNs](#) outlines the LPN's competencies in administering medication by infusion. IV initiation and medication administration, including central line access (continuous, intermittent, or direct), are within the LPN's scope of practice, provided the LPN is competent to administer the medication.

Administration by Other Delivery Devices

Medication may be administered via other delivery devices such as spacer devices (aerosol holding chamber), infusion pumps, or insulin pens. To administer medication by a delivery device, the LPN must have the related education and competence to use the device appropriately and follow any related employer policies.

Right Time and Frequency

The LPN is responsible to know when they are administering a time-critical medication. In the event of a delayed or missed dose, the LPN must document the actual time of medication administration in the client record as soon as possible.⁷⁸

Right to Refuse (and Right to Know)

An integral concept of client-centred care is a client's right to be informed and decide whether he or she wishes to accept the proposed nursing care. The LPN is expected to demonstrate respect for a client's needs, values, and preferences.

It is the responsibility of the LPN to provide health teaching to ensure the client understands the information provided and to answer any questions or concerns the client may have about the medication (e.g., medication side effects, benefits, and possible reactions). The LPN has a responsibility to ensure the client understands the information about the medication and has the capacity to give consent.

*If there is concern about a client's capacity to consent, the LPN is expected to consult with the care team and authorizing prescriber. In the event a client refuses a medication, the LPN must document the reason(s) for the refusal and advise the care team and authorized prescriber as appropriate.*⁷⁹

Right Documentation (and Right Evaluation)

After the client's medication has been administered, the LPN must complete the right documentation as soon as possible to decrease the risk of error. The LPN must complete the right evaluation to assess the client for any side effects or adverse reactions, as well as monitor the effectiveness of the medication and document the outcome.

Checks

Before administering any medication, the LPN must ensure that the following information is correct:

- Right client
- Right medication
- Right dose
- Right route
- Right time and frequency

It is critical that this information be correct; therefore, it must be checked three times.

Check 1: Before preparing the medication and/or removing it from its container/packaging.

Check 2: While preparing and once the dose of medication ordered is removed from its container/packaging.

Check 3: After the preparation process has been completed and before administering to the client.⁸⁰

High-Alert Medications and Independent Double Checks

High-alert medications are those that present a risk of causing serious injury or death if used incorrectly. The Institute for Safe Medication Practice (ISMP) has developed lists of [high-alert medications](#) for acute care, community, ambulatory, and long-term care settings. LPNs should inquire as to whether their employer organization has developed a high-alert medication list for their staff. As independent double checks may be required by employer policy, LPNs are expected to have the knowledge, skill, and competence to perform and request an independent double check.

To ensure accuracy and reduce the possibility of medication errors associated with high-alert medications, an independent double check at the point of care is best practice.⁸¹ An independent double check is the process in which a second regulated health care professional independently verifies the core medication rights and checks before the medication is administered to a client.⁸²

- Two nurses check the prescriber order.
- The medication is compared to the order and medication administration record.
- The dosage is carefully calculated by each nurse independently.
- The client identifiers are checked independently of one another immediately prior to the medication being administered.⁸³

The two nurses do not confer or influence each other during these independent checks. (When these independent checks are complete, they may compare their calculations of the dosage.)

The reason for checking high-alert medications independently of one another is to avoid errors. In this manner, any potential for one nurse to lead the other nurse to the same medication error is avoided.

Medication Reconciliation

Medication reconciliation is a formal process that aims to ensure accurate and comprehensive medication information is collected and communicated consistently across transitions of care. The purpose of this process is client safety to ensure the appropriateness of client medications. As members of collaborative client/health care provider teams, LPNs are responsible for taking steps to support medication reconciliation within their role.⁸⁴

Steps to Medication Reconciliation

1. Obtain the **best possible medication history**, and identify discrepancies. Each medication should be verified against the client's medication profile prior to administration.
2. Resolve discrepancies with the care team.
3. Document the reconciled list, and communicate any medication changes.
4. Continually update the reconciled medication list as necessary.⁸⁵

Medication reconciliation is becoming recognized worldwide as a key safety initiative. The World Health Organization (WHO) created a standard operating protocol for medication reconciliation, designed to increase client safety.⁸⁶ Safer Healthcare Now! (Canada) has identified medication reconciliation as a client safety priority.⁸⁷ "Properly conducted, medication reconciliation reduces the possibility that medications will be inadvertently omitted, duplicated, or incorrectly ordered at transitions of care."⁸⁸

Additional information on medication reconciliation can be found at: www.ismp-canada.org and www.who.int.

Medication Preparation and Administration

The LPN is expected to demonstrate the knowledge and ability to appropriately prepare medications for administration according to best practice and employer policy. Preparation can include selecting, calculating, mixing, labelling, preparing, and pouring.⁸⁹ Best practice takes the following into account:

- Prepare medications only after an order has been verified as complete. The LPN has a responsibility to clarify unclear or incomplete orders with the authorized prescriber.
- Prepare medication at a time when medication can be administered immediately following preparation to avoid leaving medications unattended.
- Prepare medications in a space without interruptions and distractions. Reduced focus creates a higher risk for medication errors.⁹⁰
- Prepare medication in an uncluttered practice environment with adequate lighting, minimal interruptions, and support for **aseptic** technique are important factors.⁹¹
- Prepare medication for one client at a time (see section on "Rights and Checks").
- Every LPN must prepare only the medication they will be administering to the client.⁹²
- Medications in ward stock (bulk supply) are to be poured into medication cups that are clearly labeled.⁹³ The LPN has a responsibility to clarify the contents of an unlabelled or unclearly labelled container before proceeding.
- Medications packaged in unit doses should be opened and prepared as close

to the location of administration to the client as possible.⁹⁴

- Before crushing a medication, determine whether the medication is one that can be safely crushed.⁹⁵
- Before splitting a medication, determine whether the tablet is one that is appropriate to split. If medication tablets need to be split, ensure a clean break.⁹⁶
- Medications must not be handled directly—pour into a cup or give directly to the client. If administration of the medication requires direct handling, clean gloves are required.
- Label the medication cup with the client name, drug name(s), dose(s), administration time, and room or location.⁹⁷
- Follow proper hand hygiene when preparing any medication.
- Follow appropriate handling precautions if the medication is a **hazardous medication**.⁹⁸

Preparing Medications from Ward Stock

LPNs may prepare medication from ward stock (bulk supply) provided there is a client-specific order from an authorized prescriber and this practice is supported by employer policy. Preparing medication from ward stock does not fall under the restricted activity of dispensing if it is being prepared to give to the client for immediate administration (e.g., application, ingestion, inhalation, injection, insertion, or instillation).⁹⁹

Mixing Medications

LPNs may be required to combine two or more medications for administration by injection or ingestion or mix a medication and an IV solution for intravenous infusion. **Compounding** is when medications are mixed for the purposes of **dispensing**; however, in this context the LPN is

mixing medications for the purpose of immediate **administration**.

Although LPNs are not authorized to perform the restricted activity of compounding Schedule 1 or 2 drugs, mixing medications (including Schedule 1 or 2 drugs) for immediate administration is within the scope of LPNs' practice and can be performed as long as employer policy supports LPNs in this role.

Specific Medication Preparation

There may be special considerations in the administration of some medications.

Depending on the client's medical history and personal health information, there may be specific medication preparation, including the following:

- *Oral medications:* Assess swallowing ability (dysphagia) to ensure the client can swallow medication safely.
- *Enteral medications:* Ensure compatibility of mixing crushed medications, and check the do-not-crush list from the ISMP. Refer to orders, dietician, or facility policy for flushing amounts before and after medication administration. If feed is running, pause pump for at least 15 minutes prior to medication administration and restart after flushing post-medication administration.
- *Parenteral:* Understand the underlying anatomy of specific landmarks and the associated risks. When two medications are ordered, ensure the compatibility of medications being mixed.
- *Mixing insulin:* Refer to employer protocols. Sites of administration are the abdomen, outer arm, buttock, and thigh, as these areas allow for best absorption.
- *Inhalants:* If using more than one inhaler, know the medication, the sequence for administration, and the timing between doses. Rinse mouth after corticosteroids because they have the potential to cause fungal infections in the mouth.

- *Intradermal/epicutaneous*: Sites of administration include lower forearm, upper chest, upper back, and back of the upper arm. This route is used for skin tests and local anesthetic administration. Review the following guide for purposeful information about intradermal injections: https://www.bd.com/hypodermic/pdf/Intradermal_Injection_Guidelines.pdf.
- *Intramuscular*: It is important to ensure accurate landmarking at the chosen injection site to avoid nerves and other structures (e.g., blood vessels). Choosing the appropriate needle size is important to ensure the drug reaches the muscle but should also take into consideration the client's musculature and depth of fatty tissue. Review the following guide for an update on intramuscular injection guidelines: https://www.bd.com/documents/in-service-materials/syringes-and-needles/MPS_HY_Intramuscular_injection-guidelines-poster_IM_EN.pdf.

Pre-Pouring Medication

Pre-pouring medication, including the LPN preparing medications in a dosette for later administration or prefilling syringes, is not best practice and is not recommended because it increases the risk of error or client harm.¹⁰⁰ The practice of pre-pouring medication is known to lead to client safety errors. Pre-pouring medications also blurs lines of accountability for ensuring all rights of medication administration are met.¹⁰¹ Whenever possible, a pharmacy should be utilized to prepare medications in appropriate packaging, such as blister packs.

In addition, LPNs should not pre-pour medications to be administered by another nurse or health care professional. This practice is known to lead to client safety errors. Medications should be prepared as close to the point of administration and time scheduled to be administered as possible. Signing in advance of administering or

forgetting to sign after the medication has been administered can also create medication errors.¹⁰²

Pass and Bridge Medications

Pass medications are used in practice when the client is leaving an inpatient unit and will need to take medications while they are out on pass.

Bridge medications are used in practice to provide the client with the required doses of medication to provide coverage until the client has the opportunity to have their prescription filled by the pharmacy, which usually takes place within 24 hours.

Whenever possible, a pharmacy should be utilized to prepare medications in appropriate packaging, such as blister packs or medication strips.

The LPN is expected to follow any employer policy and procedural guidelines related to pass and bridge medications.

Sample Medication

LPNs may administer sample medications to clients pursuant to a client-specific order from an authorized prescriber if supported by employer policy.

*LPNs are not authorized by the Food and Drug Act to accept medication samples from pharmaceutical companies or their representatives or to distribute medication samples to clients.*¹⁰³

Do-Not-Crush Medications

Many nurses are either unaware of or confused about which drugs can be safely crushed. The ISMP has provided a list of do-not-crush drugs.¹⁰⁴ Accreditation Canada expects health care facilities to be familiar with and make use of the resources and publications on do-not-crush medications from the ISMP.¹⁰⁵

Range Doses

Range doses are medication orders prescribed for clients requiring flexibility in their medication regimen. Range dosing occurs when an authorized prescriber orders a medication that includes a range of dose (a lower dose to a higher dose) or frequency. When a client's need for medication changes from day to day or within one day, range doses are often prescribed.¹⁰⁶ Range dosing should be based on an established care plan designed to meet the potential variations in a client's specific and timely need for medication.

Example of a range dose order:
Morphine 5-10 mg IV q4h prn

Using leftover or unused portions of a range dose for breakthrough pain management is not best Practice.¹⁰⁷ Therefore, using the above example, if 5 mg of morphine is administered based on an appropriate nursing assessment and in two hours pain management is not achieved, the current range dose order cannot be utilized to "top up" within the ordered timeframe. The LPN must obtain an additional order from an authorized prescriber.

The ISMP recommends that employer policy should specify expectations for range dose medication orders, including

- which medications may be ordered and administered following an order stating a range dose;
- suitable ranges for specific medications;
- the format to be used for prescribing a range dose and instructions for accurate interpretation;
- the knowledge, skill, and competencies required of health care professionals to assess the client and determine the appropriate dose within the range prescribed; and
- the documentation and monitoring requirements for the client's response to the range of medication administered.¹⁰⁸

As employer policy allows, the LPN may administer medications according to a medication order containing a range dose as provided for by an authorized prescriber. In the event of any uncertainty, the LPN has a responsibility to clarify the correct interpretation of a range dose with the authorized prescriber prior to administering the medication.

Sliding Scales

A sliding scale is an objective tool used to manage the progressive increase or decrease in medication doses based on a predefined measurement of another indicator. For example, the sliding scale has been used in managing insulin therapy. Using a sliding scale, the amount of insulin administered is based on the client's pre-meal or nighttime blood glucose level. As the client's blood glucose level increases, so does the insulin dosage. Disadvantages of the sliding scale tool for insulin therapy is that it does not accommodate changes in diet (e.g., snacks) or to stress and activity.¹⁰⁹

Although sliding-scale insulin therapy is still common, many organizations are moving away from traditional sliding-scale insulin therapy (fast-acting insulin alone) and toward basal bolus insulin therapy (BBIT) (a combination of long-acting, short-acting, and correction insulin). Even in organizations who have adopted BBIT protocols, correction insulin may be given using a sliding-scale protocol.¹¹⁰

Following an appropriate client assessment and the rights and checks of medication administration, the LPN may administer medication on a sliding scale based on a client-specific order from an authorized provider and according to employer policy.

PRN Orders

PRN orders are client-specific orders for medications to be administered only as required for an indicated clinical need, rather than according to a fixed schedule.¹¹¹ The order must include the reason and indications for use; if this information is missing, the LPN has a responsibility to seek clarification from the authorized prescriber. PRN orders require that a certain amount of time passes between doses (e.g., no more than one dose every three hours) or a maximum amount that can be given and are considered incomplete if they do not include this information.¹¹²

It is important to determine the outcome of the PRN medication as quickly as possible to assist with decisions about future medication approaches for the client. This could include, but is not limited to, prescribing the medication on a regular basis, withdrawing the medication, and increasing or reducing the frequency of administration.

The LPN must be aware of why the PRN medication was prescribed and when to administer it, based on the appropriate client assessment. The LPN must also follow the rights and checks of medication administration and employer policy before administering any PRN medication.

Administration and Management of Controlled Drugs and Substances

The LPN may administer controlled drugs and substances, including narcotics, in accordance with the federal *Controlled Drugs and Substances Act*, employer policy, and associated regulations.

The *Controlled Drugs and Substances Act* allows health authorities and organizations to set policies as to the administration, storage, and management of controlled drugs and

substances.¹¹³ Health authorities and organizations must also maintain a count of all narcotics and controlled drugs and substances in the clinical area. Usually, the local pharmacy is involved in setting policies and monitoring practice. LPNs may administer controlled substances, including narcotics, in accordance with medication administration guidelines, employer policy, and the *Controlled Drugs and Substances Act* and related regulations.

Narcotics are considered **high-alert medications**. For the LPN administering a narcotic, it is best practice to document/reconcile the narcotic count sheet with the MAR. If administering a narcotic on a PRN basis, the LPN must document that it was given, why it was given, and the client response on the client chart (e.g., nursing/progress notes). These practices should be followed in addition to any documentation policies set out by the employer to ensure best practice and mitigate drug diversion.

Cannabis for Medical Purposes

Cannabis may be used for medical purposes to help manage the symptoms associated with a variety of disorders and conditions. The use of medical cannabis is similar to other medication therapies that may be part of a client's overall care. LPNs are responsible for following medication administration procedures when administering medical cannabis, including completing appropriate assessments and documentation.

LPNs must ensure that the medication rights and checks are followed and they have the individual competence to administer medical cannabis. This includes understanding the various forms of medical cannabis, how those forms may impact the dosage, and knowledge of the indications and contraindications for use. LPNs must also evaluate the effectiveness of the medical cannabis through appropriate nursing assessments, and be able to identify and manage any adverse effects. Additionally, LPNs should ensure they are aware

of and in compliance with any employer policies specific to the use and administration of medical cannabis.

LPNs are encouraged to access Health Canada's Information for Health Care Professionals – [Medical Use of Cannabis](#) at for more information on the use, dosing, adverse effects and drug interactions associated with medical cannabis.

LPNs are authorized to administer medical cannabis in all practice settings if the following requirements are met:

- *the client has a medical document and client-specific order,*
- *the medical cannabis is appropriately packaged and clearly labeled,*
- *the LPN's employer has authorized the use of medical cannabis within the practice setting, and*
- *the individual LPN has the competencies required to administer medical cannabis (i.e., the indications for use, routes of administration, dosing, adverse effects and contraindications).*

The LPN has a responsibility to seek clarification before administering medical cannabis if they are unsure of whether the medical cannabis has been legally obtained, if the packaging does not clearly indicate the product, or the medical document and client-specific order is unclear or incomplete.

Changing role for LPNs caring for clients who use medical cannabis

The use of cannabis for medical purposes is governed by an evolving regulatory framework. The most recent change was on October 17, 2018 when the *Cannabis Act* and *Cannabis Regulations* came into effect and legalized recreational cannabis in Canada. These new pieces of legislation also govern medical cannabis in Canada and replace the previous *Access to Cannabis for Medical Purposes Regulation*. The change in legislation has allowed for a change in the role of the LPN when caring for clients who use medical cannabis. Under the old framework,

LPNs were limited to assisting clients with self-administration in non-hospital settings. However, under the new legislation, LPNs are authorized to administer medical cannabis in all practice settings if the following requirements are met:

- the client has a medical document and client-specific order,
- the medical cannabis is appropriately packaged and clearly labeled,
- the LPN's employer has authorized the use of medical cannabis within the practice setting, and
- the individual LPN has the competencies required to administer medical cannabis (i.e., the indications for use, routes of administration, dosing, adverse effects and contraindications).

Now that medical cannabis can be treated like other medications, the previous CLPNA Fact Sheet on "Cannabis for Medical Purposes" has been removed. The [CLPNA Practice Guideline on "Medication Management"](#) is the resource for LPNs seeking guidance about regulatory requirements before administration of medical cannabis is authorized.

Can LPNs administer medical cannabis in a hospital setting?

Yes, as long as access to cannabis is permitted in the facility and employer policy supports the LPN in this role. Employers may establish policies and guidelines around the use of medical cannabis in their facility and LPNs have a responsibility to follow any employer requirements or limitations on the use of medical cannabis.

Under the *Cannabis Regulations*, cannabis products that are properly received from a licensed seller can be administered or distributed to an inpatient or outpatient of the hospital and hospital employees can possess cannabis products in connection with their position or role. The legislation allows hospitals to decide whether medical cannabis use is permitted and to establish parameters for its use.

What is considered a hospital?

A hospital is defined in the *Cannabis Regulations* as a facility that is

- licensed, approved or designated by a province to provide care or treatment to individuals suffering from any form of disease or illness; or
- owned or operated by the federal or provincial government and provides health services.

This definition is almost identical to the definition of hospital used in the *Narcotic Control Regulations* which means that LPNs who had previously been able to administer medical cannabis in their facility, can continue to do so.

What about administration in home care or other settings that are not a “hospital”?

The new framework provides a general authorization for the administration of medical cannabis in all settings, including home care settings, to clients who have appropriate authorization to use it. The legislation allows for administration and possession of medical cannabis in both a “hospital” and a “public place.” The definition of “public place” from the *Cannabis Act* includes any place that the public has access to by right or by invitation.

This means that LPNs who provide homecare to clients are authorized to possess that client’s medical cannabis in order to administer it or to provide assistance with administration since they have been invited into that client’s home to provide care. Previous legal restrictions that limited the LPN’s ability to administer medical cannabis outside of hospital settings are no longer applicable. However, as with all practice settings, the employer has the ability to establish requirements or restrictions around medical cannabis and LPNs have a responsibility to follow employer policy.

Other important information

As with any other medication, it is important for LPNs to understand the indications for use, routes of administration, dosing, contraindications and

potential adverse effects of medical cannabis prior to administering it. The Health Canada website is a good resource for LPNs seeking additional information about [medical cannabis](#).

LPNs should be aware that there are restrictions around where cannabis (including cannabis used for medical purposes) can be consumed and smoking restrictions generally apply to medical cannabis as well.

The LPN has a responsibility to seek clarification before administering medical cannabis if they are unsure whether the medical cannabis has been legally obtained, if the packaging does not clearly indicate the product, or if the medical document and client-specific order is unclear or missing key information. Although the *Cannabis Act* has legalized cannabis, some forms of possession and distribution are still illegal and there are limits on the amount of cannabis (medical or recreational) that can be legally possessed.

Naloxone

As deaths and emergency care visits related to fentanyl and other opioid overdoses in Alberta continue to rise, the provincial government has been pursuing various measures to combat the opioid crisis and focus on harm reduction. Naloxone is the primary drug used in Alberta to reverse the effects of opioid overdose.

The CLPNA has developed a FACT sheet, [Naloxone and the Role of the Licensed Practical Nurse in Alberta](#), to provide members with information on the role of LPNs in protecting the public by providing education and interventions to prevent and counteract opioid overdose.

Across all care settings, LPNs may educate clients about naloxone use, indications, and availability. LPNs may also be requested to administer naloxone to clients under a client-specific physician order or medical protocol.

Naloxone has been unscheduled in certain community practice settings, and in these locations LPNs may distribute take-home naloxone

kits (THN kits) to clients and provide instructions for kit use.

LPNs may also distribute THN kits in Emergency Departments and Urgent Care Centres without an order from an authorized prescriber if the use of the THN kit is for the emergency treatment of opioid overdose outside of a hospital setting and the LPN has appropriate training and employer support.

Off-Label Use of Medication

In Canada, prescription drugs must be approved for use by Health Canada.¹¹⁴

When Health Canada approves a drug for sale, the approval stipulates, among other things, the population for whom the drug can be prescribed, the indication(s) the drug can treat, and the dosage(s) that can be administered. The use of an approved drug beyond the criteria set out in the product's approval is referred to as "off-label" use.

Although drug companies can only market and promote their drugs for the approved clinical indications, clinicians can prescribe the drug for off-label indications. Off-label use of medication refers to the use of medication in a dose, for an indication, or for a population beyond those identified for the drug through Health Canada's approval process.¹¹⁵

Health Canada provides a [Drug Product Database](#) containing product-specific information on drugs approved for use in Canada. Researching this database enables health professionals to look up the specific medication and confirm approved usage.

Drugs can be prescribed for off-label use when

- approved by Health Canada for use in Canada;
- the authorized prescriber has based their order on best practice and evidence-based information; or
- the medication is prescribed as part of a current study approved by one of Alberta's Health Research Ethics Boards.¹¹⁶

LPNs receiving an order for an off-label use of a medication must ensure that they are well informed about the medication and the rationale for its use for the particular client. When preparing an order for off-label use, the LPN must have the knowledge, skill, and competence required to administer the medication as prescribed and evaluate its effectiveness for the client.¹¹⁷

Medication Administration for the Purpose of Research

When administering medication for research purposes, the LPN has a responsibility to ensure

- a signed research consent form is placed in the client chart; the client must be informed that they may, as a subject of the research study, receive a placebo instead of a medication with active ingredients;¹¹⁸
- the medication is administered specific to the research protocol;
- the core rights and checks of medication administration are completed as with any other medication; and
- documentation and evaluation of the client is completed according to the research protocol and best practice.

Medication Administration for Aesthetic Purposes

Aesthetic and dermatological treatments have progressed at a rapid rate in recent years. These aesthetic nursing services, such as injecting fillers or other substances, are procedures that are not taught in the basic practical nursing program and require additional education and experience to gain the post-basic competence to perform these procedures.

The LPN is expected to have supervision by an authorized prescriber, trained in the dermatological treatment being provided, who is on-site and available to assist before administering botulinum toxin (e.g., Botox) or other substances.

Comprehensive and accurate documentation must be completed for any provided treatments and/or medications in the client's health record. Informed consent should be documented and included in the client's file. Confidentiality and privacy of the client's personal health information must be stored in a secure manner as per relevant privacy legislation.¹¹⁹

Administration of Complementary and/or Alternative Therapy

Complementary and alternative therapies (CATs) are fast becoming the choice of today's health care consumer, in addition to, or combined with, conventional health care practice.¹²⁰ The WHO estimates that 80 percent of the population today uses "traditional medicines" that would be considered alternative to North America, or Western, medicine.¹²¹ Some of the many complementary and alternative therapies include massage, chiropractic, acupuncture, yoga, and *tai chi*. The growing use of therapies indicates that users believe there are encouraging benefits, although "the evidence supporting the clinical effectiveness of these therapies remains controversial."¹²²

The *Competency Profile for LPNs* identifies the common complementary and alternative therapies that LPNs should be familiar with. LPNs must demonstrate the knowledge and ability to assess and consider risk factors associated with the proposed complementary or alternative therapy, including

- delayed treatment;
- contraindications with conventional treatment or medication(s); and
- understanding of the health risks and potential interactions.

When delivering natural health products and complementary or alternative medicines as a part of nursing care, the LPN must document the provided interventions in the client's health record.¹²³

If additional information about a proposed product or medicine is needed to follow the medication rights and checks, Health Canada maintains a database with information on licensed natural health products, available at <https://health-products.canada.ca/lnhpd-bdpsnh/index-eng.jsp>. This database includes information about ingredients, dosage forms, indications, and contraindications, as well as known adverse reactions.

An LPN may assist with or administer a substance for the purpose of providing complementary or alternative therapy if

- *the therapy is within the scope of nursing practice as stated in the Health Professions Act (Schedule 10, s3) and in accordance with the LPN profession regulation and the CLPNA's adopted Standards of Practice, Code of Ethics, and policy and practice documents;*
- *the individual LPN has the competencies required to safely assist with or administer the complementary or alternative substance to the client;*
- *the LPN is acting on a client-specific order from an authorized prescriber or otherwise authorized regulated health professional (e.g., a naturopathic doctor);*
- *the client has received enough information to make an informed decision to receive the complementary or alternative therapy;*
- *the LPN has assessed the appropriateness of the intervention for the specific client; and*
- *employer policy supports the use of complementary therapy as part of a client-specific established care plan.*

Immunization and Vaccine Administration

Under the *LPN Profession Regulation*, LPNs must complete an immunization certification program authorized by CLPNA as meeting the requirements for specialized practice and receive authorization by the CLPNA Registrar before administering vaccines in Alberta. Information on current CLPNA recognized courses and the requirements for obtaining an immunization specialty are available on the CLPNA website at [LPN Specializations](#).

In accordance with the *Public Health Act*, LPNs performing immunizations or conducting assessments in respect of immunizations must report information about immunization events and adverse events to the provincial immunization repository. In practice, LPNs must also record vaccine lot numbers and expiry dates in the client's health record.¹²⁴

As immunizers, LPNs are responsible for safe and appropriate storage, handling, and transport of vaccines. Provincial regulations set out under the *Public Health Amendment Act* create guidelines for standardized practice.

LPNs who have received authorization from the CLPNA to administer vaccines may proceed under the following conditions:

- *the recipient of the immunization is five (5) years of age or older;*
- *the employer has established protocols in place related to the administration of immunizations; and*
- *an authorized practitioner is available for consultation while the restricted activity is being performed.*¹²⁵

LPNs providing Schedule 1 vaccines outside of an immunization program recognized by the Public Health Act and authorized by the Medical Officer of Health will require a client-specific order before administering a vaccine to a client.



Allergy Testing and Desensitizing Injections (Immunotherapy)

Allergy testing is completed through skin (intradermal injection) and patch testing. LPNs can administer allergy tests and provide allergy injections with additional competence in postbasic education before practicing in this area. As with any other medication, LPNs must have the knowledge and competence to manage adverse reactions related to allergy testing.

Desensitizing injections are provided for the purpose of building immunity. In providing immunotherapy through desensitizing injections, the LPN must have additional knowledge of immunity and the management of severe allergic responses including anaphylaxis.

LPNs providing desensitizing immunotherapy must have obtained the immunization specialty with CLPNA.

Information on currently recognized courses and the requirements for obtaining an immunization specialty with the CLPNA is available at <http://clpna.com/members/continuing-education/lpnspecializations/>.

Evaluating Client Outcomes

The LPN must be able to recognize and manage adverse medication reactions, including anaphylaxis. This includes recognizing signs and symptoms, implementing protocol, and documenting according to employer policy and LPN competencies as outlined in the *LPN Competency Profile*.

The LPN is expected to demonstrate the knowledge and ability to provide ongoing assessment, monitoring, and evaluation of medication effectiveness. In practice, this means the LPN must be aware of

- the type and frequency of monitoring required for specific medications as this pertains to his or her role in providing care; and
- any effects of the medications that must be monitored, managed, documented, and reported, as appropriate.

Documentation

Documentation is one of the main communication tools that health care providers use to share client information; it may be electronic, paper-based, or a combination of both. The LPN is expected to ensure accurate, concise, complete, and timely documentation using appropriate medical terminology and avoiding the use of abbreviations.

LPNs are responsible for documenting client care and outcomes of care they provide.¹²⁶

Documentation should include the LPN's assessment, nursing diagnosis, implementation of interventions, and evaluation of outcomes. The LPN must sign or initial all documentation according to employer policy. Inaccurate or incomplete documentation places the LPN in breach of professional and legal requirements and potentially places the client at risk.

LPNs' documentation should be

- client-focused;

- factual and objective;
- actual, concise, and comprehensive;
- relevant;
- confidential;
- permanent and retrievable;
- chronological and timely; and
- a complete record of care.

The CLPNA supports documentation completed in accordance with best practice, the CLPNA document specific to [Documentation](#), and any additional requirements set out by employer policy. The CLPNA has created an online study module for LPNs wishing to review documentation best practice; the materials are available on the CLPNA website at <http://www.studywithclpna.com/nursingdocumentation101/>.

*The LPN is expected to complete documentation immediately following administration of medication, noting the specific time of administration and the LPN's assessment of the client's response (e.g., pain level and/or vital signs). The LPN must clearly document any medication errors and required interventions.*¹²⁷

Medication Administration Record (MAR)

Safe and accurate medication management involves many processes that start with performing a preliminary check of the medication administration record (MAR). The MAR is a facility or organizationally maintained record of medication administered to a client within the facility/organization (see example of a MAR in Table 5).¹²⁸ The MAR should reflect accurate documentation of all medications administered to the client. This will include the date, time, route, dose, and signature of the administering nurse.

Each client has their own individual MAR, and a new/updated version is created every 24 hours. The scheduled medication and the PRN medications are separated from each other on the MAR for safety reasons. This helps to prevent

administration of PRN medications along with regular medications.

Upon review of each client’s MAR, the LPN

- checks orders for completeness (client name, medication, dose, route, frequency, time);
- checks the number of pages in the MAR to ensure no orders are missed;
- checks medical diagnoses and allergies to ensure medications are appropriate;
- reviews all medications;
- notes any discontinued medications;
- notes medications that have not been administered or missed medications;
- identifies medications due to be administered;
- identifies medications to be prepared first, second, third, etc., and researches unfamiliar medications;
- considers nursing assessments, lab values, or lab work required prior to and post-

medication administration and prioritizes each appropriately; and

- considers the medication and how it should be prepared and delivered.¹²⁹

Before beginning medication administration, the LPN should cross-reference the MAR with physicians’ orders in the client’s records. The MAR is then used by the nurse to work through the rights and checks. The MAR is signed/initialled by the nurse immediately after administering medications. If, for whatever reason, the client does not receive the prescribed medications, there is space on the MAR to record the reason medications were not administered. In the event a client declines or refuses a medication, this information should also be documented on the MAR and as per employer policy to ensure an accurate and complete record. Often, a letter is inserted based on the key provided (e.g., some facilities may use R = refused), as per employer policy. The MAR also has space for newly ordered medications to be added.

Table 5. Example of a Medication Administration Record

Medication Administration Record (MAR)

MO/YR:	Start/Stop Date	Facility Name:																														
Medication	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	Start																															
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Diagnosis:	DIET (Special Instructions, e.g. Texture, Bite Size, Position, etc.)		Comments																													
Allergies:	Physician Name		A. Put initials in appropriate box when medication is given. B. Circle initials when not given. C. State reason for refusal / omission on back of form. D. PRN Medications: Reason given and results must be noted on back of form. E. Legend: S = School; H = Home visit; W = Work; P = Program.																													
	Phone Number																															
NAME:	Record #		Date of Birth:																Sex:													

Client's Own Medication

Self-Administration

The LPN is responsible for teaching clients about their medications, potential side effects, and the importance of adhering to the established medication regime, as well as for evaluating the effects of the medications and the client's technique used in self-administration.¹³⁰

LPNs caring for clients who are self-administering medications are expected to

- assess the client's competence and ability to safely self-administer their medication;
- confirm a client's agreement to self-administer;
- ensure storage of self-administered medication is safe and appropriate, with access available as needed;
- provide teaching, coaching, and supervision as needed; and
- complete documentation according to regulatory standards, best practice, and employer policy.

LPNs assisting clients with self-administration of medication should not reconstitute or prepare medications in advance for the client to take at a later time. Best practice guidelines only support the reconstitution and preparation of medication immediately prior to administration. Reconstitution can affect the storage requirements, stability, and subsequent efficacy of the medication.

Acute Care and Continuing Care Facilities

Acute care and continuing care facilities are expected to develop policy for management and administration of a client's own medication based on federal and provincial legislation and best practice. An LPN will require a client-specific order from an authorized prescriber in order to administer a client's own medication within these settings. LPNs will be held to regulatory standards and should advocate for best practice in employer policy.

Home Care and Supportive-Living Settings

Clients in home care or supportive-living settings may require assistance if they are unable to manage their medications on their own. The LPN role should include continued education of the client, their family, and any unregulated health care employee about the medication's purpose, regimen, benefits, and side effects.¹³¹ Client education should also include information about the safe and appropriate storage of medication.

Having an established process for recording medication administration is a best practice safeguard for both the LPN and the client.

The LPN must sign off on a medication administration sheet to confirm the medication was administered by the nurse as prescribed. The LPN should also document if they witness the client self-administer prescribed medication, clearly stating that the medication was self-administered.

Supervision and Assignment of Components of Medication Administration to Health Care Aides

A collaborative document outlining the *Decision-Making Standards for Nurses in the Supervision of Health Care Aides* was developed by the College of Licensed Practical Nurses of Alberta, the College and Association of Registered Nurses of Alberta, and the College of Registered Psychiatric Nurses of Alberta.¹³² The document highlights that although a nurse may assign tasks to a health care aide (HCA), it is the nurse who remains responsible for the overall assessment and monitoring of the client, the assignment of tasks and supervision of the HCA, and the assessment, administration, and evaluation involved with any PRN medication.¹³³

The HCA may be assigned to assist with medication administration, providing the intervention is appropriate to client needs, within the competencies of the individual health care aide, supervised by a regulated nurse (LPN, RN, RPN), and supported by employer policy.¹³⁴ While supervising and assigning care tasks to an HCA, the LPN must implement standards for assignment of care, ensure continuity of care, provide guidance as needed, and evaluate and reassign care as needed.¹³⁵

HCAs may be responsible for assisting with non-injectable medications including reminding or prompting clients to take their medications, assisting in opening medication containers such as bubble packages or pouches, and ensuring medications are taken at the appropriate time.¹³⁶ An HCA is also responsible for reporting any concerns related to client care to the nurse.

Where HCAs are assigned to assist with medication administration, a formalized medication administration system must be in place. The HCA's role should be clearly outlined in employer policies to further guide quality care and safety in practice.

Assigning Assistance with PRN Medications

It is not appropriate for an HCA to perform a client assessment and then administer a PRN medication because the HCA is in an assist-only role; however, an HCA may be assigned to support a client by assisting with their PRN medications following client assessment by a nurse.

Assigning Assistance with Insulin Administration

Subject to employer policy, LPNs may assign an HCA to assist with insulin administration, provided it is within the HCA's competency to do so.

For example, unless a client is taking insulin as an activity of daily living, employer policy may state that the LPN may only assign an HCA to assist with the following components of insulin administration:

- bringing the insulin to the client; and
- assisting the client in preparing the injection site.

In such cases, after the client self-injects, the LPN may assign the HCA with the task of assisting the client to dispose of the needle in a biohazard container. However, when the client is capable, they should be encouraged to place the needle in the biohazard container themselves.¹³⁷

Supervising a Practical Nurse Student Assigned to Perform a Restricted Activity

To perform restricted activities as part of their training, students must be enrolled in a practical nurse program approved by the CLPNA. The student must also have the consent of, and be under the supervision of, a regulated member.¹³⁸

Section 21(1)(2) of the *LPN Profession Regulation* states that a practical nurse student receiving training in providing a restricted activity may perform the restricted activity under supervision. The supervision must be by a regulated member who is authorized to perform the specific restricted activity being learned and who is available to provide assistance. In all cases the LPN is expected to be aware of and follow employer policy regarding the supervision and assignment of care to practical nurse students.

Although medication administration is not a specific restricted activity, aspects can involve the performance of a restricted activity; for example, administering medication by injection is considered a restricted activity.

*While supervising and assigning care tasks to a practical nurse student, the LPN must implement standards for assignment of care, ensure continuity of care, provide guidance as needed, and evaluate and reassign components of medication administration as needed.*¹³⁹

Co-signing for Students

Practical nurse students are expected to document the care they provide in accordance with employer and academic policies. It is best practice for the practical nurse student to have a co-sign for narcotics and physician orders. In these contexts, having a co-sign means obtaining an independent double check.

Concluding Thoughts

This section has presented a broad perspective of the knowledge that informs medication management in person-centred care. The components of a routine medication order, the medication rights and checks of administration, and an examination of best practices were reviewed.

Potential health risks are associated with medication administration. This module reviewed the important role LPNs have to assess, monitor, manage, document, and report client outcomes. The LPN must be able to recognize and manage adverse medication reactions, including adverse events and anaphylaxis.

Documentation standards and expectations were discussed. As documentation is one of the main communication tools that nurses and health care providers use to share client information, it is vital that a complete record of client care is entered. Research shows that when documentation fails to meet professional and legal requirements, the client may be at risk.

Because there was a large amount of information covered, careful review of specific sections, additional reading, and testing of knowledge would benefit both nursing practice and client care. Safe and accurate medication management is the key goal.

Module 4: Safety Considerations

Introduction

This module provides information about safe handling, storage, and disposal of medications. This includes a brief overview of infection prevention and control issues related to administration and handling of medications. Different issues related to hazardous medications will also be examined.

Learning Outcomes

At the end of this module you will be able to

- review the definition of *infection prevention and control*;
- identify resources for infection prevention and medication management;
- describe the actions for management of hazardous medications;
- outline safe handling, storage and disposal of medication;
- recall strategies to avoid medication administration errors; and
- summarize reporting policies for adverse events, near misses, and missed medication.

Medication Safety

In client-centered care, the LPN, the client, and the health care team work collaboratively to optimize safe, effective, appropriate medication administration.¹⁴⁰ LPNs play an important role in client safety in the area of medication administration through infection prevention and control, appropriate management of hazardous medications, reduction of potential medication errors, and reporting of adverse events or **near misses**.

Safety and Infection Prevention and Control

The minimum competencies for safety and infection prevention and control specific to

medication administration are defined in the *Competency Profile for LPNs*. This includes the safe storage, handling, removal, and disposal of medications according to best practice and employer policy.

For more information, Alberta Health's resources for infection prevention and control are available at <http://www.health.alberta.ca/health-info/prevent-infections.html>. Additionally, CLPNA has an [Infection Prevention and Control self-study course](#) available as a resource.

Infection prevention and control is a vital component of medication safety for today's nurses. In addition, clients can be exposed to the risk of infection through the storage, handling, and administration of medications. The ISMP, in its suggested format for self-audit around medication safety practices, includes the following considerations regarding infection prevention and control:¹⁴¹

- In the pharmacy and throughout the hospital, staff members use appropriate hand hygiene procedures and standardized aseptic technique prior to preparing any injectable product (e.g., IM, IV push, IV admixture [2 or more drugs]).¹⁴² Hand hygiene is one of the most important steps.
- In [client] care areas, multiple-dose vials are not used for saline and heparin flush solutions, or local anesthetics. Exception: Local anesthetics used in the operating room that are restricted to a single [client] procedure.
- Containers of eye or ear drops are not used for more than one [client].
- A single syringe is never used for multiple [clients], even if the needle is changed in between [clients].
- Pen devices that contain multiple doses of medication (e.g., insulin pens) are dispensed for individual [clients] and are never used as unit stock for multiple

[clients], even if the needle is changed between [clients] or the medication is withdrawn from the pen cartridge with a sterile syringe.¹⁴³

Alberta Health Services¹⁴⁴ has an infection prevention and control (IPC) team that focuses on preventing nosocomial infections. IPC's mandate is to reduce the incidence of health care-associated infections in patients, residents, and clients by

- process and outcome surveillance;
- outbreak identification and management;
- consultation and education;
- guideline, policy, and procedure development; and
- research.

Safe Handling of Medications

Medications (tablets, capsules) should not be handled directly by health providers. These medications can be poured directly into a medicine cup or given directly to the client. If a medication needs to be handled, clean gloves should be worn. When dealing with hazardous drugs, specific precautions need to be used as per manufacturers' recommendations and employer policies and procedures.



Hazardous Medications

Hazardous medications include those used for cancer chemotherapy, antiviral drugs, hormones, some bioengineered drugs, and other miscellaneous drugs.¹⁴⁵ According to the National Institute for Occupational Safety and Health (NIOSH) Working Group on Hazardous Drugs, hazardous medications are those that have one or more of the following characteristics:

- carcinogenicity;
- teratogenicity or other developmental toxicity;
- reproductive toxicity;
- organ toxicity at low doses;
- genotoxicity; or
- a structure and toxicity profile that mimics existing drugs already determined as hazardous by the above criteria.¹⁴⁶

Carcinogenic: A substance or agent that can cause cancer (e.g., hydrochlorothiazide).¹⁴⁷

Teratogenic or other developmental toxicity: A substance or agent capable of producing fetal malformation (e.g., ACE inhibitors, lithium).¹⁴⁸

Reproductive toxicity: Adverse effects on the male and/or female reproductive systems caused by exposure to a toxic substance or agent (e.g., caffeine, serotonin-specific reuptake inhibitors [SSRIs], ketoconazole, Aspirin, nonsteroidal anti-inflammatory drugs [NSAIDs]). The adverse effect may alter sexual behaviour, decrease fertility, or cause fetal loss during pregnancy.¹⁴⁹

Genotoxic: A substance or agent causing harmful action on a cell's genetic material, affecting its integrity; the degree to which something causes damage to or mutation of DNA (e.g., cisplatin, 5-fluorouracil).¹⁵⁰

Organ toxicity at low doses: Causes toxicity of an organ or on a person's health and is produced by a pharmaceutical when it is administered in low doses (e.g., liver damage,

local necrosis of exposed tissue, etc.). This is commonly related to chemotherapeutic agents or retroviral drugs, as well as agents used in radiology to enhance images.¹⁵¹

Similar drugs/effects: Substances whose structure and toxicity are similar to those based on one or more of the criteria mentioned above. This includes cytotoxic drugs that can present any of the above hazards to LPNs who handle them. LPNs can administer cytotoxic drugs in all forms but should always check employer policy and procedures prior to administration to ensure they are aware of the safe handling precautions. Methotrexate is an example of a commonly used cytotoxic drug that poses multiple hazards to the nurse and comes with specific precautions to follow.¹⁵²

LPNs and others in the immediate area may be at risk of exposure to these hazardous drugs. Exposure can occur through skin, mucous membranes (eyes, nose), inhalation, accidental injection (such as a needle stick injury), or unintentional ingestion (contaminated food or objects, including fingers when placed in mouth).

The LPN must follow best practice, manufacturer guidelines, and employer policy for safe management of hazardous medications. Although no single precaution will cover all the various scenarios in which a health care provider may be exposed to hazardous medications, general guidance for typical health care situations includes the use of personal protective equipment and appropriate ventilation.¹⁵³

Storage, Disposal, and Transportation of Medication

The LPN is expected to demonstrate knowledge and ability to apply infection prevention and control standards in safe storage, handling, removal, and disposal of medications, while practicing according to employer and

manufacturer policy. This includes ensuring the appropriate storage of medications that are susceptible to chemical reactions in a refrigerated or darkened environment to prevent photodegradation, which could affect drug stability. If a medication, or a portion thereof, is not going to be used, it needs to be disposed of in a safe and appropriate manner.

Safe storage provides security, integrity, and stability of the medication. Medications should be stored as directed by the manufacturer. In general, most medications should be stored in a cool, dry area, away from sunlight and moisture between 15–25 degrees Celsius to maintain potency.¹⁵⁴

Safe Disposal

Nurses must check the medication packaging to ensure it has not been compromised or to see if the medication has an expiry date. If a medication is not going to be used, it needs to be disposed of in a safe manner. Follow the employer's practice policies. Generally, medications are returned to the pharmacy for disposal in an environmentally safe manner.

The requirements for the management of controlled drugs and substances in health care facilities are outlined under federal legislation. The *Controlled Drug and Substances Act* gives authority to health care organizations to establish policies governing the administration, storage, and safe handling of controlled drugs and substances. These policies can include a requirement for narcotic waste to be witnessed and cosigned by two health care professionals as a means of monitoring and minimizing drug diversion.

When working in the community, the ENVIRx program, administered by the Alberta Pharmacists Association, helps the public dispose of old and unused medications in a safe manner. In 2014 the ENVIRx program collected more than

71 metric tons of medications. This program is managed by local pharmacies. Medications are brought directly to a participating pharmacy for collection and disposal.¹⁵⁵

Do not flush medications down the toilet or sink. Traces of medications have been found in soil and water and could be leading to adverse effects for humans and animals, as well as the environment.¹⁵⁶



Strategies to Reduce Medication Errors and Adverse Events

One area where medication errors are common is in the calculation of drug dosages. The ISMP has studied these errors in detail and has uncovered a number of contributing factors, such as interruptions and distractions to nurses during medication preparation and administration and the use of error-prone abbreviations.¹⁵⁷ Awareness of these and other mediating factors can provide key information for discussion in the workplace to examine potential systemic problems that are contributing to medication errors.¹⁵⁸ This information may also contribute to recommendations for reducing potentially life-threatening medication errors and improving client safety outcomes.

The Health Quality Council of Alberta (HQCA) has been involved in several projects that aim to improve medication safety in Alberta: a [medication management checklist for supportive living](#) is available on their website. There are also resources around the risks of using abbreviations in medication orders available at [Writing It Out Can Save a Life](#).

The following safety strategies should be utilized to reduce medication errors and ensure client safety:

- Perform the core medication rights and checks, and complete medication reconciliation.
- Follow nursing protocols and employer policies to decrease medication errors.¹⁵⁹
- Employ strategies to stay focused and reduce distractions; for example, by placing “Do Not Disturb” signs in areas where medications are being prepared.¹⁶⁰
- Ensure medications and medical sharps are stored, handled, used, and discarded safely, according to manufacturer instruction(s), employer policy, and provincial and national guidelines as appropriate.
- Discuss how to prevent medication-related client safety incidents with the client, family members, and caregivers as applicable.
- Provide clients with information about who to contact if they have concerns with their medication regime.
- Identify and report concerns with medication orders, packaging, or labelling to appropriate team members, managers, and the pharmacy.
- Support the development of employer policies that provide guidance for team members to raise safety concerns with the authorized prescriber or pharmacist.
- Follow established guidelines within their practice environment to report any near misses, medication errors, or adverse events.

- If an adverse event or near miss occurs, work with team members to consider strategies to avoid a recurrence as appropriate.

Reporting Adverse Events, Medication Errors, or Near Misses

An adverse event, medication error, or near miss refers to events where clients were harmed (or easily could have been). These events may be preventable and impute a strong professional emphasis on client safety.

These events may occur many times before an actual harmful incident. Whether the problem did not reach the client because of timely intervention by the nurse, the family, or the client themselves, there are lessons to learn and improvement opportunities to prevent future harm or tragedy. Research shows that health care organizations realize that today's near miss could become tomorrow's critical incident. For this reason alone, today's health care system continues to advocate for identifying and reporting near misses, medication errors, or adverse events. Only then can there be system changes that will lead to measurable improvements in safe medication administration.¹⁶¹

Safe medication administration requires collaboration among the members of the health care team. Medication errors can be a result of individual mistakes, systems issues, or a combination of both. The CLPNA holds LPNs accountable for their individual competence in medication administration. LPNs have a professional responsibility within the health care team to take appropriate and timely steps to report and resolve medication errors, near misses, or adverse events.

The LPN is expected to take appropriate and timely steps to report and resolve medication errors, adverse events, or near misses. The LPN must follow specific reporting criteria and processes as outlined in employer policy.

Once the LPN is aware of a missed or delayed dose, the LPN must document what they did about it, including the actual time of medication administration in the client record, and who they informed about the missed or delayed dose.



Concluding Thoughts

This module discussed safe handling, storage, and disposal of medications during administration. Certain medications pose different hazards that the nurse must be aware of, as well as the precautions that must be taken during client care. Infection prevention and control practices are critical in all aspects of nursing care, including administration and handling of medication, to prevent client harm. There is a necessity to focus on preventing infections and not simply controlling them.

In most practice settings, medication administration is a significant role for LPNs. LPNs are responsible to ensure they possess the required knowledge, skill, and judgment to administer medications safely and competently. The CLPNA supports a collaborative and interdisciplinary approach, which includes clients and families as beneficial to safe medication administration practices.

Preventing medication errors or near misses is a responsibility of every nurse, and LPNs must take appropriate and timely steps to report and resolve medication errors, near misses, or any adverse events for continued public safety and competent nursing care.

Glossary

Administration (of a drug): The supplying of a dose of a drug to a person for the purpose of immediate ingestion, application, inhalation, insertion, instillation or injection.¹⁶²

Adverse event: An injury from a medicine or lack of an intended medicine; including adverse drug reactions and harm from medication incidents.¹⁶³

Aseptic technique: A health care procedure designed to reduce the risk of transmission of pathogenic microorganisms.¹⁶⁴

Authorized prescriber: A health care professional who is authorized by legislation and permitted by their regulatory college, employer and practice setting to prescribe medications.¹⁶⁵

Brand name: Drug's trade name usually followed by the registered trademark symbol on the manufacturer's packaging.¹⁶⁶

Chemical name: Name given to newly discovered drugs that describes the chemical or molecular makeup. It provides an exact understanding of the chemical constitution of the drug and the placing of its atoms or molecular groupings.¹⁶⁷

Client: Refers to the individual, group, community, or population that is the recipient of care services and delivery.¹⁶⁸

Compound: 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.¹⁶⁹

Dispense: To provide a drug pursuant to a prescription for a person, but does not include the administration of a drug to a person.¹⁷⁰

Emergency situation: A "medical situation in which immediate care is required." In other words, in an emergency, the client would be placed at a significant risk if the clinical intervention is delayed.¹⁷¹

Environment: The sum or combination of surrounding things, conditions, or influences.¹⁷²

Excretion: The elimination or removal of drug metabolites and, in some cases, the active drug itself from the body.

Generic name: Common name a drug is recognized by.¹⁷³

Hazardous medications: Hazardous medications are medications known or suspected to cause adverse health effects when health care workers are inadvertently exposed. The National Institute for Occupational Safety and Health (NIOSH) in the United States has identified six characteristics of hazardous drugs; drugs exhibiting one or more of these characteristics should be handled as hazardous and appropriate precautions taken.¹⁷⁴

High-alert medications: High-alert medications are drugs that bear a heightened risk of causing significant client harm when used in error. Although mistakes may or may not be more common with these drugs, the consequences of an error are clearly more devastating to clients. Use these lists to determine which medications require special safeguards at your practice site to reduce the risk of errors.¹⁷⁵

Intermediary: In the context of medication administration, an intermediary is someone who is used to communicate a verbal prescription between an authorized prescriber and a pharmacist.¹⁷⁶

Invasive procedure: Denoting a procedure requiring insertion of an instrument or device into the body through the skin or a body orifice for diagnosis or treatment.¹⁷⁷

Medical assistance in dying: (a) The administering by a medical practitioner or nurse practitioner of a substance to a person, at their request, that causes their death; or (b) the prescribing or providing by a medical practitioner or nurse practitioner of a substance to a person, at their request, so that they may self-administer the substance and in doing so cause their own death.¹⁷⁸

Medication: A drug as defined in the *Pharmacy and Drug Act*.¹⁷⁹

Metabolism: The process by which the body transforms, converts, and inactivates drugs.

Near miss (good catch/close call): An event that could have caused harm or resulted in unwanted consequences, but did not because the event was caught and prevented.¹⁸⁰

Nurse: A regulated health care provider from a nursing regulatory college; licensed practical nurse, registered nurse, or registered psychiatric nurse.

Order set: A predetermined evidence-based prescribing tool prepared by authorized prescribers to manage a common state of disease or address a general purpose.¹⁸¹

Pharmacodynamics: The process by which a drug works or affects a body.¹⁸²

Pharmacokinetics: The way the body deals with a drug, including absorption, distribution, biotransformation, and excretion.¹⁸³

Pharmacology: The science of drugs and the study of the biological effects on the human body.¹⁸⁴

PRN medication: (from the Latin *pro re nata*) Administration of prescribed medication on an as needed basis; as necessary rather than a fixed schedule.¹⁸⁵

Protocol: An organizationally approved guide for practice that is to be implemented by health care professionals managing specific client health needs in their practice environment.¹⁸⁶

Range dose: Medication orders prescribed for clients requiring flexibility in their medication treatment.¹⁸⁷

Rights and checks: See “Medication Rights and Checks” in Module 3 for expanded definition.

Schedule 1: Drugs that require a prescription as a condition of sale, and in a pharmacy must be stored and sold only in the dispensary. Drugs in this schedule include all federally scheduled drugs and certain others, some of which are specific to Alberta. The latter may appear to be non-prescription drugs (as there will be no symbol directly on the drug label).¹⁸⁸

Schedule 2: Drugs that do not require a prescription as a condition of sale but are only available from the pharmacist. There is no opportunity for client self-selection as drugs are stored and sold in the dispensary.¹⁸⁹

Schedule 3: Drugs that are available without a prescription from the self-selection area of a pharmacy. Although no prescription is required, they can only be sold from a licensed pharmacy or an institution pharmacy.¹⁹⁰

Transcribing/Transcription: The process of writing down or copying the medication order given by the authorized prescriber. This order can be verbal, paper-based, or in electronic form.¹⁹¹

Unscheduled: Drugs not listed in Schedule 1, 2 or 3 that may be sold from any retail outlet.¹⁹²

Resources

Accreditation Canada: 2013 Required Organizational Practices Handbook

<http://www.accreditation.ca/sites/default/files/rop-handbook-2014-en.pdf>

There are a number of guidelines from various sources regarding best injection practices, including administering doses from multi and single use vials.

Alberta College of Pharmacists. (2017). Prescriber lists. Retrieved from <https://pharmacists.ab.ca/>

Centre for Disease Control has a number of guidelines from various sources regarding best injection practice including administering doses from multi and single use vials.

http://www.cdc.gov/injectionsafety/providers/provider_faqs_singlevials.html

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Institute for Safe Medication Practices (ISMP) has created a list of error-prone abbreviations that may result in many medication errors. This will help you understand what abbreviations are acceptable in medication orders. <http://www.ismp.org/Tools/errorproneabbreviations.pdf>

ISMP has released guidelines addressing the timeframes in which it is acceptable to give different types of scheduled medications. This will help you reconcile your administration of scheduled medications with the reality of your practice environment. <http://www.ismp.org/Tools/guidelines/acutecare/tasm.pdf>

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