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With the expanded scope of practice opportunities, research by pharmacists to identify the successes of our practice is even more important. We need to continue to show our value to the health care system. When starting a new program, it is also beneficial to measure the outcomes of pharmacist interventions.

*Compte tenu des possibilités d'élargissement du champ d'exercice, les recherches menées par les pharmaciens pour faire le point sur les succès obtenus dans notre pratique sont plus importantes que jamais. Nous devons continuer de démontrer notre valeur pour le système de soins de santé. Au moment d'adopter un nouveau programme, il est également avantageux d'évaluer les résultats de nos interventions.*

# Enhanced medication management services in the community: A win-win proposal from an economic, clinical and humanistic perspective

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## ABSTRACT



**Background:** Pharmacists are now receiving reimbursement by the Ontario government to do medication reviews for patients on 3 or more medications. However, they are often too busy in the community setting to thoroughly review medications with patients. Having a designated pharmacist to provide medication reviews could increase the number of reviews performed.

**Methods:** Step 1 involved developing a business plan to determine the number of medication reviews that needed to be done to pay a pharmacist a full-time salary. Step 2 involved establishing the core elements of medication therapy management that included medication review, a medication-related action plan, documentation and follow-up. In step 3, eligible patients were called and invited to attend an appointment to review their medications with the

pharmacist. Upon completion of the medication reviews, a random group of patients were requested to complete a satisfaction survey after the medication review.

**Results:** Three hundred thirty-six patients received billable medication reviews from April 4 to July 27, 2012. Twenty-seven additional visits were performed as follow-up visits. Eighty pharmaceutical opinions met the eligibility criteria for billing. Fifteen patients received counselling for smoking cessation. Medication reviews were completed for 19 patients from 8 other pharmacies. Extra revenue was generated through the sales of replacements of expired products. An average of 2.08 drug-related problems per patients was identified. One hundred percent of the patients were very satisfied with the service.

**Conclusion:** A full-time pharmacist position providing enhanced medication management services generated enough income to pay for a full-time pharmacist's salary. The benefits to the patients were an increase in identification and resolution of drug-related problems, as well as an opportunity to receive disease state education and experience an improvement in disease states. Patients were extremely satisfied with the medication review process and the service provided to them. *Can Pharm J* 2013;146:162-168.

## Background

Canada has been experiencing a rapid growth in the portion of the population older than 65 years and in the incidence of major chronic illnesses. This has led to problems with access to care, reports of care gaps and concerns about the aging population.<sup>1</sup> Along with this increase in

major chronic illnesses, polypharmacy, adverse drug events and drug-related hospitalizations are common among the aged.<sup>2,3</sup> Collaborative medication review procedures involving pharmacists have been developed in several countries to recognize and resolve drug-related problems (DRPs)<sup>4,5</sup> and to ensure rational

and safe pharmacotherapy in hospital and community settings. The models display a wide variation internationally, ranging from patient counselling-oriented procedures and technical prescription reviews to comprehensive clinical medication reviews with active patient involvement and assessment of medicines in relation to a patient's clinical condition.<sup>6,7</sup>

The value of pharmacists' interventions and services has been demonstrated in several previously published studies. Some of these results include a statistically significant improvement in adherence that resulted in a significant 41% reduction in mortality over 2 years,<sup>8</sup> better control of chronic conditions<sup>9,10</sup> and reduced overall health care costs.<sup>9</sup> Successful interventions have included medication reviews with a specific focus on regimen simplification, individualized patient education combined with medication reminders (medication chart) or a dose administration aid or patient follow-up.<sup>11</sup> Pharmacists' interventions have resulted in the following positive effects: reduction of the morbidity and mortality associated with heart failure,<sup>12</sup> beneficial impact on human immunodeficiency virus (HIV) treatment outcomes,<sup>13</sup> a 40% reduction in medication safety issues in kidney transplant patients after review of discharge medications,<sup>14</sup> significant benefits in patient health outcomes and age-related quality of drug treatment in Parkinson disease<sup>15</sup> and a significant reduction in the frequency of asthma exacerbations and emergency room visits and improved adherence to inhalation regimens.<sup>16</sup>

Studies have also been done to assess the financial feasibility of providing expanded pharmacy services. A study by Doucette et al.<sup>17</sup> looked at the financial performance of pharmacy services, including vaccinations, cholesterol screenings, medication therapy management (MTM), adherence management services, employee health fairs and compounding services, provided by an independent community pharmacy. Most of the pharmacist services had an annual positive net gain. It was likely that these services could also be sustained.<sup>17</sup>

Pharmacists in Ontario receive expanded reimbursement from the provincial government to do medication reviews (MedsCheck) for patients who are on 3 or more medications for a chronic condition. The MedsCheck program also compensates pharmacists for providing medication reviews for patients with

## KNOWLEDGE INTO PRACTICE



- Pharmacists can show the benefits of their programs by analyzing their own data.
- Medication reviews can generate income for the pharmacy, increase outside business, identify drug-related problems and increase your opportunity to satisfy the patient.
- With the increased scope of practice, pharmacists have a unique opportunity to expand their services and get compensated for them.

diabetes, patients at home unable to come to the pharmacy and long-term care residents. The pharmaceutical opinion program enables pharmacists to bill the provincial government for identifying and resolving drug-related problems during the course of dispensing a medication or when conducting a MedsCheck review.

According to Ontario's Ministry of Health and Long-Term Care, MedsChecks promote better health outcomes by helping patients better understand their medication therapy and by identifying any drug-related problems that have potential to or have caused harm to the patient. MedsChecks also provide patients with a complete and accurate list of their medications that will be useful when seeing their health care providers.<sup>18</sup>

Medication reviews generate income for pharmacies. To ensure that the government continues to pay for these services, pharmacists have to demonstrate that they are taking this opportunity to provide the cognitive services to their patients. However, they are often too busy in the community pharmacy to thoroughly review medications with patients, due to interruptions, lack of overlapping staff and the time necessary. Having a designated full-time pharmacist to develop a medication therapy management program and provide medication reviews during scheduled visits would increase the number and quality of reviews that could be done in the pharmacy.

The main purpose of this study was to analyze the benefits, from a financial perspective, of creating and maintaining a full-time pharmacist position to provide MedsChecks. We wanted to maximize pharmacy services and programs that could be billed to the Ontario government for reimbursement and to pay the salary of a full-time pharmacist. In addition to the MedsChecks service, smoking cessation and the feasibility

# MISE EN PRATIQUE DES CONNAISSANCES



- Les pharmaciens peuvent mettre en évidence les avantages de leurs programmes en analysant leurs propres données.
- Les évaluations de la pharmacothérapie peuvent générer des revenus pour la pharmacie, accroître les activités professionnelles externes, permettre de cerner les problèmes liés aux médicaments et constituer une occasion d'améliorer la satisfaction des patients.
- Avec l'élargissement du champ d'exercice, les pharmaciens ont maintenant l'occasion d'offrir une plus grande variété de services et d'être rémunérés en retour.

**TABLE 1** MedsCheck payment guide from the Ontario government

MedsCheck Annual	\$60
MedsCheck Follow-up	\$25
MedsCheck for Hospital Discharge	\$25
Pharmacist's Decision MedsCheck	\$25
Physician or RN Referral MedsCheck	\$25
Planned Hospital Admission MedsCheck	\$25
MedsCheck for Long-term Care (annual)	\$90
MedsCheck for Long-term Care (quarterly)	\$50
MedsCheck at Home (annual)	\$150
MedsCheck for Diabetes (annual)	\$75
MedsCheck for Diabetes (follow-up)	\$25

of other new services such as anticoagulation, immunizations and weight management were also explored. Secondary outcomes included analyzing the number and type of drug-related problems identified (the clinical outcome) and patient satisfaction with pharmacy services provided (the humanistic outcome).

## Methods

The first step involved creating a business plan. To start, a SWOT analysis was completed. This is a strategic planning method used to examine the strengths (S) and weaknesses (W) that are often internal to an organization and the opportunities (O) and threats (T), which generally relate to external factors. Some of the strengths of the project were low overhead investment and the

use of a skilled pharmacist to provide medication reviews. Weaknesses included the pharmacist requiring extra support from technician staff for making patient appointments, adding extra costs to the project, and the unpredictable nature of cancellations of appointments by patients. Opportunities included leveraging the current environment to further increase the growth of the business and improve patient satisfaction and adherence to therapy. Threats could be related to changes in the Ontario government's reimbursement process in the future.

Patient computer files were analyzed to identify potential targets for medication reviews. These included patients who were nonadherent to their medications, as well as those with specific disease states such as diabetes, chronic obstructive pulmonary disease and heart failure, which frequently lead to hospital admissions. The Ontario government-sponsored MedsCheck program has a fee schedule developed for these services. The payment amount for each of these services is provided in Table 1. Potential revenue for the expanded MedsCheck services was calculated using the data from patient computer files. The number of medication reviews required to be done weekly to pay the pharmacist's full-time salary was based on this pharmacy patient-specific data.

The second step involved establishing the core elements of a medication therapy management program. These included developing the medication therapy review process, personal medication record, medication-related action plan, intervention or referral process, documentation and follow-up.<sup>7</sup> When this program was implemented, the iPharmacist Medication Review Ontario was not in place at the project pharmacy. This program has since been adopted and is being used to more easily identify patients meeting the requirements for medication reviews.

Once the process for the medication review was established, the next step was to consider other types of patient care services that would be offered. The services currently offered include comprehensive medication reviews, targeted medication reviews, disease state management, disease state education, health and wellness screenings and services, risk assessments, weight management services and point-of-care testing for anticoagulation dosing. Immunizations services were developed and offered for the 2012 flu season.

**TABLE 2** Income generated through the medication review process over a 4-month period

Service	Revenue \$	No. of reviews	Total revenue generated
MedsCheck Annual	60	95	\$5700.00
MedsCheck Follow-up	25	2	\$50.00
MedsCheck for Diabetes (annual)	75	108	\$8100.00
MedsCheck for Diabetes (follow-up)	25	25	\$625.00
MedsCheck at Home (annual)	150	133	\$19,950.00
Smoking cessation—initial	40	2	\$80.00
Smoking cessation—follow-up 1	15	2	\$30.00
Smoking cessation—follow-up 2	10	2	\$20.00
Pharmaceutical opinions	15	80	\$1200.00
Total			\$35,755.00

The third step involved recruiting patients who were interested in benefitting from this service. Patients were invited to attend an appointment to review their medications with the pharmacist. Pharmacy staff members were trained about the new model of practice and were asked to identify patients who would benefit from the service. To generate enthusiasm for this new process, a monthly competition was held initially to see whose recommendations resulted in the largest number of appointments booked.

During the actual medication review, patients were asked what they knew about their medications, using the show-and-tell method for patient counselling on refills. As the medications were being discussed, the personal medication record was created. Extra items appearing on this record included goals of therapy and monitoring parameters. Finalized personal medication records were provided to patients along with their medication action plan. Drug-related problems were identified and either resolved with the patient at the time of the medication review or discussed with the physician after the appointment. Education material about specific disease states was also provided to patients when required.

To evaluate patient satisfaction, the names of all of the patients were included in a pool and 50 names were randomly selected to complete a satisfaction survey after completing the medication review. The purpose of the survey was to provide feedback about the medication

therapy management process and to make suggestions for improvement.

## Results

### *From an economic perspective*

The one pharmacist involved in performing the medication reviews was able to generate her own salary by providing medication reviews on a daily basis. Three hundred thirty-six patients received billable medication reviews from April 4 to July 27, 2012. Twenty-seven additional visits were performed as follow-up visits to the original annual MedsCheck or Diabetes MedsCheck. Eighty pharmaceutical opinions met eligibility criteria for billing to the provincial government and were resolved with the patient's physician. Sixty-six more pharmaceutical opinions were identified and submitted to physicians, but the patients were younger than 65 years, and this service was not reimbursed through the provincial government plan. Fifteen patients received counselling for smoking cessation, but only 2 of these patients were older than 65 years and eligible for provincial government plan reimbursement. The income generated from this program is listed in Table 2.

In addition to providing medication reviews for the current employer, reviews were completed because of referrals for 19 patients from 8 other pharmacies, generating billings of \$2100. Additional revenue was generated through the sales of replacements of expired

**TABLE 3** Extra services/sales provided (number)

Blood pressure machines	8
New compliance packaging	28
New blood glucose machines	13
Expired blood glucose strips replaced	13
Expired nitroglycerin sprays replaced	6
No. of patients identified who were nonadherent to their medications	83

**TABLE 4** Drug-related problems (674 in total)

Drug-related problem	<i>n</i>	%
Drug interaction	64	9.49
Drug required	97	14.39
Duplication	7	1.04
Interchange	15	2.22
Nonadherence	83	12.3
Low dose	51	7.56
High dose	36	5.34
Overuse	10	1.48
Underuse	18	2.67
Off guidelines	14	2.08
Adverse effect	53	7.86
Allergy	50	7.42
Inappropriate medication	65	9.64
Patient requires education	92	13.64
Disease improvement	29	4.30

products (i.e., nitroglycerin spray or strips for self-monitoring of blood glucose), the sales of new blood pressure monitoring devices and initiating new patients on compliance packaging. This is further broken down in Table 3. The economic benefits of these additional products and services were not included in the economic analysis in Table 2.

#### *From the clinical perspective*

From April 4 to July 27, 2012, 336 patients benefitted from having their medications

reviewed with a pharmacist. Six hundred seventy-four drug-related problems were identified in total, with an average of 2.08 per patient. One hundred forty-six drug-related problems were resolved with physicians. The remaining drug-related problems were resolved by the pharmacist intervention alone. Fifteen patients received smoking cessation counselling. The patients who returned for diabetes follow-up appointments had a reduction in their blood sugars and a better understanding of their disease state. The drug-related problems are further broken down in Table 4.

#### *From the patient satisfaction perspective*

Fifty patients were randomly chosen to provide feedback about the service. Patients were asked to evaluate the medication review, the friendliness and courtesy of the pharmacist, the clarity of the information presented, the level of knowledge and quality of advice provided by the pharmacist, the ideas or suggestions that the pharmacist had for improving medication use and the length of time spent with pharmacist on a scale of 1 (very dissatisfied) to 5 (very satisfied). Patients were also asked if they would refer their family or friends to the pharmacy for this service. The satisfaction surveys showed that all 50 of the patients were very satisfied with the above items, while 45 were very satisfied and 5 were somewhat satisfied with the location of the visit.

## Discussion

In a real-world setting, assigning a full-time pharmacist specifically to do medication reviews and to develop other clinical services generated enough income to pay the wages of the pharmacist over this initial 4-month start-up time frame, thereby meeting the program's economic goals. During this time, there was no



additional profit realized, but the analysis did not measure the intangible goodwill benefits received from offering this comprehensive program. As the program continues to grow, the goal for the future is to add additional pharmacists to provide this service.

The benefits of this program include not only providing better care for the patient by resolving many drug-related problems but, through a review of each medication that an individual takes, detecting and discarding unwanted or discontinued drugs and expired drugs, limiting potential adverse events in the future.

Through pharmacists' interventions and greater awareness of the importance of adherence to medication regimens for the patient, revenue increased through an uptake in refill prescriptions and through the sales of disease monitoring devices like blood pressure machines. Revenue was also generated for the pharmacy through referrals from family and friends.

Patients were very satisfied with the service and recommended it to their family and friends. From the pharmacist's perspective, providing these services also increased the professional satisfaction of being able to make a significant impact on patient care.

Limitations of this study include the fact that the medication reviews were performed by a

single pharmacist in a single centre and may not be generalizable to other settings. The number of follow-up visits based on the total number of medication reviews completed during this time frame was minimal for a number of reasons. Although many patients did receive quick follow-up phone calls after their visit, this was not tracked in the follow-up numbers because it was not a billable service. Also, once the diabetes patient population issues were identified, 3 diabetes clinic days were held after the study time frame to address issues identified during the initial interview. As well, since a single pharmacist developed and offered this service, it required training of staff over several months to facilitate the flow of patient bookings for follow-up.

## Conclusion

A full-time pharmacist position providing enhanced medication management services generated enough income to pay for a full-time pharmacist's salary. The benefits to the patients were an increase in identification and resolution of drug-related problems, as well as an opportunity to receive disease state education and experience an improvement in disease states. Patients were extremely satisfied with the medication review process and the service provided to them.■

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