

Provincial Comparison of Pharmacist Prescribing in Canada Using Alberta's Model as the Reference Point

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ABSTRACT

Background: In the past decade, pharmacist practice has evolved tremendously in Canada, but the scope of practice varies substantially from one province to another.

Objective: To describe pharmacists' scopes of practice relevant to prescribing within various jurisdictions of Canada, using the prescribing model in Alberta (authors' province) as the reference point.

Methods: This cross-sectional survey consisted of clinical scenarios for emergency prescribing, adapting or renewing a prescription, and initial-access prescribing for a chronic disease. Pharmacists were asked about their ability to administer injections and to order or access the results of laboratory tests, as well as certification and training requirements and reimbursement models.

Results: Thirteen pharmacists representing Canadian provinces other than Alberta were surveyed in late 2015, for comparison with Alberta. With specific reference to the scenarios presented, pharmacists were able to prescribe in an emergency in 9 of the 10 provinces, renew prescriptions in all provinces, and adapt prescriptions in 6 provinces. Three provinces required that pharmacists have collaborative practice agreements identifying a specific practice area in order to initiate a prescription for a chronic disease (with 6–12 pharmacists per province having such agreements). Alberta required pharmacists to have authorization, based on a detailed application, in order to initiate any provincially regulated drug (with about 1150 pharmacists having this authorization). Pharmacists were allowed to administer vaccines in 9 provinces, and 5 provinces allowed pharmacists to administer drugs by injection. Three provinces had systems in place for pharmacists to access laboratory test results, and 2 allowed pharmacists to order laboratory tests. Five provinces had government-reimbursed programs in place for select prescribing services; however, all 9 provinces with public vaccination programs reimbursed pharmacists for this service.

Conclusions: Pharmacist prescribing differs among Canadian provinces. Although most provinces allow emergency prescribing and renewal or adaptation of prescriptions by pharmacists, only 4 provinces allow prescription initiation, with variable criteria and scope. Despite some progress to enhance patient flow through the health care system (e.g., by allowing pharmacists to extend prescriptions), further work should be pursued to harmonize clinical practices across Canada and to enable pharmacists to initiate and manage drug therapy.

RÉSUMÉ

Contexte : Au cours de la dernière décennie, la pratique des pharmaciens a énormément évolué au Canada; or, le champ de pratique est très différent d'une province à l'autre.

Objectif : Décrire les champs de pratique des pharmaciens en ce qui touche au droit de prescrire dans les différentes provinces canadiennes en utilisant le modèle de prescription en Alberta (province d'appartenance des auteurs) comme point de référence.

Méthodes : La présente enquête transversale s'appuyait sur des scénarios cliniques pour la prescription en situation d'urgence, l'ajustement ou la prolongation d'une ordonnance et la prescription initiale en cas de maladie chronique. On a demandé aux pharmaciens de parler de leur capacité d'administrer des substances injectables; de prescrire des examens de laboratoire ou d'en accéder aux résultats; des exigences en matière de certification et de formation; et des modèles de remboursement.

Résultats : Treize pharmaciens représentant les provinces canadiennes autres que l'Alberta ont été sondés à la fin de l'année 2015 pour comparer leurs champs de pratique à celui de l'Alberta. En fonction de détails précis des scénarios préétablis, les pharmaciens étaient en mesure de prescrire en situation d'urgence dans 9 des 10 provinces, de prolonger des ordonnances dans toutes les provinces et d'ajuster des ordonnances dans 6 provinces. Trois provinces exigeaient des pharmaciens qu'ils aient des ententes de pratique en collaboration spécifiant un domaine de pratique afin d'initier une thérapie médicamenteuse en cas de maladie chronique (6 à 12 pharmaciens par province possédaient de telles ententes). L'Alberta exigeait des pharmaciens qu'ils aient une autorisation en fonction d'une demande détaillée pour amorcer un traitement à l'aide d'un médicament réglementé par la province (environ 1 150 pharmaciens détenaient une telle autorisation). Les pharmaciens pouvaient administrer des vaccins dans 9 provinces et des médicaments injectables dans 5 provinces. Trois provinces possédaient des systèmes permettant aux pharmaciens de consulter les résultats d'examen de laboratoire et 2 provinces les autorisaient à prescrire de tels examens. Cinq provinces avaient en place des programmes de remboursement pour certains services de prescription; cependant, les 9 provinces dotées de programmes publics de vaccination remboursaient les pharmaciens pour ce service.

Conclusions : Le droit de prescrire des pharmaciens varie d'une province canadienne à l'autre. Bien que la majorité des provinces permettent aux pharmaciens de prescrire en situation d'urgence et de prolonger ou

Keywords: pharmacist prescribing, scope of practice, disease management

d'ajuster une ordonnance, seules 4 provinces leur permettaient d'initier une thérapie médicamenteuse, et le champ et les critères encadrant cette activité étaient variables. Malgré des progrès visant à améliorer l'accès des patients aux soins et aux services de santé (notamment à l'aide de la prolongation des ordonnances par les pharmaciens), il est nécessaire d'harmoniser davantage les pratiques cliniques dans l'ensemble du Canada et de permettre aux pharmaciens d'amorcer et de gérer la pharmacothérapie.

Mots clés : droit de prescrire des pharmaciens, champ de pratique, gestion thérapeutique

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INTRODUCTION

In the past decade, pharmacist practice has evolved tremendously in Canada. A paradigm shift, from dispensing of drug products to provision of a service to optimize drug therapy, is underway with different provinces adopting this change to differing degrees. Although the act of prescribing a drug is important, it is only one tool in the armamentarium to provide optimal care. The evolution of pharmacists' scope of practice mandates progression of several key factors; to prescribe a drug, a clinician must be able to effectively monitor the therapy and hence may need to order laboratory tests and access their results, know the goals of therapy and be able to assess them, and collaborate effectively with all members of the health care team to ensure seamless care delivery. For sustainability of these pharmacist services, there must be a critical mass of pharmacy professionals capable of performing them, to enable cross-coverage and also to ensure an impact on the health care system. As well, some form of remuneration must be in place, linked to provision of the service and not the drug product, given that this service mandates a process of care that is not evident in simply dispensing a drug.

Alberta was the first province to implement prescribing regulations, and a detailed description of its prescribing model has been published.¹ In brief, the Alberta College of Pharmacists adopted the philosophy that the process of pharmacist prescribing should not be limited to a list of drugs or conditions, but rather should encompass a set of skills that would be applicable to any practice area. The prescribing model contained 3 categories: emergency prescribing, adapting a prescription, and additional prescribing authorization (APA) (Table 1). Although all pharmacists listed on the provincial clinical registry may perform emergency prescribing and adapt a prescription, the privilege of APA, once granted, allows a pharmacist to independently prescribe any provincially regulated drug in a collaborative environment. To obtain APA, a pharmacist must have practised for at least 1 year before applying and must submit a formal, detailed application

that undergoes peer review by individuals trained in standardized evaluation using criterion-based assessment, with established scores for success.

In Alberta, the legislative privilege to prescribe provincially regulated drugs was granted in 2007.¹ Following this milestone, the regulatory organization (the Alberta College of Pharmacists) created a model for pharmacist prescribing and a process for implementing it. The ability to access laboratory test results was established in 2006, authorization to administer drugs and blood products by injection was made available in 2008, and pharmacists were allowed to order laboratory tests starting in 2010. In addition, a compensation model for the provision of pharmacist services was negotiated between the advocacy body (the Pharmacists' Association of Alberta, known as RxA) and Alberta Health and was launched in 2012.

Over the past decade, there has also been significant advancement in pharmacists' practice in other provinces. However, the regulations governing a pharmacist's ability to prescribe a drug still appear to vary for the same clinical scenario. Provinces have adopted different approvals for pharmacists to monitor therapy (e.g., ordering or accessing results of laboratory tests) and different reimbursement models for pharmacist services. To date, these practice characteristics have not been directly compared. Therefore, the purpose of this study was to describe the state of pharmacist scopes of practices within Canada, with emphasis on prescribing of drugs, using the Alberta model as the reference point.

METHODS

This survey study focused on jurisdictions having a regulatory body for pharmacists; as such, pharmacists from all 10 provinces were eligible to participate, and those from the 3 territories (Yukon, Northwest Territories, and Nunavut) were ineligible. Pharmacists identified for telephone interviews had to be practising to full scope, such that they would be knowledgeable about the limits imposed by the respective regulatory bodies. The individual

pharmacists surveyed were identified through the Canadian Cardiovascular Pharmacist Network (CCPN), a national group of pharmacists who are largely institution-based and who practise to full scope within the field of cardiology. Given the national representation of the CCPN and the proactive clinical practices among its members, delegates from applicable provinces were approached to either participate in the research study or to identify another pharmacist who was also practising to full scope. Given the scenarios presented and the questions posed in the survey, study participants had to have a comprehensive understanding of community-based practices; as such, many of the CCPN pharmacists who were approached recommended a community-based colleague that they knew was practising to full scope. When an interviewed pharmacist was uncertain of a specific detail, the relevant provincial regulatory body was contacted for confirmation or clarification as required. Interviews were conducted between November 30 and December 7, 2015.

Using Alberta's prescribing model, we developed 4 practical case scenarios, which underwent face validity testing by 3 independent Alberta pharmacists, reflecting each element of the model (Table 1). The scenarios were designed to minimize any clinical concerns or questions and thus focused solely on the act of prescribing. Responses to the scenarios for each element of the Alberta prescribing model were collated to compare and contrast pharmacist services across the country. For each scenario, it was assumed that the pharmacist had the appropriate knowledge, skills, and infrastructure to perform the service at the highest level that the jurisdiction's scope would allow. Participants were asked also to describe the training and certification programs required to enable prescribing, whether they were able to order or access the results of laboratory tests, and whether they could administer injections (and to describe the training required to do so). The complete survey is available upon request to the corresponding author. Ethics approval was received from the Health Research Ethics Board of the University of Alberta Hospital (protocol 00059315).

RESULTS

A total of 13 pharmacists representing the 9 Canadian provinces other than Alberta were interviewed; the authors supplied information pertinent to Alberta. Most of the pharmacists interviewed ($n = 8$) were non-CCPN delegates with practices in community pharmacies. For 4 provinces, 2 pharmacists were interviewed together at their request.

Each province has adopted a different model for pharmacist prescribing (Table 2). Pharmacists in 4 provinces (Alberta, Saskatchewan, Manitoba, New Brunswick) could initiate therapy for a chronic disease, although the criteria under which they could do so differed across the provinces. Conversely, almost all provinces had regulations allowing pharmacists to "adapt/renew/extend" prescriptions to enable continuity of care and facilitate smoother transition through the health care system.

In doing so, these provinces enabled all pharmacists on their respective registries to perform this level of prescribing.

Outside of the scenarios presented, respondents from many provinces reported prescribing for minor ailments as the most common form of independent prescribing. Quebec, Prince Edward Island, Newfoundland and Labrador, Nova Scotia, and New Brunswick all had regulations allowing pharmacists to prescribe for a list of minor ailments, leaving the specific pharmacologic therapy to the pharmacist's discretion. Although the lists of conditions were very similar among the provinces where pharmacists were allowed to prescribe for minor ailments, Saskatchewan and Manitoba each had a list of drugs that could be selected for the specified conditions.

Emergency Prescribing and Renewing a Prescription

The majority of provinces had similar definitions for emergency prescribing and renewing a prescription and enabled pharmacists to perform these functions (Table 1). In most provinces, pharmacists could renew a prescription for up to 90–100 days or no longer than what was previously prescribed; Ontario was the exception, allowing prescriptions to be extended up to 6 months. In British Columbia, pharmacists were able to renew any schedule 1 drug (except for psychiatric medications, unless the pharmacist was working as part of a multidisciplinary team), provided the drug was a long-term medication with no changes in the previous 6 months.

Adapting Prescriptions

All provinces had regulations in place allowing pharmacists to adapt prescriptions, yet adapting a prescription was found to be the most heterogeneous area of prescribing, with differing provincial definitions. According to the scenario presented, all pharmacists in 6 of the 10 provinces (Alberta, Ontario, Quebec, Prince Edward Island, Nova Scotia, New Brunswick) were able to reduce the dosage independently, whereas those in Saskatchewan and Manitoba could adapt the dose if a collaborative practice agreement (CPA) with a physician was in place. Pharmacists in British Columbia and in Newfoundland and Labrador were unable to adapt the scenario prescription.

Initiating a Prescription for a Chronic Disease

Pharmacists in Alberta, Saskatchewan, Manitoba, and New Brunswick could initiate a prescription, with differing criteria. Saskatchewan, Manitoba, and New Brunswick pharmacists were able to initiate prescriptions if they worked in a specific practice area and had a CPA in place with the physician(s) or institution. Provinces mandating these agreements had differing requirements in terms of their submission to the provincial pharmacy regulatory body. In Saskatchewan, it was estimated that 12 pharmacists had a CPA in place (a situation also known as Level 2 prescribing), and these pharmacists were restricted to prescribing drugs on a

Table 1. The Alberta Prescribing Model and Clinical Scenarios Presented to Study Participants

Model Category	Emergency Prescribing	Adapting a Prescription*	Additional Prescribing†
Definition	Fulfill immediate need for drug therapy	Alter dose, formulation, or regimen	Prescribe schedule 1 drug‡
Criteria	Deemed unreasonable to see another prescriber	Must be initial (new) prescription, not ongoing therapy	Pharmacist must have ability to assess the patient, knowledge of the disease area, and ability to collaborate with other care providers
Example	Remote community, patient with asthma needing salbutamol	Adjustment of antibiotic for renal dysfunction	Initiation or adjustment of anti-hypertensive to achieve and maintain target blood pressure
Pharmacists who can perform	All with licence on ACP's clinical registry	All with licence on ACP's clinical registry	Restricted to those who have applied and been successful, as deemed by ACP
Specific example and scenario presented	Tom, a 19-year-old man with a history of sports-induced asthma comes into the pharmacy after a game of soccer (the field is across the street from the pharmacy, and it is a late evening game), with shortness of breath. He did not realize he was so low on his salbutamol and shows you an empty inhaler (with no refills) and asks if you can provide him with another. You determine, based on your detailed assessment, that it is clinically appropriate for him to get another salbutamol inhaler, so you proceed to ...	Elaine, an 86-year-old woman with newly diagnosed atrial fibrillation, comes in with a new prescription for rivaroxaban 20 mg daily with food. You note that she is elderly, and proceed to check her renal function. You identify that her CrCl is 40 mL/min (and has been so for the past 6 months), and hence you determine she should be taking rivaroxaban 15 mg daily with a meal. As such, you proceed to...	John, a regular patient of yours, comes into the pharmacy for his salbutamol refill. You've known John for many years and he is an otherwise healthy 33-year-old man with chronic asthma. You notice that John has been going through his salbutamol inhalers very quickly. After a full assessment, you decide it would be appropriate for John to start an inhaled corticosteroid, like ciclesonide (Alvesco) 100 mcg daily. As such, you proceed to...

ACP = Alberta College of Pharmacists (provincial regulatory body), CrCl = creatinine clearance.

* Also includes ability to substitute a drug within the same therapeutic class for patient-specific reasons.

† The scenario for additional prescribing authorization was initial-access prescribing for a chronic disease.

‡ Schedule 1 drugs are those regulated by the province, available only by prescription. Federally regulated drugs (e.g., narcotics, barbiturates, and benzodiazepines) are excluded.

Table 2. Prescriptive Pharmacist Services as Depicted by Scenarios in Survey*

Province	Adapt Prescription			Initiate Prescription for Chronic Condition	Prescriptive Authority Overview
	Provide Emergency Prescription	Extend Prescription	Alter Dose for Organ Function		
British Columbia	All pharmacists	All pharmacists†	No pharmacist‡	No pharmacist	<ul style="list-style-type: none"> Adaptation allows change to dose/formulation/regimen, renewal, and substitution.² Excludes drugs for cancer, cardiovascular disease, asthma, seizures, and psychiatric conditions. Pharmacist must apply to (and be approved by) ACP to obtain APA, which enables prescribing (initiation/alteration) of any provincially regulated drug.
Alberta	All pharmacists	All pharmacists	All pharmacists	Select (APA) pharmacists (n = 1150)	<ul style="list-style-type: none"> Adaptation allows changes as required for incomplete/inaccurate prescriptions or those needing alteration of dosage form. Level 2 pharmacists must have a CPA with a physician, identifying specific medical condition(s) and drugs that the pharmacist is allowed to prescribe. Minor-aiment prescribing is allowed for list of 17 conditions, with a specific list of drugs that all pharmacists are allowed to prescribe.³
Saskatchewan	All pharmacists	All pharmacists	Select (level 2) pharmacists (n = 12)	Select (level 2) pharmacists (n = 12)	<ul style="list-style-type: none"> Adaptation allows changes as required because a product is not commercially available, because information is missing from prescription, or because the action will facilitate adherence or enable drug coverage. EPPs must have a CPA with a physician, identifying specific medical condition(s) for which the pharmacist can prescribe. Minor-aiment prescribing, from a limited list of drugs for a list of 11 conditions, is allowed once additional training has been completed.⁴
Manitoba	No pharmacists	All pharmacists	Select EPP pharmacists (n = 6)	Select EPP pharmacists (n = 6)	<ul style="list-style-type: none"> All pharmacists are allowed to prescribe smoking cessation products. All pharmacists are allowed to extend prescriptions, prescribe in situations where no diagnostic test is required (e.g., smoking cessation), adjust prescriptions (modify form, dose, or quantity) if they know diagnosis and target of therapy (but must collaborate with physician for dose adjustment), and substitute drug if prescribed product is on back order. Minor-aiment prescribing is allowed for a list of 12 conditions, with some restrictions on products that can be prescribed.
Ontario	All pharmacists	All pharmacists	All pharmacists	No pharmacists	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 31 conditions.⁵ Adaptation allows changes in dosage form, regimen, or quantity, as well as changes to complete missing information, make a generic substitution, or make therapeutic substitutions. Minor-aiment prescribing is allowed for a list of 23 conditions; pharmacist may also substitute a prescribed medication with an equivalent drug for these 23 conditions.⁶
Quebec	All pharmacists	All pharmacists	All pharmacists	No pharmacists	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 31 conditions.⁷ CPA between pharmacist and physician must be in place, identifying specific medical condition(s) for which the pharmacist can prescribe. Minor-aiment prescribing is allowed for a list of 32 conditions.⁸
Prince Edward Island	All pharmacists	All pharmacists	All pharmacists	No pharmacists	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 23 conditions; pharmacist may also substitute a prescribed medication with an equivalent drug for these 23 conditions.⁶
Newfoundland and Labrador	All pharmacists	All pharmacists	No pharmacists	No pharmacists	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 31 conditions.⁷ CPA between pharmacist and physician must be in place, identifying specific medical condition(s) for which the pharmacist can prescribe. Minor-aiment prescribing is allowed for a list of 32 conditions.⁸
Nova Scotia	All pharmacists	All pharmacists	All pharmacists	No pharmacists	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 23 conditions; pharmacist may also substitute a prescribed medication with an equivalent drug for these 23 conditions.⁶
New Brunswick	All pharmacists	All pharmacists	All pharmacists	Select CPA pharmacists (n = 11)	<ul style="list-style-type: none"> Minor-aiment prescribing is allowed for a list of 31 conditions.⁷ CPA between pharmacist and physician must be in place, identifying specific medical condition(s) for which the pharmacist can prescribe. Minor-aiment prescribing is allowed for a list of 32 conditions.⁸

ACP = Alberta College of Pharmacists, APA = additional prescribing authorization, EPP = extended pharmacist practice, CPA = collaborative practice agreement.

* Responses were specific to the scenario presented. The scenario did not capture all forms of prescribing in each category.

† Cannot renew any psychiatric medications unless part of a multidisciplinary team

‡ Unless working within a multidisciplinary work environment, the pharmacist will not change the dose or regimen of prescriptions for cancer, cardiovascular conditions, seizures, or psychiatric conditions.

list contained within the submission. In Manitoba, 6 pharmacists had been designated as Extended Practice Pharmacists by the provincial college. In order to apply, Manitoba pharmacists had to gain specific certification in the identified practice area, have experience (ranging from 1000 to 5000 h), and be working within a collaborative practice. In New Brunswick, 11 pharmacists had CPAs in place with specified physicians, who had to submit a letter of collaboration allowing the pharmacist to order, manage, and modify drug therapy. In Alberta, once APA is granted, the pharmacist can prescribe in any area of practice, based on the presumption that they have the skill set to do so. An estimated 1150 pharmacists in Alberta had APA at the time of our survey. Although Quebec pharmacists were unable to initiate a new prescription in the scenario presented, they could adjust doses to reach a therapeutic target and were allowed to prescribe a new dose to meet the target. The other provinces (British Columbia, Ontario, Prince Edward Island, Newfoundland and Labrador, Nova Scotia) had no provisions in place to enable pharmacists to initiate a prescription for chronic diseases.

Ordering Laboratory Tests and Accessing Results

Although legislation in the majority of provinces allows access to laboratory test results, the surveyed pharmacists from 5 provinces (Manitoba, Prince Edward Island, Newfoundland and Labrador, New Brunswick, Nova Scotia) reported technical difficulties in implementing such access for all community pharmacists. At the time of the survey, pharmacists from Alberta, Saskatchewan, and Quebec were able to access laboratory results. In terms of ordering laboratory tests, Manitoba, New Brunswick, and Prince Edward Island had legislation enabling pharmacists to do so, but only pharmacists in Alberta and Quebec were performing this function.

Administering Injections: Vaccinations and Drugs

All provinces that enabled pharmacists to administer injections required the pharmacists to take a locally approved injection-training course before receiving certification. Nine provinces allowed pharmacists to administer vaccinations, with Ontario pharmacists being restricted to the influenza vaccine only (Table 3). Quebec regulations did not allow pharmacists to administer injections, unless for demonstration purposes. In addition to vaccines, pharmacists certified in Alberta, Manitoba, Prince Edward Island, Newfoundland and Labrador, and Nova Scotia were allowed to administer drugs by injection. New Brunswick had legislation allowing pharmacists to administer drugs by injection; however, the framework for implementation was not yet complete.

Reimbursement

All provinces that enabled pharmacists to administer publicly funded vaccines had a reimbursement model in place (Table 3).

In contrast, only 5 provinces (British Columbia, Alberta, Saskatchewan, Quebec, Nova Scotia) offered provincial coverage for the service of prescribing drugs (emergency prescribing or extending/adapting a prescription) and carried specific criteria as to who would be eligible for coverage. Within the realm of extended CPAs (in Saskatchewan, Manitoba, and New Brunswick) or APA in Alberta (e.g., initial-access prescribing for a chronic disease), Alberta was the only province to have a funding model in place for this service.

DISCUSSION

Although on the surface it appears that pharmacist practice is similar across the provinces, exploration of specific case scenarios revealed wide variation. Similarities across most provinces were evident in emergency prescribing, extension of prescriptions, and the more technical elements of “adapting” a prescription that benefit patient flow through the health care system (e.g., completing information that is overtly missing from a prescription or correcting an obvious prescription error, changing the dose or dosage form on the basis of product availability from the manufacturer). In contrast, the services of adapting a prescription on the basis of clinical assessment (e.g., organ function or to meet a clinical end point) and initiating a prescription for a chronic disease were more variable and restrictive among Canadian provinces. Outside of the scenarios presented in the survey, there were 7 provinces (Saskatchewan, Manitoba, Quebec, Prince Edward Island, Newfoundland and Labrador, Nova Scotia, and New Brunswick) that enabled pharmacists to prescribe from a defined list of minor ailments.

The scenario specific to initiating a new medication for a chronic disease (asthma) identified 3 provinces (Saskatchewan, Manitoba, and New Brunswick) requiring CPAs; in addition, Alberta pharmacists to whom APA has been granted may perform this service. Although CPAs enable pharmacists to proactively manage drug therapy, they pose barriers to the health care system, overall. These agreements are specific to defined disease areas, with one province (Saskatchewan) setting out a list of associated drugs for these defined areas. With new medications constantly coming to market, the list of drugs may quickly become outdated. With limitations on practice areas, pharmacists may not be able to prescribe medications that are related to the particular disease trajectory yet fall within a separate practice area (e.g., for patients with diabetes, prescribing may be limited to hypoglycemic agents, with no allowance for prescribing dyslipidemic agents). Moreover, with a CPA the pharmacist is performing a delegated function of another health care provider and is thus limited to prescribing only for patients under that physician’s care. This poses many challenges in a free-standing community pharmacy that serves patients under the care of many physicians. Importantly, if the physician revokes the CPA, the pharmacist can no longer provide the level of care that patients may have come to expect. Given the

Table 3. Reimbursement for Prescribing Services and Administration of Injections by Pharmacists

Province	Government Funding for Pharmacist Prescribing**†	Administration of Drugs or Vaccines by Injection	Funding for Vaccine†
British Columbia	Funding for renewing a prescription and adapting a dose and for therapeutic substitution; clinical service fee is paid whether or not drug or patient is covered by provincial PharmaCare	Cannot administer drugs; can administer vaccines	Funding provided for administration of any vaccine (patient must be ≥ 5 years)
Alberta	Funding for emergency prescribing, renewing and adapting a prescription, and initial-access prescribing	Can administer drugs and vaccines	Funding provided for administration of any IM or SC vaccine having coverage in place (patient must be ≥ 5 years for most vaccines or ≥ 9 years for seasonal influenza vaccine)
Saskatchewan	Funding for emergency prescribing and renewing and adapting a prescription; no funding in place for prescriptive services provided by Level 2 pharmacists	Cannot administer drugs; can administer vaccines	Funding provided for administration of vaccines (patient must be ≥ 9 years)
Manitoba	No funding	Can administer drugs and vaccines	Funding provided for administration of any vaccine (patient must be ≥ 7 years)
Ontario	No funding	Cannot administer drugs; can administer vaccines	Funding provided for influenza vaccine only (patient must be ≥ 5 years)
Quebec	Funding for prescribing: to extend prescriptions, for conditions not requiring a diagnostic test, for adjusting a prescription, and for minor ailments	Cannot administer drugs or vaccines by injection, but can perform injections for demonstration purposes only	
Prince Edward Island	No funding	Can administer drugs and vaccines	Funding provided for influenza vaccine for select patient populations (e.g., > 65 years, pregnant, Aboriginal) or cost is paid by patient
Newfoundland and Labrador	No funding	Can administer drugs and vaccines	Funding provided for influenza vaccine administered to beneficiaries of provincial drug plan
Nova Scotia	Funding for adapting a prescription	Can administer drugs and vaccines	Funding provided for influenza vaccine administration (patient must be ≥ 5 years)
New Brunswick	No funding	Provincial legislation allows administration of drugs by injection, but framework for implementation not yet established; can administer vaccines	Funding provided for administration of influenza vaccine to patients ≥ 5 years

APA = additional prescribing authorization, IM = intramuscular, SC = subcutaneous.

*Many provinces have funding in place for medication review and management processes. This study specifically investigated funding for provision of the prescriptive services outlined in the case-based scenarios.

†Funding agency is the provincial government, unless otherwise specified.

uniqueness of these types of agreements, only a minority (< 1%) of pharmacists in these provinces pursue them. The low uptake for this level of prescribing makes it problematic to ensure that the majority of patients within each province benefit from this care. To be sustainable, the service must be reproducible and ultimately must affect the care of enough patients to warrant funding. Proceeding with variable models across the country is, in many ways, a disadvantage to the profession of pharmacy and ultimately may leave the general public unaware of what a pharmacist may or may not be able to do.

Similar to the situation for prescribing, the administration by injection of vaccines (9 provinces) and drugs (5 provinces) has evolved in most provinces. Conceptually, if a pharmacist is certified to administer an injection, it might be inferred that the service would not be affected by whether the product injected was a vaccine or a drug product. All provinces allowing injections require pharmacists to complete a certification course. In British Columbia, Alberta, Manitoba, Ontario, Newfoundland and Labrador, and Nova Scotia (where Dalhousie University also serves Prince Edward Island and New Brunswick), this training has been integrated into the undergraduate curriculum, enabling all undergraduates to be certified or to apply for injection certification upon graduation. While it is feasible to integrate the knowledge required for the technical skill of administering injections into the undergraduate program, developing a program that will train and equip students to prescribe by the time of graduation may be more challenging. Indeed, it is logical to assume that more practice-based learning (in the form of clinical hours) must be provided to ensure that graduates are capable of performing all prescriptive services. As the profession evolves to provide more clinical-based services, the experiential aspect of undergraduate programs must reflect these changes.

For pharmacists to optimize drug therapy by prescribing medications, a sustainable infrastructure that enables reimbursement as well as access to patient-specific information (laboratory test results, diagnoses) must be in place. Most provinces either are working toward (Manitoba, Prince Edward Island, Newfoundland and Labrador, New Brunswick, Nova Scotia) or have enabled (Alberta, Saskatchewan, Quebec) community pharmacist access to laboratory results, and a minority of pharmacists are now ordering laboratory tests (Alberta, Quebec). In terms of reimbursement, all provinces where pharmacists perform publicly mandated vaccine administration had government funding for this service. In contrast, 5 provinces (British Columbia, Alberta, Saskatchewan, Quebec, Nova Scotia) had some form of reimbursement for the act of prescribing a drug. Pharmacists from the majority of provinces with prescribing reimbursement systems in place expressed concern about the lack of incentive to prescribe, because the time and documentation required to perform this function were prohibitive given the monetary amount provided.

This study had some limitations. By design, we selected clinical scenarios that were common in community practice; how-

ever, we quickly learned that our survey did not fully capture the various definitions of prescribing across the provinces. Seven provinces had a minor-ailment category for prescribing, which was not captured in the scenarios, yet this type of prescribing is a major component of pharmacist prescribing in these provinces. Furthermore, we learned of the heterogeneity across provinces with regard to “adaptation”. Our scenario suggested a need to adjust on the basis of renal dysfunction, as opposed to dealing with issues of product availability, errors in the prescription, etc.; as such, we acknowledge that our scenario may have underrepresented what pharmacists in a particular province could do within this category of prescribing. By using a specific clinical scenario, we were able to identify exactly what pharmacists in each province could do in terms of adapting prescriptions—whether it be the strength of the medication or dosage formulation, the duration of therapy, or therapeutic substitutions—which offered a tangible comparison among the provinces. Second, the results may have underestimated the reimbursement provided by provincial governments. Pharmacists in many provinces are reimbursed for medication management or medication review, which is defined differently across the provinces and may not encompass prescribing.⁹ Within this study, however, we specifically chose to link reimbursement to the prescribing function, so a review of other reimbursement options was beyond the scope of the study. Third, although we chose to focus on the opinions of pharmacists practising to full scope, we fully acknowledge that many other factors may influence the integration of new roles as pharmacist scopes of practice within Canada evolve, for example, variations in the provincial legislation that regulates pharmacist activities, infrastructure support to perform these activities, and settings (hospital, community, etc.). A focused examination of the different regulatory environments across the provinces would add an important perspective to this issue, but was beyond the scope of the current study.

CONCLUSION

The role of the pharmacist has changed significantly throughout the nation, from solely dispensing drug products to enabling smoother transitions through the health care system with emergency prescribing, prescription extensions, and some forms of prescription adaptation, but there is still a vast degree of variation among the provinces. We identified 4 provinces where pharmacists can initiate therapy for a chronic disease, as well as 3 provinces mandating CPAs, for which there has been limited uptake (6–12 pharmacists per province). Alberta has taken the broadest approach to pharmacist prescribing, through APA, which emphasizes the process of prescribing without limiting the process to specific diseases or drugs, and this province has experienced good uptake of this option (1150 pharmacists). With pharmacy schools across the nation having to provide a standardized level of education, practising pharmacists ought to be enabled to deliver

a standardized level of patient care services. The variation in pharmacist prescribing observed in this study is limiting for the profession of pharmacy in many ways, and the next step as a nation may be to work toward harmonizing pharmacists' authority to provide prescriptive services.

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