Uptake and impact of regulated pharmacy technicians in Ontario community pharmacies

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ABSTRACT

Background: Since 2010, most provincial Colleges of Pharmacists have licensed pharmacy technicians. The colleges hoped this would give pharmacists time to provide “expanded scope” activities such as medication reviews. Little is known, however, about the uptake and impact of pharmacy technicians on pharmacists’ provision of such services. We address these questions using data for Ontario community pharmacies.

Methods: Data on pharmacists and pharmacy technicians were obtained from the Ontario College of Pharmacists website in September 2016. Their place of employment was used to calculate the number of full-time equivalent (FTE) pharmacists and technicians employed at each community pharmacy. Pharmacy claims data for the 12-month

period ending March 31, 2016, were obtained from the Ontario Public Drug Programs (OPDP). These data included number of MedsChecks performed, type of MedsCheck and number of prescriptions dispensed to OPDP beneficiaries.

Results: Pharmacy technicians were employed in 24% of the pharmacies in our sample. Technician employment rates were highest in Central Fill pharmacies and pharmacies serving long-term care facilities. In general, pharmacies employing 1 or fewer technician full-time equivalents (FTEs) had a slightly higher probability of providing MedsChecks and, of those that did provide MedsChecks Annually, provided more of them. Pharmacies that hired 3 or more technician FTEs were markedly less likely to provide MedsChecks.

Conclusions: Pharmacies differ in their employment of technicians and in the apparent impact of technicians on the provision of MedsChecks. However, these represent associations. Additional research is needed to assess the causal effect of technician employment on the provision of MedsChecks. *Can Pharm J (Ott)* 2018;151:197-202.

Introduction

Over the past decade, the provincial Colleges of Pharmacy, with the exception of Quebec, have created a new category of regulated pharmacy personnel, the regulated pharmacy technician (RPT).¹ Licensed technicians receive the training and education required to perform certain tasks that previously could only be performed by pharmacists. For instance, RPTs licensed in Ontario can verify that prescriptions are filled correctly, accept physicians’ verbal prescriptions for most drugs and can approve prescription transfers.^{2,3} The rationale of the Ontario College

of Pharmacists (OCP) for licensing RPTs was to free up pharmacist time that instead could be spent providing “expanded scope” patient care.⁴ This care includes providing immunizations, reviewing patient medication use regimens and recommending changes to these regimens. The OCP has encouraged pharmacists to provide these services.⁴ Moreover, the Ontario Ministry of Health (MOH) remunerates pharmacies that provide these services.

There is little evidence in the literature on the uptake and impact of RPTs. This article, therefore, addresses the following questions, focusing on

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Depuis 2010, la plupart des ordres de pharmaciens provinciaux ont adopté des règlements pour encadrer les activités des techniciens en pharmacie. Cependant, on connaît peu de choses sur l'intégration de ces professionnels dans les pharmacies et sur l'effet que leur présence peut avoir sur l'élargissement de l'offre de services, comme MedsCheck. Nous nous penchons sur ces questions en utilisant des données provenant de pharmacies communautaires de l'Ontario.

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KNOWLEDGE INTO PRACTICE

- There is no evidence in the literature on the uptake and impact of regulated pharmacy technicians.
- This study addresses these questions, using data from Ontario community pharmacies.
- There is some evidence that pharmacies that hire a technician are slightly more likely to provide a MedsCheck. However, pharmacies that hire 3 or more technicians are both less likely to provide MedsChecks and provide fewer of them, compared to pharmacies that hire fewer than 3 technicians. This latter result does not appear to be a causal effect. Instead, it appears that pharmacies less likely to conduct MedsChecks, perhaps because their focus is on dispensing large prescription volumes, are the ones that hire several technicians.

pharmacy technicians licensed in Ontario. First, what are the characteristics of RPTs employed in Ontario (as of September 2016)? Second, what fraction of pharmacies employs RPTs, and what are the characteristics of pharmacies that do so? And, finally, do pharmacies that hire technicians provide more expanded-scope patient care services, such as MedsChecks?

Methods

The OCP has licensed RPTs since December 2010.⁴ We obtained information on the pharmacy technicians and pharmacists licensed in September 2016 from the OCP website. In particular, we obtained information on individuals' gender, year of licensure and places of employment. The latter variable was used to determine pharmacy staffing levels. If an individual declared 2 places of employment, we assigned each place of employment 0.5 full-time equivalents (FTEs). (More generally, if an individual declared x places of employment, we assigned each place of employment $1/x$ FTE.)

We also obtained pharmacy claims data from the Ontario Public Drug Programs (OPDP) branch of the Ontario MOH. The OPDP provides drug coverage to seniors, those in receipt of social assistance, those residing in long-term care facilities and various other groups. For each community pharmacy, we obtained information on the number of MedsChecks performed, by type of MedsCheck, and the number of prescriptions dispensed to OPDP beneficiaries in the 12-month period ending March 31, 2016. The MedsCheck program remunerates pharmacies that counsel Ontario residents on their

medication use. The most commonly provided type of MedsCheck is the MedsCheck Annual (for patients taking 3 or more chronic prescription medications); this was provided to 621,655 different patients over the 12-month period. We focused on the MedsCheck Annual, the MedsCheck Hospital (for those planning to be hospitalized or those recently discharged from hospital), MedsCheck Follow-up (a follow-up consultation in cases where the pharmacist or physician recommended a change in medication), MedsCheck for Diabetes (for patients diagnosed with type 1 or type 2 diabetes and taking a medication for their condition), the MedsCheck LTC (for residents of a licensed long-term care home) and the MedsCheck at Home (for those who are unable to visit a community pharmacy). The MedsCheck for Diabetes and MedsCheck LTC categories include both an initial assessment and also a possible follow-up. Merging these data sources yielded pharmacy-level data on the number of pharmacy technician FTEs, the number of pharmacist FTEs, the number of MedsChecks performed by type of MedsCheck and OPDP prescription volume. Information on the pharmacy's characteristics, including location and name, was also collected.

We used regression models to estimate the association between the number of pharmacy technicians employed and both 1) the likelihood that a community pharmacy provides MedsChecks and 2) the volume of MedsChecks provided by pharmacies that provide at least 1. These regression models control for various pharmacy characteristics, including the volume of prescriptions dispensed to OPDP beneficiaries and the number of licensed pharmacist FTEs employed. Separate regression models were estimated for each different type of MedsCheck. Details on the regression models can be found in Appendix 1, available in the online version of the article.

This model was estimated using data on community pharmacies. We thus removed data on pharmacies with no storefront, such as mail-order pharmacies, Central Fill pharmacies and pharmacies that primarily focused on serving long-term care facilities. We also removed hospital outpatient pharmacies and pharmacies that focus on specialty drugs.

Results

There were 4143 RPTs employed in September 2016. Most (92%) were female, and most (87%)

worked in just 1 pharmacy; 11% worked in 2. Most had been licensed in the previous 2 years. Twenty-four percent of the pharmacies in our sample employ RPTs. Table 1 displays statistics on the fraction of pharmacies that employ technicians, by pharmacy type. Pharmacies that process large prescription volumes that are eventually delivered to patients outside of the pharmacy, such as Central Fill pharmacies and those serving LTC facilities, tend to use RPTs. Over one-quarter of general outpatient hospital pharmacies employ more technicians than pharmacists. Almost all Costco pharmacies, two-thirds of Jean Coutu pharmacies and one-third of Shoppers Drug Mart pharmacies used RPTs, while only 13% of independent pharmacies used them.

Table 2 presents estimates of the fraction of pharmacies using RPTs, by quintile of total OPDP prescriptions dispensed over the 12-month period. Only 7% of the pharmacies that dispensed relatively low volumes of prescriptions to OPDP beneficiaries (i.e., in the bottom quintile) employ pharmacy technicians. This proportion increased to 46% of pharmacies in the top quintile.

The regression model estimates for the provision of MedsCheck Annuals (reported in Appendix 1) suggest that the use of up to 1 RPT FTE has no material impact on the likelihood that a pharmacy provides at least 1 MedsCheck. However, pharmacies that provide MedsChecks that employed up to 1 RPT did provide more MedsChecks than those that did not employ any RPTs.

Pharmacies that employ more than 2 RPT FTEs are at least 9 percentage points *less* likely to provide a MedsCheck Annual than pharmacies that do not employ any RPTs, and of those pharmacies that did provide the Medscheck Annual, larger RPT volumes reduced the number of MedsChecks provided.

Separate regression models were estimated for the MedsCheck Follow-up, Diabetes, Home and Hospital. Each of these models indicated that pharmacies that employ up to 1 technician FTE are more likely than pharmacies that do not employ any technicians to provide a MedsCheck. Conversely, pharmacies that hire more than 3 technicians are markedly less likely to provide MedsChecks. The employment of up to 1 RPT FTE had no material impact on the volume of MedsChecks provided, whereas the employment

MISE EN PRATIQUE DES CONNAISSANCES

- Il n'y a pas de données sur l'intégration des techniciens en pharmacie réglementés et sur l'effet de leur présence sur les services offerts en pharmacie.
- Cette analyse utilise des données provenant de pharmacies communautaires de l'Ontario pour étudier ces questions.
- Les résultats suggèrent que les pharmacies qui embauchent un technicien en pharmacie sont légèrement plus susceptibles d'offrir le programme MedsCheck. Cependant, celles qui embauchent trois techniciens en pharmacie ou plus sont moins susceptibles d'offrir le programme et réalisent un moins grand nombre d'examen MedsCheck que celles qui embauchent moins de trois techniciens. Il ne semble pas y avoir de relation de cause à effet pour ce dernier résultat. Il semble plutôt que les pharmacies les moins susceptibles de réaliser des examens MedsCheck sont celles qui embauchent plusieurs techniciens, peut-être parce qu'on y délivre un grand volume d'ordonnances.

of 3 or more RPT FTEs tended to reduce the volume of MedsChecks provided, again relative to those pharmacies that did not hire any RPTs.

The MedsCheck LTC estimates are different. The model indicates that the likelihood of providing a MedsCheck LTC, as well as the number provided, is higher when a greater number of technicians are employed.

Discussion

We found that about one-quarter of pharmacies in our sample employ RPTs. There is, however, considerable variation across pharmacies. Most pharmacies that process large volumes of prescriptions that are eventually delivered to patients outside of the pharmacy, such as Central Fill pharmacies, use RPTs. Among conventional community pharmacies, chain pharmacies are more likely to use technicians than independent pharmacies. Pharmacies that fill more prescriptions are more likely to use technicians.

Our models found that pharmacies hiring up to 1 pharmacy technician FTE are no more likely to provide a MedsChecks Annual than pharmacies that do not employ technicians. However, the presence of an RPT did increase the likelihood that a pharmacy provides MedsCheck Diabetes, MedsCheck Follow-Up, MedsCheck Home and MedsCheck Hospital, again compared to pharmacies that do not employ technicians. The magnitude of this effect varies by type of MedsCheck. Hiring more RPTs did not lead

TABLE 1 Fraction of pharmacies using pharmacy technicians, by pharmacy type or name

Pharmacy type/name	Fraction using technicians	Fraction using more technicians than pharmacists
Central Fill	1.00	0.00
Hospital outpatient specialized	1.00	0.00
Costco	0.97	0.07
Medical Pharmacy LTC	0.90	0.00
LTC/institutional	0.88	0.00
Hospital outpatient general	0.73	0.27
Jean Coutu	0.67	0.00
Specialty rx	0.59	0.05
Medical pharmacy	0.49	0.00
Shoppers Drug Mart	0.35	0.00
Homecare	0.33	0.00
Lovell Drugs	0.33	0.00
Mail order	0.33	0.00
Loblaws	0.33	0.01
Pharmasave	0.32	0.04
Pharmachoice	0.30	0.04
Total Health Pharmacy	0.29	0.03
Remedy's Rx	0.23	0.02
IDA	0.21	0.02
Guardian	0.21	0.01
Rexall	0.20	0.01
IDA Independent	0.18	0.06
Medicine Shoppe	0.16	0.00
Prince Theodore Group	0.16	0.00
Metro	0.15	0.01
Walmart	0.15	0.00
Independent	0.13	0.02
Main Drug Mart	0.09	0.02
Morelli's	0.09	0.00
FreshCo	0.07	0.00
Sobeys	0.05	0.00
Ben's	0.00	0.00
Janzen's Pharmacy	0.00	0.00

LTC, long-term care.

TABLE 2 Fraction of pharmacies using pharmacy technicians, by quintile of total OPDP prescriptions dispensed

Quintile of total OPDP prescriptions dispensed	Fraction using technicians	Fraction using more technicians than pharmacists
Lowest 20%	0.07	0.01
Second quintile	0.11	0.01
Third quintile	0.22	0.02
Fourth quintile	0.32	0.02
Top 20%	0.46	0.03

OPDP, Ontario Public Drug Programs.

to more MedsChecks provided. Instead, pharmacies employing 3 or more technician FTEs were less likely to provide a MedsCheck. The MedsCheck LTC was the notable exception for this finding.

These results should be interpreted in light of a study limitation. The models are capable of assessing associations between the likelihood or number of MedsChecks provided and employment of RPTs, holding constant the number of pharmacist FTEs and prescription volumes. But the models do not necessarily render causal effects. It is possible that pharmacy characteristics are at once associated with the hiring of technicians and the likelihood of providing a MedsCheck. It is also possible that there is reverse causality. For instance, it is possible that pharmacies that do not intend to conduct any MedsChecks, perhaps because their focus is on dispensing large prescription volumes, are the ones that hire technicians. In fact, this seems to be the most likely reason for the finding that pharmacies that hire more than 3 technician FTEs are less likely to provide MedsChecks. It seems improbable that the presence of RPTs would cause a pharmacy that would otherwise provide MedsChecks to stop providing them. Thus, while the regulation of the pharmacy technician was designed to increase expanded scope services for patients, it appears that RPTs are sometimes hired to help increase prescription volume.

There are other study limitations. First, non-licensed pharmacy personnel are not controlled for and may be a confounder. Second, the timing of the data obtained from the OCP and MOH websites differ by 6 months, and it is possible that this causes some measurement error in our model. Third, only 1 type of pharmacy clinical

service, the MedsCheck, was analyzed. Pharmacists in Ontario are able to deliver several other clinical services, including immunizations, diabetes clinics and point-of-care testing. The impact of RPTs on the provision of these services is an area for future research.

Future studies might also attempt to estimate the causal impact of RPTs on the provision of MedsChecks and other patient services. To obtain causal effects, one would need a source of quasi-experimental variation in the use of technicians. This variation would be caused by factors that are independent of the pharmacy's decision making around the provision of MedsChecks. One source of quasi-experimental variation is the introduction of the policy that licensed RPTs. In this case, one could use a before-and-after policy comparison. Another approach would be to use geographical variation in the availability of technicians, assuming that these same geographical variations did not affect the provision of MedsChecks. A final approach would be to create as homogeneous a sample of community pharmacies as possible, so as to remove pharmacies that intend to fill large prescription volumes. The use of a questionnaire administered to pharmacy managers could also help provide insights into the reasons that RPTs are hired. These all remain avenues for future research.

Our study aimed to measure the uptake of RPTs within the community pharmacy setting and the impact on provision of a pharmacy clinical service (MedsChecks) using Ontario data. Our model suggests that pharmacies employing up to 1 RPT were slightly more likely to provide certain types of MedsChecks than pharmacies without an RPT. However, pharmacies hiring 3 or more RPTs were both less likely to provide

any type of MedsCheck (excluding Meds-Check LTC) and provided fewer of them compared to pharmacies with fewer than 3 RPTs. In the absence of available literature, our study

provides simply 1 perspective on the current status of RPTs. The impact of regulated pharmacy technicians on other pharmacist clinical services serves as an area of future research. ■

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