PHARMACY

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Pharmacy

INTRODUCTION

Canadian pharmacists are health professionals who focus on optimal drug therapy outcomes through the delivery of patient-centred care (Canadian Pharmacists Association [CPhA], 2014a). Working in conjunction with other health-care providers, pharmacists help ensure Canadians are using their medications safely and effectively.

With nearly 42,500 licensed pharmacists across the country, pharmacy is the third-largest health profession in Canada (National Association of Pharmacy Regulatory Authorities [NAPRA], 2015a). They typically work in community pharmacies and hospitals but can also be found in primary care clinics, the pharmaceutical industry, government, colleges, universities and associations (CPhA, 2014a, Ontario Pharmacists Association [OPA], 2015). Pharmacists are also being increasingly employed in other practice settings such as primary care teams, specialized outpatient clinics and home care. Pharmacists are highly educated, requiring five to six years of post-secondary education (depending on the program). Ten universities in Canada currently offer an entry-level pharmacy degree.

For many Canadians, pharmacists are often the first point of contact with the health-care system as they are easily accessible in community pharmacies. Pharmacists provide advice on treating common ailments and managing chronic diseases, and provide education on health and wellness. They also manage drug therapy in collaboration with patients, caregivers and other health-care providers: an important service for Canadians taking multiple medications (CPhA, 2008a).

The role of the pharmacist has expanded over the past decade to include more patient-centred care, including optimizing and monitoring the use of medication (CPhA, 2014; Marra et al., 2012).

Pharmacists work closely with pharmacy technicians, who are college-educated health professionals with specific expertise in the areas of compounding, dispensing, manufacturing and inventory management of medications (Canadian Association of Pharmacy Technicians, 2015). In many provinces in Canada, pharmacy technicians are regulated and have defined scopes of practice. As of January 2018, there were 8,185 licensed pharmacy technicians working across Canada (NAPRA, 2018).

HISTORY OF THE PROFESSION

To understand the position of pharmacy within Canada's health-care system, it is helpful to look at its history, which has often been defined by its relationship to medicine.

EARLY PHARMACISTS

The history of pharmacy dates back to before the Middle Ages, when sick patients were treated with remedies consisting of herbs and roots. In Canada, healers in Indigenous communities could be considered early pharmacists as they also cured the sick with

herbal remedies (Beales & Austin, 2006). Early practitioners went by a variety of names, including pepperers, spicers, grocers, apothecaries, chemists and druggists. Despite what these early pharmacists called themselves, they all had the same job: to compound and dispense remedies that would cure their patients' illnesses.

Certain groups, such as apothecaries and grocers, attempted to use demarcationary techniques to gain a monopoly over the remedies they dispensed.[1] In time, apothecaries established themselves as the authority on drugs (Culp-Pierce, 1974). They then began to take on tasks normally performed by physicians, such as prescribing medicine, under the premise of providing the same services at a reduced price (Lindemann, 1999; Wallis, 2000). Physicians argued that apothecaries lacked the proper education and training to provide those services. Yet by providing these tasks, apothecaries gained a following of devoted clients, allowing them to further expand their practice from solely dispensing drugs to dealing with patients in a more holistic manner (Beales & Austin, 2006).

As technology advanced, chemists and druggists became the new apothecaries. This group focused on the compounding and dispensing of drugs while apothecaries continued their foray into medical practice.

It is interesting to see how, historically, pharmacists transitioned from holistic care professionals to a trade focused on compounding and dispensing medicine. For today's pharmacists, the pendulum is swinging back toward holistic care with a return to caring for patients though optimal medication use.

PHARMACOGNOSY

Pharmacognosy—the study of natural products and their medicinal properties—was an integral part of early pharmacy education (American Society of Pharmacognosy, 2011). By the 1980s, however, expertise in this area was completely lost from Canadian pharmacy. There has been a revived interest in herbal remedies in recent years, and these are now regulated in Canada as over-the-counter natural health products (Health Canada, 2015).

LAWS AND REGULATIONS GOVERNING PHARMACISTS

Prior to Confederation there were no laws governing pharmacists or their practices in Canada (Beales & Austin, 2009). A pharmacist could be someone who had trained as an apprentice, had undergone training in another country, had absolutely no training or qualifications, or was an educated doctor who also dispensed medications (Canadian Pharmaceutical Association, 1967). Not surprisingly, conflict existed between this pluralist group of pharmacy practitioners and the dominant medical establishment as the tasks of the two professions overlapped: at this time, both doctors and pharmacists were compounding and dispensing drugs.

The first legislation

While the Medical Board of Upper Canada had implemented legislation on the practice of medicine in the late 1700s and early 1800s, little to none of it pertained specifically to the practice of pharmacy (Canadian Pharmaceutical Association, 1967). The first piece of legislation that directly applied to

HISTORICAL TERMS

Chemist/druggist: These two titles are synonymous for a professional who dispenses medications.

Apothecary: The role of the apothecary was more holistic than that of the druggist/chemist. Apothecaries dispensed medicine but also treated and examined patients.

Source: Royal Pharmaceutical Society, 2015.

1 Demarcation is a strategy that distinguishes an occupational group into a separate area of practice while control is retained by the dominant group (in this case, medicine).

pharmacists was the *Poison Act* of 1859, which sought to control the selling of deadly drugs by requiring pharmacists to obtain a certificate from physicians. In effect, the *Poison Act* required pharmacists to be reliant on physicians to dispense certain products (Kronus, 1976). What the legislation failed to clarify, however, was who was sanctioned to dispense drugs. As a result, tensions mounted between the two professions over jurisdiction and power (Canadian Pharmaceutical Association, 1967).[2] Physicians used the same argument as before: that pharmacists were unskilled and uneducated. Pharmacists, meanwhile, argued that physicians prescribed medications that were unnecessary and wouldn't treat certain illnesses.

Provincial legislation in Ontario and Alberta

The *Pharmacy Act of Ontario* was passed in 1871, making Ontario the first province with legislation on the rights of pharmacists as well as standardized licensing and education requirements, which led to the creation of the first College of Pharmacy. This was soon followed by the *Pharmacy Act of Alberta* in 1892 (Cameron, 1993). Together, these two pieces of provincial legislation marked a significant moment in the professionalization of early pharmacy.

The evolution of the Canadian Pharmacists Association

Established in 1867, the Toronto Chemists' and Druggists' Association became the Canadian Pharmaceutical Association in 1907. Its initial goal was to specify the tasks that pharmacists were permitted to perform to prevent physicians from encroaching on their jurisdiction (Kronus, 1976). It also hoped to propel pharmacy from a trade to a profession by lobbying for a variety of key issues. Aided by the earlier launch of the *Canadian Pharmaceutical Journal*, the Association became an important venue for pharmacists to share knowledge and professional concerns (Canadian Academy of the History of Pharmacy, 2011).

In 1965, the Association purchased a building in Toronto that would become its national headquarters until 1980 when it moved to Ottawa. In 1997, the Canadian Pharmaceutical Association changed its name to the Canadian Pharmacists Association (CPhA, 2015a).

EDUCATION AND TRAINING

EDUCATION FOR EARLY PHARMACISTS

Early pharmacists received their training through apprenticeships, where they were taught compounding, early pharmacokinetics and pharmacology (the action and effect of drugs), chemistry and business lessons (Canadian Academy of the History of Pharmacy [CAHP], 2011). After the First World War, pharmacy education evolved into formal one- and two-year certificate, diploma or degree programs operated by either the provincial regulatory body or a university (CAHP, 2011).

In Ontario, the College of Pharmacy began training pharmacists in 1882 through a school that would later become a part of the University of Toronto. In Quebec, the Montreal College of Pharmacy has been affiliated with McGill University, Laval University and the Université de Montréal throughout its history. Today it is situated within the latter while Laval University has its own separate pharmacy school. In Western Canada, the University of Manitoba launched its pharmacy program in 1905 and the School of Pharmacy opened in Saskatchewan in 1913, the same year as the University of Alberta's pharmacy program. In British Columbia, apprenticeship programs remained the dominant educational model for many years (CAHP, 2011). On the East Coast, the Nova Scotia College of Pharmacy opened in 1911. New Brunswick joined the College in 1917, leading it to be renamed as the Maritime College of Pharmacy (Dalhousie University, n.d.).

At the 1924 Canadian Pharmaceutical Association conference, it was agreed that efforts would be made to require all pharmacy programs in Canada to be four years in length. This requirement came into effect in 1942 (CAHP, 2011).

EDUCATION FOR TODAY'S PHARMACISTS

Pharmacy education in North America is currently undergoing a period of transformation. In 1989, the American Council on Pharmaceutical Education proposed converting the Bachelor of Science and post-baccalaureate Doctor of Pharmacy (PharmD) programs into an all-new PharmD program that would

2 At this point physicians were dispensing their own medications but when the act of dispensing fell solely on pharmacists, the reliance became mutual.

THE EVOLUTION OF PHARMACY EDUCATION IN CANADA

- **Pre-1930s:** Entry into pharmacy practice occurs via apprenticeships and programs affiliated with provincial universities
- **1930s–1950s:** Introduction of four-year Bachelor of Science programs for entry into pharmacy practice; apprenticeships still exist in some provinces up to 1940s
- **1930s–1970s:** Technological school pharmacy diploma programs still in place in some provinces
- **1960s–1980s:** Two-year Master of Pharmacy programs become available for pharmacists seeking to advance their academic credentials, especially for hospital pharmacy
- **Late 1960s–1970s:** Introduction of hospital pharmacy residency programs
- **1980–1990s:** Entry into pharmacy practice only via Bachelor of Science (Pharmacy) degree; all schools standardize on five-year program
- **Early 1990s:** First post baccalaureate Doctor of Pharmacy (PharmD) programs start at the University of British Columbia and the University of Toronto
- **1990s:** Post-baccalaureate diploma in community pharmacy practice introduced at Laval University
- **1994:** First Canadian Council for Accreditation of Pharmacy Program (CCAPP) accreditation surveys done for Bachelor of Science (Pharmacy) programs in Canada
- **1998:** Association of Faculties of Pharmacy of Canada (AFPC) publishes *Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada*
- **2008:** *Vision for Pharmacy* signed by pharmacy faculties and student associations, agreed upon by national and provincial organizations to be the new direction for the profession
- **2020:** PharmD replaces Bachelor of Science (Pharmacy) program in all Canadian schools

Source: AFPC, 2010.

become the standardized entry-level degree into the pharmacy profession (Accreditation Council for Pharmacy Education, 2011). By June 2005, all pharmacy schools in the United States had made the transition to the professional PharmD degree (Accreditation Council for Pharmacy Education, 2011).

Pharmacy education in Canada has similarly progressed from apprenticeship programs to bachelor's degrees to today's PharmD degree. This transformation has been largely driven by the rapid growth in the scientific and clinical literature around medications and medication use; as drug therapy became increasingly complex, it was evident that the traditional four-year degree program was no longer sufficient to cope with the amount of new knowledge being generated and pharmacists' evolving practice responsibilities. In this context, the entry-level PharmD program will completely replace the previous Bachelor of Science (Pharmacy) degree across Canada by 2020 (Association of Faculties of Pharmacy of Canada [AFPC], 2010).

The transition to the PharmD program

The objective of the PharmD program is to train pharmacists at an advanced level, providing them with the knowledge and skills to fulfill their roles as medication therapy experts, care providers, communicators, collaborators, managers, advocates, scholars and professionals in a variety of clinical settings (AFPC, 2010). In addition to providing advanced practice experiential education, the program also includes an emphasis on interprofessional experiences, pharmacotherapy, medications therapy management, and leadership and management training.

Accreditation standards for the PharmD program are set out by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP), which states that:

> *The core curriculum must include a balance of coursework in biomedical sciences, pharmaceutical sciences, behavioural, social and administrative sciences, and clinical sciences and practice skills* (CCAPP, 2013).

As of 2018, the majority of Canadian universities that offer pharmacy programs have transitioned to the entry-to-practice PharmD programs. All 10 pharmacy schools will offer the PharmD program by 2020.

TABLE 1: Overview of pharmacy schools in Canada

University	Entry-level degree program	Change to PharmD Program	Program length	Number of students admitted/ Number of applicants	Minimum % of seats reserved for in-province applicants	Graduate programs offered
British Columbia	PharmD	2015	4 years	226/650–800	0%	MSc, PhD, post-baccalaureate PharmD
Alberta	BSc Pharmacy	2018	4 years	130/500–600	0%	MBA/BSc, MSc, PhD, post-baccalaureate PharmD
Manitoba	BSc Pharmacy	2020	4 years	55/300	100%	MSc, PhD
Saskatchewan	BSP	2017	4 years	90/524	85%	MSc, PhD
Toronto	PharmD	2011	4 years	240/730	0%	MSc, PhD, post-baccalaureate PharmD, PharmD/MBA
Waterloo	PharmD	2013	4 years	120/600	0%	MSc, PhD
Laval	PharmD	2011	4 years	192/1,899	97%	MSc, MSc/MBA, PhD
Montreal	PharmD	2007	4 years	200/2,000	99%	MSc, PhD
Dalhousie	BSc Pharmacy	2020	4 years	90/450–550	90%	MSc
Memorial	BSc Pharmacy	2017	4 years	40/250	75%	MSc, MBA, PhD

Importantly (and perhaps confusingly), there has been a long tradition in North America of a two-year post-baccalaureate PharmD program. Despite having the same name as the current entry-level degree, the post-baccalaureate PharmD program is a clinical degree aimed at enhancing the skills and specializations of pharmacists (University of Toronto, 2015). Degree requirements and learning outcomes for this particular program are different than those of the professional PharmD program that is now standard across Canada and the United States.

PHARMACY SCHOOLS IN CANADA

As outlined in Table 1, there are currently 10 schools across Canada offering the Bachelor of Science (Pharmacy) degree, PharmD degree, research-related Masters and PhD degrees, and/or post-baccalaureate PharmD for pharmacists degree.

Admissions

Admission into pharmacy schools in Canada is highly competitive, with the universities of Saskatchewan, Montreal, Saskatchewan, Laval, Dalhousie and Memorial all reserving a high percentage of seats (ranging from 75 to 100 percent) for applicants who reside in-province or in a select few provinces. Each school requires an extensive list of prerequisite undergraduate courses in the fields of science and the humanities, most of which take one to two years to complete.

The Pharmacy College Admission Test (PCAT) is a standardized test measuring general academic ability and scientific knowledge. The only Canadian school currently using the PCAT as an admission requirement is the University of Toronto. Pharmacy schools are also increasingly interested in assessing prospective students' 'soft skills' related to topics such as communications, interpersonal effectiveness and conflict management. Roughly half of the schools in Canada now use the MMI (Multiple Mini Interview)[3] as part of the admissions process.

REGULATION AND STANDARDS

The practice of pharmacy is regulated in all jurisdictions across Canada, with pharmacists licensed by

provincial or territorial regulatory bodies that are also known as licensing authorities or colleges. According to the National Association of Pharmacy Regulatory Authorities (2009a), a licensed pharmacist in Canada must have:

- A bachelor's or doctor of pharmacy degree from a recognized university;
- Completed a national board examination through the Pharmacy Examining Board of Canada (with the exception of Quebec);
- Practical experience through a provincially recognized apprenticeship/internship program (PharmD programs have this practical experience incorporated already); and
- Fluency in either French or English.

Regulatory bodies also ensure pharmacists adhere to current legislation, standards of practice, codes of ethics, and other policies and guidelines that pertain to pharmacy. They also help pharmacists maintain their knowledge and skills throughout their careers by establishing requirements for continuing professional development (Ontario College of Pharmacists [OCP], 2014). As part of their responsibility to protect the public, regulatory bodies handle complaints from patients about the care or services they have received, conduct discipline proceedings against registered members, and inspect pharmacies to confirm practice standards are being met.

3 The Multiple Mini Interview (MMI), first pioneered by the McMaster Medical School, consists of multiple stations that require students to manage communications and other challenges. The MMI is used by many pharmacy programs to complement the traditional indicators of academic potential (like grade-point average or standardize test scores), as the assessment it provides may deliver a more accurate appraisal of an applicant's suitability for a communication-intensive profession such as pharmacy (McMaster University, 2015).

Each province's regulatory body is managed by a council that includes elected pharmacists as well as government-appointed public members (OCP, 2014), and is overseen by its respective Ministry of Health. In the three territories, licensing is overseen by the appropriate government department.

Professional associations differ from licensing authorities/colleges in that they advocate for their pharmacist members. While each province has its own association, there are also national pharmacy associations (such as the Canadian Pharmacists Association) that perform advocacy at a national level.

SCOPES OF PRACTICE

A scope of practice outlines the procedures and tasks that a licensed professional is permitted to perform. Because pharmacists are regulated provincially, the exact scope of practice varies from one jurisdiction to another. However, a pharmacist's traditional scope of practice generally includes compounding and dispensing medications; recommending over-the-counter (OTC) products, vitamins and herbal supplements; advising on medication interactions and side effects; and instructing on how to take medications for the best results (OPA, 2014).

TABLE 2: Pharmacy regulatory bodies and professional associations by jurisdiction

Jurisdiction	Licensing authority	Professional association
British Columbia	College of Pharmacists of British Columbia	British Columbia Pharmacy Association (BCPhA)
Alberta	Alberta College of Pharmacists	Alberta Pharmacists' Association (RxA)
Saskatchewan	Saskatchewan College of Pharmacists	Pharmacists' Association of Saskatchewan (PAS)
Manitoba	College of Pharmacists of Manitoba	Pharmacists Manitoba
Ontario	Ontario College of Pharmacists	Ontario Pharmacists Association (OPA)
Quebec	Ordre des pharmaciens du Québec	Association des pharmaciens des établissements de santé du Québec (APES) Association québécoise des pharmaciens propriétaires (AQPP)
New Brunswick	New Brunswick College of Pharmacists	New Brunswick Pharmacists' Association (NBPhA)
Nova Scotia	Nova Scotia College of Pharmacists	Pharmacy Association of Nova Scotia (PANS)
Prince Edward Island	Prince Edward Island Pharmacy Board	Prince Edward Island Pharmacists Association
Newfoundland and Labrador	Newfoundland & Labrador Pharmacy Board	Pharmacists' Association of Newfoundland and Labrador (PANL)
Northwest Territories	Government of the Northwest Territories, Department of Health and Social Services	
Yukon	Government of Yukon, Department of Community Services	Yukon Pharmacists Association
Nunavut	Government of Nunavut, Health Professions Professional Practice Unit	

MODEL STANDARDS OF PRACTICE FOR CANADIAN PHARMACISTS

In 2009, NAPRA developed the Model Standards of Practice for Canadian Pharmacists to help regulatory authorities assess the performance of licensed Canadian pharmacists. Stakeholders, pharmacists, educators and others also use them to determine if standards of practice are being met.

TABLE 3: Summary of the Model Standards of Practice for Canadian Pharmacists

Competency	General standard
1. Expertise in medications and medication use	Pharmacists maintain their competence.
	Pharmacists apply their medication and medication-use expertise while performing their daily activities.
	Pharmacists provide evidence of application of their medication and medication-use expertise through documentation.
2. Collaboration	Pharmacists work constructively with students, interns, peers and members of the interprofessional team.
	Pharmacists communicate effectively.
3. Safety and quality	Pharmacists undertake continuing professional development, quality assurance and quality improvement.
	Pharmacists respond to safety risks.
4. Professionalism and ethics	Pharmacists demonstrate professionalism and apply ethical principles in their daily work.

Source: NAPRA, 2009b.

EXPANDED SCOPES OF PRACTICE

Every province and one of the territories has legislation allowing for expanded scopes of practice, giving pharmacists additional opportunities to manage drug therapy in partnership with patients and other health-care providers. This can include renewing, initiating or adapting prescriptions; ordering and interpreting laboratory tests and administering injections and vaccines (CPhA, 2014a). For example, Ontario's *Regulated Health Professions Statute Law Amendment Act*, passed in 2009, granted pharmacists in that province limited prescriptive authority to modify existing prescriptions, extend existing prescriptions and initiate drug therapy for smoking cessation purposes (OPA, 2008). At the time of publication, Alberta has the most expanded scope of practice while Nunavut has the most limited scope of practice. (CPhA, 2020)

In some clinical settings, performing these expanded-scope activities has a positive effect on patient outcomes by improving safety, therapy management, adherence and quality of life—and also results in cost savings for the health-care system (Kolodziejak, Rémillard & Neubau, 2010).

Increasing awareness of expanded scopes of practice

Pharmacists are among the most trusted of all health professionals, with 85 percent of Canadians believing that pharmacists have the education and training to perform more tasks beyond filling prescriptions. Yet the Canadian public and even other health professionals are still largely unaware of the full role of the pharmacist, likely due to the rapidly changing nature of the scope of practice (Abacus Data, 2015; Kelly, Young, Phillips & Clark, 2014).

To maximize the benefits of pharmacists' expanded scopes of practices, the Canadian public needs to be aware of their exact roles and responsibilities. For this reason, as part of the annual Pharmacy Awareness Month, the CPhA launched a national public relations campaign to improve the public's knowledge about the value of pharmacy services (CPhA, 2013). In addition, because many patients consider themselves customers rather than patients when they visit a pharmacy, it has been suggested that pharmacists better engage people in patient-care conversations at every encounter (Guirguis, Johnson & Emberley, 2014). Remuneration for the clinical services provided by pharmacists is an important issue related to this misperception and will be discussed later in this chapter.

TABLE 4: Pharmacists' expanded scope of practice in Canada

	Scope of Practice [1]	Province/Territory												
		BC	AB	SK	MB	ON	QC	NB	NS	PEI	NL	NWT	YT	NU
Prescriptive Authority (Schedule 1 Drugs) [1]	Independently, for any Schedule 1 drug	X	✓ [5]	X	X	X	X	X	X	X	X	X	X	X
	In a collaborative practice setting/agreement	X	✓ [5]	✓ [5]	✓ [5]	X	X	✓	✓	X	X	X	X	X
Initiate [2]	For minor ailments/conditions	X	✓	✓	✓ [5]	P	✓	✓	✓	✓ [5]	✓	X	X	X
	For smoking/tobacco cessation	X	✓	✓	✓ [5]	✓	✓	✓	✓	✓ [5]	✓	X	X	X
	In an emergency	✓ [7]	✓	✓ [7]	✓ [8]	✓	✓	✓	✓	✓	✓ [7]	X	X	X
Adapt [3]/ Manage	Independently, for any Schedule 1 drug [4]	X	✓ [5]	X	X	X	X	X	X	X	X	X	X	X
	Independently, in a collaborative practice [4]	X	✓ [5]	✓ [5]	✓ [5]	X	X	✓	✓	X	X	X	X	X
	Make therapeutic substitution	✓	✓	✓ [9]	X	X	✓ [10]	✓	✓	✓	✓	X	✓	X
	Change drug dosage, formulation, regimen, etc.	✓	✓	✓ [9]	✓	✓	✓	✓	✓	✓	✓	X	✓	X
	Renew/extend prescription for continuity of care	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Injection Authority (SC or IM) [1,5]	Any drug or vaccine	P	✓	✓	✓	X [11]	✓ [12]	✓	✓	✓	✓	X	✓	X
	Vaccines [6]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	X
	Influenza vaccine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	X
Labs	Order and interpret lab tests	X	✓	P [13]	✓ [14]	X	✓	P	P [13]	✓ [15]	X	X	X	X
Techs	Regulated pharmacy technicians	✓	✓	✓	✓ [16]	✓	X	✓	✓	✓	✓	X	X	X

1. Scope of activities, regulations, training requirements and/or limitations differ between jurisdictions. Please refer to the pharmacy regulatory authorities for details.
2. Initiate new prescription drug therapy, not including drugs covered under the *Controlled Drugs and Substances Act*.
3. Alter another prescriber's original/existing/current prescription for drug therapy.
4. Pharmacists independently manage Schedule 1 drug therapy under their own authority, unrestricted by existing/initial prescription(s), drug type, condition, etc.
5. Applies only to pharmacists with additional training, certification and/or authorisation through their regulatory authority.
6. Authority to inject may not be inclusive of all vaccines in this category. Please refer to the jurisdictional regulations.
7. Applies only to existing prescriptions, i.e., to provide continuity of care.
8. Pursuant to a Ministerial Order during a public health emergency.
9. Applies only to pharmacists working under collaborative practice agreements.
10. Only in the case of a drug shortage.
11. For education/demonstration purposes only.
12. In emergency situations.
13. Pending health system regulations for pharmacist requisitions to labs.
14. Authority is limited to ordering lab tests.
15. Authority limited to ordering blood tests. No authority to interpret tests.
16. Pharmacy technician registration available through the regulatory authority (no official licensing).

✓ Implemented in jurisdiction
P Pending legislation, regulation or policy for implementation
X Not implemented

Current as of June 2020

Canadian Pharmacists Association / Association des Pharmaciens du Canada

The role of the pharmacy technician

As scopes of practice continue to expand, pharmacy technicians have taken over many of the technical aspects of dispensing medications that were traditionally performed by pharmacists (Mohr, 2007). A specific and regulated role for pharmacy technicians was therefore required to accommodate the expanding therapeutic, patient-centred role of the pharmacist (Health Professionals Regulatory Advisory Council, 2006).

Ontario took the lead in regulating pharmacy technicians. In December 2010, a new regulation of the *Pharmacy Act* named pharmacy technicians as a regulated health profession under the Ontario College of Pharmacists (CPhA, 2011). Pharmacy technicians are now regulated in every province except Quebec (CPhA, 2018).

Regulation of this profession allows for standardized skills ensured by common educational requirements and the completion of a national exam administered by the Pharmacy Examining Board of Canada. Legislation and regulation should continue to advance to allow both pharmacists and pharmacy technicians to practice according to the full extent of their knowledge and training (CPhA, 2011).

There are 9564 pharmacy technicians across Canada (see Table 5) or 33.5 per 100,000 population.

TABLE 5: Number of licensed pharmacy technicians by province 2019

Jurisdiction	Total licensed pharmacy technicians
British Columbia	1,645
Alberta	1,612
Saskatchewan	371
Manitoba	177
Ontario	5,051
Quebec	0
New Brunswick	244
Nova Scotia	194
Prince Edward Island	72
Newfoundland and Labrador	198
Northwest Territories	0
Nunavut	0
Yukon	0

*Pharmacy technicians in Manitoba are regulated by the College of Pharmacists of Manitoba, they are listed as a regulated pharmacy technician but not licensed.
Source: CIHI, 2020

THE SCOPE OF PRACTICE OF PHARMACY TECHNICIANS

Pharmacy technicians are responsible and accountable for ensuring the safety and quality of prescription-product preparation and release. Technicians focus on the technical aspects of a prescription, the gathering of patient information for the pharmacist to review, product preparation, product distribution and inventory control. Activities including transcribing verbal orders, transferring prescriptions, and checking the technical aspects of a prescription. They also collaborate with pharmacists in health and wellness promotion, disease prevention and chronic disease management, and in supporting the autonomy of patients.

The consistent standards and competencies of practices that come with regulation ensures pharmacy technicians can support pharmacists in increasing patient safety and improving patient care.

Source: NAPRA, 2011.

DEMOGRAPHICS

PHARMACIST SUPPLY

In 2019, Canada had a total of 43,744 licensed pharmacists, an increase of 2 percent from 2018 (CIHI 2020). The number of pharmacists is growing faster than both the labour force and the general population. Table 6 below highlights the number of pharmacists by province in 2019 the per population ratio, and the percentage of female pharmacists.

TYPE AND PLACE OF EMPLOYMENT

Based on data from 2019, 78 percent of pharmacists were permanent employees, 9 percent were self-employed and 11.6 percent were employed on a temporary or casual basis (CIHI, 2020). Most Canadian pharmacists (75 percent) work in community pharmacies, while just under 20 percent work in hospitals or other health-care facilities (CIHI,2020) (see Table 7).

It is important to note that the majority of the pharmacy workforce (89 percent) is employed in urban areas (CIHI, 2020). This could signify a supply issue for rural and remote areas in Canada, although some provinces (such as Newfoundland and Labrador) have a more balanced percentage of pharmacists working in urban and rural areas.

FEMINIZATION OF THE PHARMACY PROFESSION

Over the years, pharmacy has evolved from a male-dominated profession to one that now has a majority of females. Originally, it was believed that if an increasing number of women entered the pharmacy profession, pharmacist shortages would arise due to maternity breaks. In the article *Consequences of Feminization of a Profession: The Case of Canadian Pharmacy*, Muzzin and colleagues (1994) found this idea to be inconsistent with the trends in Canada. Citing a survey of pharmacists in the Maritimes and the Prairies, they found that in the 1960s only two-thirds of female pharmacists worked full time for most of their career; in the 1980s, however, 90 percent were working full time for the majority of their careers (Muzzin, Brown & Hornosty, 1994). A study of pharmacy alumni from Memorial University, found that female pharmacists worked 90% of the hours their male counterparts worked (Young, LeMessurier & Mathews, 2012). However,

TABLE 6: Number of pharmacists in Canada, 2019

Province/territory	Licensed pharmacists	Per 100,000 Population	Female (%)
British Columbia	5,737	114.9	57.9%
Alberta	5,562	129.1	60.5%
Saskatchewan	1,685	145	68.4%
Manitoba	1,639	121.2	57.2%
Ontario	1,6311	113.9	58.1%
Quebec	9,460	112.7	N/A
New Brunswick	917	119	68.2%
Nova Scotia	1,329	138.4	73.0%
Prince Edward Island	198	129.2	66.2%
Newfoundland and Labrador	752	143.1	60.6%
Northwest Territories	44	98.8	51.4%
Yukon	66	163.1	N/A
Nunavut	44	114.6	51.2%
Canada	43,744	118	N/A

* Data on territories combined.
Source: CIHI 2020

TABLE 7: Pharmacist workforce by place of primary employment, 2010 to 2018

	2010		2012		2014		2016		2018	
	#	%	#	%	#	%	#	%	#	%
Hospitals and other health-care facilities	4,353	18.4	4,802	19.0	5,058	19.7	5,471	18.3	5,843	18.4
Community pharmacies	18,161	77.0	19,315	76.5	19,366	75.5	22,828	76.5	24,058	75.7
Other	1,080	4.6	1,140	4.5	1,229	4.8	1,560	5.2	1,575	5.0

Notes: Hospital and other health care facility: Includes rehabilitation facilities, mental health facilities and residential care facilities.
Community: Includes community health centre; community pharmacy; group professional practice/clinic; and other community-based pharmacist practice.
Other: Includes other pharmacy; post-secondary educational institution; association/government/para-governmental; health-related industry/manufacturing/commercial; community pharmacy corporate office; and other place of employment not otherwise specified.
Source: CIHI, 2016a.

Muzzin and colleagues (1994) found that female pharmacy graduates were actually more likely to move to locations where there are shortages, indicating that female graduates may be more mobile than their male counterparts. It is clear that the feminization of the profession is unlikely to cause shortages and may even prevent shortages as women may be more willing to relocate to underserviced areas. Despite the roughly 60/40 ratio of female to male pharmacists, current growth rates indicate that a shortage in the near future is unlikely.

The feminization of pharmacy may also be helping to facilitate the transition of pharmacy into the new era of patient-centred care. Muzzin and colleagues (1994) reported that women are less likely to own their own pharmacies and express less interest in the business aspects of pharmacy. Without the responsibility of maintaining a small business, they potentially have more time to perform clinical tasks such as patient counselling, monitoring for drug interactions and maintaining patients' drug profiles, all of which are consistent with the evolution of pharmacy care (Muzzin, Brown & Hornosty, 1994). With more female pharmacists, there may be more opportunities for primary care tasks, including expanded-scope activities such as medication reviews, administering immunizations or managing minor ailments.

INTERNATIONALLY EDUCATED PHARMACISTS

There are an increasing number of internationally educated pharmacists working in Canada. In 2019, approximately one third (33 percent) of pharmacists in Canada and almost one half (47 percent) in Ontario were internationally educated. These graduates come mostly from Egypt, India, the United States, the United Kingdom and the Philippines, and the vast majority (90 percent) are working in community pharmacies (CIHI, 2020).

Recognizing the importance of internationally educated pharmacists, the Canadian Pharmacists Association (2008b) developed the following recommendations for improving the integration of international graduates into the pharmacy workforce:

- Establish and maintain a plain-language website with comprehensive information about licensure and integration into pharmacy practice.
- Increase the availability of and improve access to pharmacy bridging programs and training for international pharmacy graduates.
- Identify and promote the adoption of common standards for teaching and assessment within pharmacy bridging programs for international pharmacy graduates.

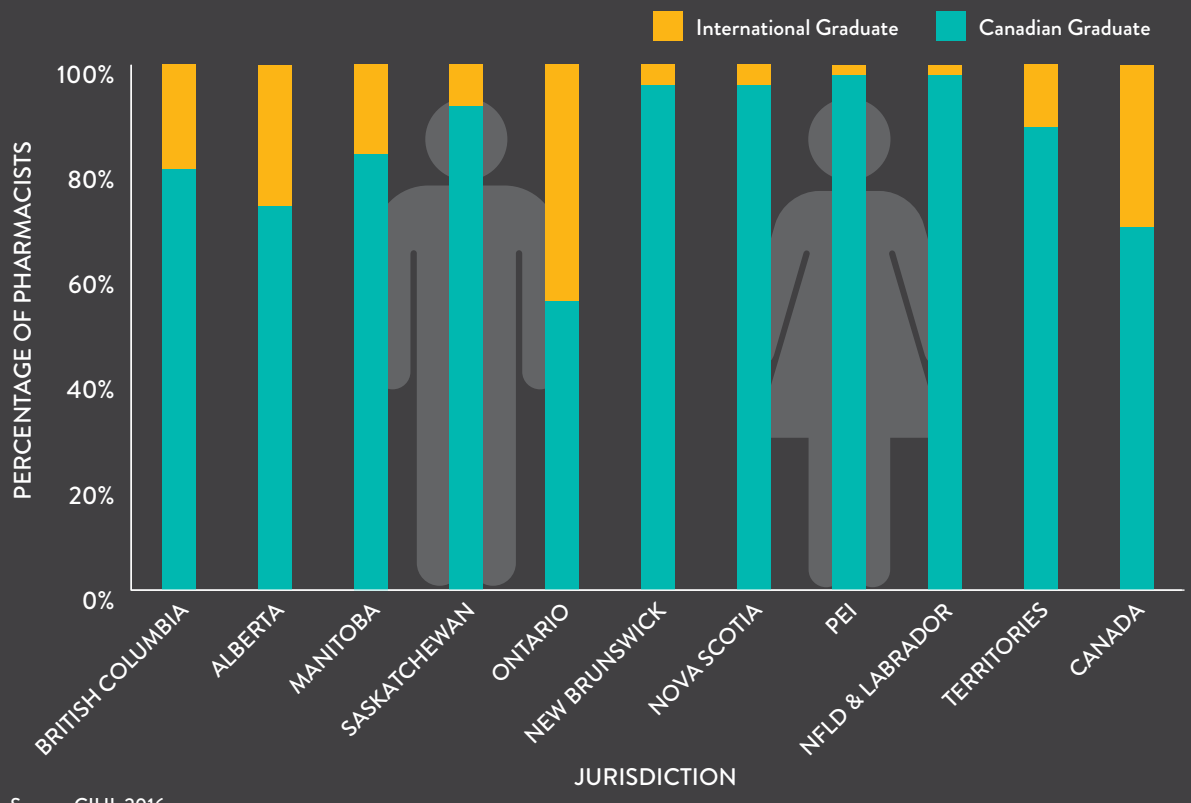
- Develop pan-Canadian standards and model training programs to support preceptors and mentors of international pharmacy graduates.
- Develop a diagnostic tool and support system to assist international pharmacy graduates in assessing and customizing their learning needs.
- Promote the availability of an interprofessional orientation program on the Canadian health-care system, suitable for international pharmacy graduates and other health professionals.
- Develop pan-Canadian standards for the level of communication competency required for safe and effective pharmacy practice.
- Increase the availability of and improve access to pharmacy-specific communication skills programs.

Applying for licensure in Canada

The process to obtain a licence to practice in Canada can be complicated and lengthy for pharmacists who have obtained their education in a country other than Canada (NAPRA, 2014). In collaboration with provincial/territorial pharmacy regulatory bodies and the Pharmacy Examining Board of Canada, NAPRA developed a website—Pharmacists' Gateway Canada (www.pharmacistsgatewaycanada.ca)—to guide internationally educated pharmacists through the process of licensure (Pharmacists' Gateway Canada, 2014). Specifically, it provides tools to help them:

- Understand the practice of pharmacy and licensing requirements in Canada
- Determine whether they are ready to proceed with the application process
- Identify areas where they need to improve their pharmacy skills and knowledge

Figure 1: Internationally and Canadian-educated pharmacists by selected jurisdiction, 2016



Source: CIHI, 2016.

This website also serves as a central database to which prospective Canadian pharmacists can upload all the documents required when applying for licensure, and these are visible only by the provincial/territorial regulatory bodies, the Pharmacy Examining Board of Canada and NAPRA administrators. This process saves international pharmacy graduates from submitting the same documents to multiple organizations. Enrollment in Pharmacist's Gateway Canada is mandatory for international pharmacy graduates in every province, except for Quebec.

As part of the application process, international pharmacy graduates must demonstrate that their education provided them with core competencies equivalent to those required by Canadian-trained pharmacists. With the exception of those applying for licensure in Quebec, this can be proven by completing an evaluating exam conducted by the Pharmacy Examining Board of Canada. Bridging programs are available at the University of Toronto, the University of British Columbia, the Université de Montréal and the Bredin Institute in Calgary and Edmonton. These programs consist of a series of educational courses designed to help prospective pharmacists obtain the skills and knowledge to be able to practise in Canada.

COVERAGE OF PHARMACY SERVICES AND PHARMACIST REMUNERATION

COVERAGE OF SERVICES

Under the *Canada Health Act*, any medically necessary medications administered in Canadian hospitals are publicly funded and insured. Outside of the hospital environment, insurance for medications falls under provincial and territorial jurisdiction (Health Canada, 2004a). This means the coverage of pharmacy services differs by province, with some (like Alberta) paying pharmacists to provide services such as administration of injections, prescription renewals and medication-management assessments.

Public drug benefit programs differ by province and territory, however many of them cover the cost of medications for people based on age, income or specific medical need. In total, public drug plans cover 42% of all prescription drug costs in Canada. (CIHI, 2014). While other Canadians may be covered by supplementary insurance plans provided by their employers or purchased privately, many do not have insurance for prescription drugs. More than one-third (35.8 percent) of Canadian drug expenditures are paid for by insurers and 22.2 percent by Canadian households (CIHI, 2013). (A portion of the expenditures paid by households may eventually be reimbursed by insurers.) The federal public drug benefit program covers prescriptions drug costs for First Nations and Inuit, Canadian Forces members, veterans, RCMP members and inmates in federal penitentiaries (Health Canada, 2004b).

REMUNERATION

Canadian pharmacists are paid by salary, hourly wage and through compensation for clinical services. Wages vary depending on the type of work being done (e.g., community, hospital, industry, other), whether the pharmacist works full time or part time, and in the case of community pharmacies, whether the pharmacist is a manger or owner. Average pharmacist salaries in 2019 ranged from a low of $93,743 in Nova Scotia to a high of $112,199 in Quebec, but median salaries (Job Bank 2019). An important issue for Canadian pharmacists is remuneration for clinical services. As these services require added risk, responsibility and liability, many pharmacists feel that performing them should come with a corresponding increase in pay (Houle et al., 2014).

The provincial administration of remuneration programs results not only in differing fees per service among jurisdictions but also in varying criteria related to the availability of (and patient qualification for) remunerated services. Most provinces also require that all payments for eligible services be processed through licensed community pharmacies, without the option of individual pharmacists billing for their own services (Houle et al., 2014). As a result, challenges exist in obtaining remuneration for services performed outside of a licensed community pharmacy (e.g., when working as an independent consultant) or by pharmacists employed by hospitals or health regions. In addition, payments provided to pharmacy businesses may not always be passed down in full or in part to the pharmacist actually providing the service (Houle et al., 2014).

THE CALL FOR A NATIONAL PHARMACARE PROGRAM

Stakeholders across Canada are calling for a nationally publicly funded and administered insurance plan for medications by 2020. It is believed that a pharmacare program would improve access to prescription drugs for the more than three million Canadians who are uninsured or underinsured for medications. It is also believed that a nationally coordinated program would control drug costs through its ability to bargain with pharmaceutical companies, allowing drugs to be purchased at less cost while reducing administration costs. Finally, a national pharmacare program may improve the safe, appropriate use of drugs by providing independent, bias-free information to all health professionals who prescribe medications.

Sources: Canadian Health Coalition, 2015; CPhA, 2015b; Morgan et al., 2015.

REMUNERATION FOR EXPANDED-SCOPE ACTIVITIES

As discussed earlier, pharmacy in Canada is transitioning from a traditional model of dispensing medication to a model centred around patient care and managing chronic diseases (Chan et al., 2008). To achieve this vision for pharmacy, a shift will be required from the traditional community pharmacy business model (where revenues are based strictly on the dispensing and sale of drug products) to one that incorporates remuneration for the expanded scope of services that pharmacists can now provide. Many pharmacists have cited inadequate remuneration as a barrier to working at an expanded scope of practice (Bernstein et al., 2010; Chan et al., 2008; Marra et al., 2012).

A number of expanded-scope activities require additional education, certification and continuing competency requirements to be performed by pharmacists. Most provinces have also made it mandatory for pharmacists to carry their own professional-liability insurance due to the increased risk and responsibility involved in providing expanded-scope activities. For example, some provinces have authorized pharmacists to administer injections, often for vaccination purposes. This expanded-scope activity requires pharmacists to undergo additional training, maintain current cardiopulmonary resuscitation (CPR) and first-aid certification, and successfully complete a formal application to their licensing body to receive authorization to perform this activity. While remuneration systems exist for some types of vaccinations, pharmacists are not remunerated for all types of injections—and the amount paid can vary up to three-fold from one province to another for the same service (Houle et al., 2014).

There is also little research examining the time and cost of delivering a service versus the remuneration offered for that service (Marra et al., 2012). This issue of remuneration applies to all clinical services, including renewing or extending prescriptions, changing drug dosage or formulation, and performing medication reviews and other medication-management activities (Houle et al., 2013).

CONCLUSION

With nearly 43,744 licensed pharmacists across the country, pharmacy is a large and growing health profession in Canada. While the majority of pharmacists work in community pharmacies, they are also employed in hospitals, primary care clinics and a variety of other health-care settings.

Within each province and territory, a regulatory board exists that protects the public through the licensing and regulation of pharmacists.

By 2020, all entry-level pharmacy education programs in Canada will have transitioned from Bachelor of Science (Pharmacy) programs to Doctor of Pharmacy (PharmD) programs. Key to this transition is the ongoing expansion of pharmacists' scopes of practice across the country, with community pharmacy in particular moving beyond solely compounding and dispensing medication to providing holistic, patient-centred care.

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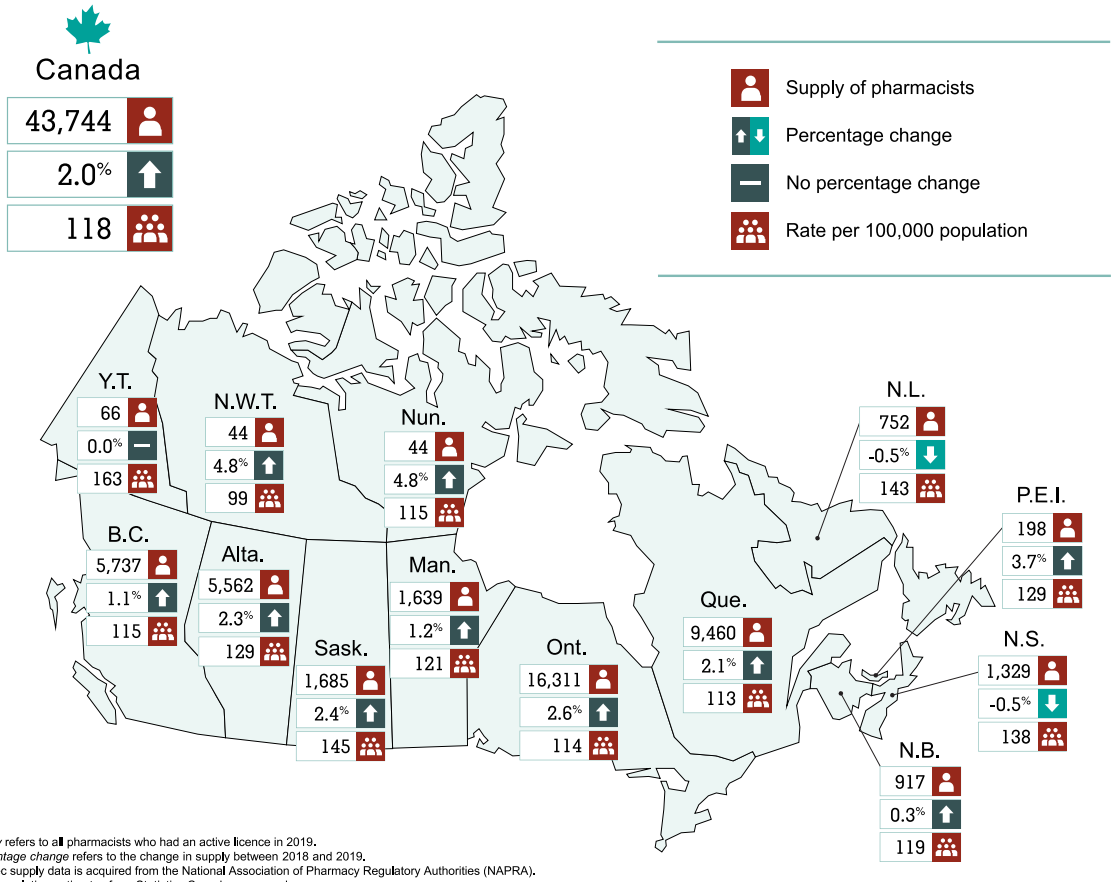
Pharmacists

Supply, percentage change and rate per 100,000 population, Canada, 2019

Pharmacists per 100,000 population provides a baseline count. It may not account for regional variations across provinces and territories. Differences in numbers of pharmacists working full time versus part time can affect comparability between jurisdictions.



Notes
Supply refers to all pharmacists who had an active licence in 2019.
Percentage change refers to the change in supply between 2018 and 2019.
Quebec supply data is acquired from the National Association of Pharmacy Regulatory Authorities (NAPRA).
2018 population estimates from Statistics Canada were used.
Sources
Health Workforce Database, 2020, Canadian Institute for Health Information; National Association of Pharmacy Regulatory Authorities, 2020; Statistics Canada, 2018.

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