Home medication reviews by community pharmacists: Reaching out to homebound patients

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ONTARIO'S ACTION PLAN FOR HEALTH CARE identified the need for reform to adapt to an aging patient population and increased financial pressure on the health care system.¹ The reform involves investing in evidence-based, cost-effective solutions provided through primary and home care channels, to minimize growing incidental costs from physicians and hospitalizations.² Community pharmacists, as primary care health professionals, are ideally positioned to improve patient outcomes through home-based pharmacy programs. The MedsCheck at Home Program,³ introduced in Ontario in 2010, is an important initiative through which community pharmacists can improve the outcomes of the hardest-to-reach members of the community.

As such, the pharmacy team at John Papastergiou Pharmacy Limited implemented a home-based medication review program to reach out to homebound patients.

Our program was designed to identify and resolve the drug therapy problems of homebound patients, who may not otherwise have had access to a pharmacist. The purpose of this article is to document our experience in providing home medication reviews in Ontario.

Methods

The pharmacy team, operating at 3 Shoppers Drug Mart locations in Toronto, serves a diverse, mixed demographic patient population. To be eligible for the program, patients had to be Ontario residents who were homebound and taking 3 or more chronic medications. Patients were not excluded because of age. We focused on those patients receiving weekly compliance

packs and those who received their medications by home delivery. The pharmacy team contacted 55 individuals over a 6-month period. Twelve patients declined, expressing language barriers, disinterest or unavailability as the primary reasons.

Once identified, the 43 remaining eligible patients (or their primary caregivers) were contacted by telephone, and an appointment for a home visit was scheduled. A pharmacist and a pharmacy student or intern were present for each home medication review. To ensure that visits were standardized, each pharmacist received training on the process and was instructed on the proper completion of the data collection form. Visits included a complete medication review, an assessment of adherence to pharmacotherapy and a discussion of lifestyle and health history. More specifically, medication adherence was assessed through identification of expired or unused medications, patient feedback and blister pack misuse. The pharmacy team provided patient education to address any questions or concerns that arose during the medication review. Then a complete medication cabinet cleanup was performed. The team examined the patient's medication cabinet, and any unused or expired medications were removed for safe disposal. In addition to assessing adherence, the medication cabinet cleanup was also used to identify those individuals who would benefit from a weekly compliance pack program. Any medications that were removed from the home for disposal required the patient's signed consent.

Last, the pharmacist documented any drug therapy problems that were identified.

This included reviewing the patient profile to determine whether any prescribed medications were inappropriate for use in older adults, as per the Beers Criteria.⁴ The pharmacist discussed recommendations with the patient and/or caregiver and made interventions based on current evidence-based guidelines. When required, the patient's primary care physician was consulted by telephone and/or fax. Any drug therapy changes authorized by the physician were subsequently reviewed and implemented.

Results

The pharmacy team conducted 43 home visits, 41 of which involved seniors 65 years or older. Patients were taking a mean of 11.7 (range, 3-23) medications (Table 1). Pharmacists identified a total of 62 drug therapy problems. The top 3 types of problems identified were noncompliance (40.3%), adverse drug reactions (20.9%) and additional therapy required (19.4%) (Table 2).

Of the seniors, 44% were found to be using at least 1 medication on the Beers Criteria list, whereas 7% were using 3 or more. Short-acting benzodiazepines were the most commonly implicated drug, followed by antihypertensives and tricyclic antidepressants.

Medications were removed from the homes of 58% of the patients, with expiry of medication being the most common reason for removal (Table 3).

Discussion

Although home medication reviews are being conducted by various community and hospital pharmacies throughout Canada, this is the first report in Canada to illustrate the types of interventions made by community pharmacists.

After visiting 43 homebound patients, the pharmacy team discovered a total of 62 drug therapy problems. These problems varied in clinical significance. A few common examples include medications being incorrectly transferred into pill vials, patients decreasing doses or discontinuing prescribed medications without the physician's approval and patients not knowing the reasons that they were on certain drugs. Patient confusion was commonly implicated as the underlying cause for drug therapy problems. In one situation, a patient was identified as double dosing on his furosemide prescription, taking the same dose from 2 different vials. Furosemide is a diuretic known to

TABLE 1 Patient demographics

Number of patients	43
Number of patients 65 years and older	41
Mean age, y	77.4
Men, %	37.2
Women, %	62.8
Mean number (range) of medications	11.7 (3-23)
Number of DTPs	62
Mean number (range) of DTPs per patient	1.4 (0-4)

DTPs, drug therapy problems.

TABLE 2 Frequency of drug therapy problems (DTPs) identified by category, *n* = 62

Category of DTP	Frequency of DTPs, <i>n</i> (%)
Noncompliance	25 (40.3)
Adverse drug reaction	13 (20.9)
Additional therapy required	12 (19.4)
Abuse/overuse/high dose	4 (6.5)
Suboptimal response	4 (6.5)
Therapeutic duplication	3 (4.8)
Inappropriate medication	1 (1.6)

TABLE 3 Reasons for medication removal from patient homes

Reason for removal	Frequency of removal, <i>n</i> (%) [*]
Expired	40 (60.6)
Not using/doctor changed	18 (27.2)
Overdosing/double dosing	4 (6.1)
Other	4 (6.1)

^{*}A total of 66 medications were removed from the home.

also decrease potassium levels. The patient had also been prescribed a potassium supplement

in an attempt to correct potassium levels. Once this therapeutic duplication was identified, the patient's potassium levels stabilized and supplementation was discontinued. In addition, a recommendation was made to begin the patient on weekly compliance packs to assist with medication adherence.

The number of drug therapy problems (DTPs) identified in this study (1.4 per patient) appears to be slightly lower than the findings reported by other published medication review studies that examined pharmacists' interventions in different jurisdictions and settings. A meta-analysis by Lau and Dolovich⁵ and the IMPACT study by Dolovich and colleagues⁶ identified an average of 3.2 and 4.4 DTPs per patient, respectively. A number of reasons can account for this discrepancy, including lack of standardization in DTP classification, differences in the level of staff expertise and available medical resources and variations in patient characteristics and practice settings. This was illustrated in Lau and Dolovich's meta-analysis,⁵ in which average DTPs per patient were reported to range from as low as 0.4 in a general practice setting in the United Kingdom⁷ to as high as 10.4 at a US Veterans Affairs Medical Center that primarily treated senior men.⁸

Our study found that 44% of the patients older than 65 years were using at least 1 medication listed in the Beers Criteria. The use of medications listed in the Beers Criteria has been implicated in increasing the occurrence of drowsiness and subsequent falls and fractures in older adults.⁴ Studies have also shown a strong correlation between the use of Beers Criteria medications and poor patient outcomes, including increased adverse drug reactions, hospitalizations and mortality.⁴ The use of these medications puts a population already at high risk for falls and fractures at even greater risk.

In the current study, removal of medication was required from 58% of the homes visited. The majority of these expired and unused medications resulted from patients and caregivers being unaware of proper medication disposal procedures. It is expected that as the

population ages, the use of medication will increase. Inappropriate handling of expired and unused medication will represent a significant patient safety risk. There needs to be a greater public awareness of the availability of medication disposal services at local pharmacies. During the home visits, pharmacy team members educated patients about the existence of a medication and sharps disposal program at the pharmacy.

The major limitation of the study was its inability to evaluate the impact of the pharmacists' interventions on actual patient outcomes. Future studies would be required to assess the clinical significance of such interventions. Most important, these studies would include a follow-up visit to assess whether identified DTPs, including nonadherence, were resolved. Informally, physicians, patients and caregivers reported this service to be very valuable. This is supported by a recent Australian study, which demonstrated that the majority of home medication review recipients were satisfied with the service.⁹ Given the results, the goal of the authors is to expand this study beyond homebound patients to include patients who do not currently qualify for this service but who may otherwise benefit. Patients with early-onset dementia, multiple chronic conditions or debilitating pain could be suitable future candidates.

Conclusion

Community pharmacists are among the most accessible front-line primary care practitioners and are well positioned to affect the care of homebound patients. Pharmacist-directed home medication reviews offer an effective mechanism to address the pharmacotherapy issues of those members of the community who are most in need but may otherwise lack access to pharmacy services. As the general population ages, the demand for such services will undoubtedly increase. Pharmacist-directed home medication reviews could serve to minimize inappropriate use of medication, maximize health care cost savings and expand the scope of pharmacy practice. ■

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