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the Translator

Canadian Pharmacy ➤ Research ➤ Health Policy ➤ Practice ➤ Better Health

Pharmacists optimize medication use in vulnerable elderly population

This issue of the Translator highlights the important role pharmacists can play in helping elderly patients manage their medications with the end result to optimize therapy and avoid potential medication therapy problems.

- **Implementing medication recommendations by pharmacists has long-term benefits for seniors' health**
- **Telehealth technology helps deliver primary care and chronic disease management in the home**
- **Collaborative cardiovascular screening program reduces hospital admissions in patients 65 years and older**
- **Fewer psychoactive medications are prescribed to nursing home residents when pharmacists intervene**

Implementing medication recommendations by pharmacists has long-term benefits for seniors' health

Dolovich L, Howard M, Sellors C, et al. Medication recommendations to physicians by pharmacists for seniors: expected clinical impact in relation to implementation and expected time frame to effect. *IJPP*. 2008;16(3):159–65.

Issue: In Canada, seniors make up the fastest growing segment of the total population and so too the largest group of consumers of prescriptions, over-the-counter products and herbal medications. Consider Canada's aging population — seniors age 65 and older made up 13% of the total population in 2006 and this is expected to almost double in several decades, increasing to 24.5% by 2036.[1] As Canada's population continues to age, this will increase the amount of medication use, since over 60% of seniors regularly take 5 or more prescription products.[2] Thus, seniors taking several prescriptions are at an increased risk of inappropriate prescribing causing a negative impact on overall health.

Only 15.5% of the recommendations made by pharmacists to physicians could have displayed moderate to marked impact on seniors' health outcomes during the SMART 5-month follow-up.

A solution: In 2008, Dolovich et al. completed a descriptive study assessing the data from the 2003 SMART Study in order to understand why pharmacists' recommendations to physicians did not result in improved health outcomes for seniors. Recommendations were categorized, described and assessed based on 3 characteristics: expected strength of impact, expected length of time to implement and level of literature evidence. Physicians completed a structured questionnaire to measure the likelihood of implementing each recommendation made by the pharmacist.

Physicians' intention to implement pharmacists' recommendations was high at baseline (75.1%); however, after the 5-month follow-up only 45.8% of recommendations were fully implemented. Only 15.5% of the recommendations made by pharmacists to physicians had the potential for moderate to marked

The Translator is an initiative by the Canadian Pharmacists Association to support the knowledge translation between pharmacy practice research and health policy. Each issue selects a number of pharmacy practice research articles, briefly summarizes them and discusses the health care policy implications. These articles are submitted by researchers who have a strong desire to support evidence-based health care policy and best practices.

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impact on senior's health outcomes during the SMART 5-month follow-up. If the follow-up period after the Senior Medication Assessment Research Trial (SMART) had been 1 year instead of 5 months, 73.2% of the recommendations might have had a moderate to marked impact.

Implications: When assessing pharmacists' recommendations in the future, it is important to consider the amount of time it takes to see results take effect. Many recommendations pharmacists make for chronic conditions such as diabetes, high blood pressure and high cholesterol may not have immediate measurable changes in health, quality of life and cost effectiveness. However, pharmacists can make a considerable contribution to the health care system in the long term by identifying drug-therapy issues and preventing hospital admissions. They should consider the strength and time frame of their recommendations and prioritize them based on patient benefit to help facilitate implementation.

[1] Turcotte M, Schellenberg G. Statistics Canada: A portrait of seniors in Canada 2006. Available: http://www.statcan.gc.ca/pub/89-519-x/89-519-x2006001-eng.pdf (accessed December 6, 2010).
[2] Canadian Institute for Health Information. Drug use among seniors on public drug programs in Canada, 2002 to 2008. Ottawa (ON): CIHI; 2010. Available: http://secure.cihi.ca/cihiweb/products/drug_use_in_seniors_2002-2008_e.pdf (accessed December 6, 2010).
[3] Sellors J, Kaczorowski J, Sellors C, et al. A randomized controlled trial of a pharmacist consultation program for family physicians and their elderly patients. CMAJ. 2003;169(1):17-22.

Background or research methods: In 2003, the Senior Medication Assessment Research Trial (SMART) was a randomized controlled trial which assessed the level of impact pharmacist recommendations to physicians had on seniors' health outcomes.[3] A total of 48 physicians and 889 seniors taking 5 or more medications a day were randomized into 2 groups — a control group, and an intervention group receiving face-to-face medication reviews and written recommendations by pharmacists to physicians. After a 5-month follow-up, although physicians acted on the majority of pharmacist's recommendations (72%), there were no significant effects on the number and cost of medications, health care use and cost or health-related quality-of-life of seniors.[3] In the study by Dolovich et al., 3 pharmacists evaluated the data from the SMART study using a standardized data-collection form. Descriptive analysis was performed and results were presented by category, strength of recommendation and anticipated impact at various time frames.

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Telehealth technology helps deliver primary care and chronic disease management in the home

Liddy C, Dusseault J, Dahrouge S, et al. Telehomecare for patients with multiple chronic illnesses. *Can Fam Physician.* 2008; 54(1):58-65.

Issue: Eighty-nine percent of the Canadian elderly population has at least one chronic disease.[1] As the elderly population increases, the health care system needs to change to accommodate this prominent group of health care recipients, many of whom have difficulty accessing medical services through traditional methods such as office visits. Telehealth is the application of technology to provide health care services from a distance. While telehealth and telehomecare have been found to improve quality of care, little research has been done regarding the implementation of this technology in a primary care setting.

A solution: Pharmacists are in the position to make quality contributions in a collaborative primary care team. This study followed a family health network in eastern Ontario which provides comprehensive care to its patients by physicians, nurses and pharmacists, focusing on disease prevention. The study was designed as a subset of a larger trial (APTCare) to determine the efficacy and feasibility of telehomecare monitoring, connecting elderly patients with chronic disease to the primary care team through remote monitoring equipment. Patients who were identified by the team as requiring more care management received a Care Companion unit, to which several monitoring peripherals, such as a blood pressure monitor, glucometer or pulse oximeter, could be connected. The unit transmitted data through the patient's telephone line to the APTCare team, through a secure website from anywhere with an internet connection. Patients were instructed to collect the data each morning, and additional readings were incorporated into some of the patients' care plans.

Telehomecare was widely accepted by patients despite the common assumption that the elderly have difficulty with new technology.

The telehomecare units were well accepted, with only 3 of the units being prematurely removed from the home because of noncompliance. Patients and caregivers reported high satisfaction with the device, finding that monitoring gave them a sense of security in knowing their health was being closely supervised. Clinicians acknowledged the importance of clinical data during patient visits, particularly when the data was included in the patient's chart. However, they did express concerns regarding calibration of equipment and response time for critical values.

Implications: This study found that telehomecare could be successfully integrated into a primary care setting, particularly for chronic disease monitor-

ing. The data collected gave physicians, pharmacists and nurses in these care teams more information on which to base their clinical decisions. The telehomecare unit was widely accepted by patients, despite the common assumption that the elderly have difficulty with new technology, showing that telehealth solutions are implementable among aged populations. This study was limited by its selection methods, having selected candidates based on convenience, and its recruitment methods, since health care providers volunteered to participate.

[1] Butler-Jones, D. The Chief Public Health Officer's Annual Report on the State of Public Health in Canada. Public Health Agency of Canada. 2010. Available: http://www.phac-aspc.gc.ca/cphorsphc-respcacsp/2010/fr-rc/index-eng.php#toc (accessed February 4, 2011).

Background or research methods: This qualitative study recruited 22 patients from the experimental group in a larger randomized control trial, called the APTCare project. The evaluation was completed through several methods. Telephone surveys were conducted with all participants; focus groups were conducted at 5 and 12 months with the nurses, physicians and pharmacist; and in-depth interviews were conducted with the health care providers as well as 3 key patient informants, identified by the nurse practitioners. The surveys, focus groups and interviews were transcribed and themes among responses were categorized and analyzed.

Financial support: Funding provided by the Primary Health Care Transition Fund.

Collaborative cardiovascular screening program reduces hospital admissions in patients 65 years and older

Kaczorowski J, Chambers LW, Dolovich L et al. Improving cardiovascular health at population level: 39 community cluster randomized trial of Cardiovascular Health Awareness Program (CHAP). *BMJ*. 2011; 342:d442 doi: 10.1136/*bmj*.d442.

Issue: Hypertension has been identified by the World Health Organization as a major risk factor for mortality worldwide. The number of people with hypertension increases with age, so it is particularly important to screen older adults to mitigate their cardiovascular risk. Community cardiovascular programs are one way to address this need in the population, however, the few programs that have been trialed are not suited for large-scale implementation, which would be integral in stopping the spread of cardiovascular disease.

A solution: The Cardiovascular Health Awareness Program saw trained volunteers run cardiovascular screening sessions in community pharmacies in mid-sized Ontario communities. Blood pressure measurements and risk factor information were collected from patients aged 65 and older, and shared with their family physicians and pharmacists. The patients were also given an information package regarding their risk score, educational materials about cardiovascular health and information on accessing community resources. A nurse was responsible for following up with patients identified as having particularly high systolic blood pressure and a pharmacist was available for support with drug-related problems.

Communities that implemented CHAP were found to have a 9% relative decrease in hospital admissions due to stroke, heart attack and heart failure among patients 65 years and older.

Communities that implemented CHAP were found to have a 9% relative decrease in hospital admissions due to stroke, heart attack and heart failure among patients 65 years and older, compared to the community admission rates in the year before CHAP was implemented. This translated to 3.02 fewer hospital admissions per 1000 people 65 years and older annually. There was also a statistically significant increase in the prescribing of antihypertensive medications during the intervention period for the CHAP group. Including all the practitioners in the patient's circle of care (i.e., physicians, nurse practitioners, pharmacists) and holding the sessions in an accessible area, such as a community pharmacy, were identified as essential components of the program.

Implications: This study demonstrates that widespread implementation of cardiovascular screening programs can be successful and does have a positive impact on morbidity among the aged population. It fostered a collaborative environment among the patients' caregivers and community volunteers. Given that in most cases, the risk factors for cardiovascular disease can be managed through interventions, pharmacists as front-line health care professionals can play a large role in improving cardiovascular outcomes among aged adults in the community. This study, however, only looked at mid-sized communities and it is unknown whether or not the results would translate to urban centres or other countries with differently structured health care systems.

Background or research methods: This study took place in mid-sized communities in Ontario, Canada. It was designed as a two-armed cluster randomized controlled trials in which 39 communities were stratified to implementing CHAP (20 communities) or no intervention (19 communities). The primary outcome of the study was the rate of hospital admissions for stroke, myocardial infarction and congestive heart failure among members of the community aged 65 and older. Over the 10-week study period, 13,379 patients 65 years or older were screened as part of the program. The admission rates from one year before and one year after implementation of the CHAP program were used for analysis in both groups.

Financial support: The Canadian Stroke Network and the Ontario Ministry of Health Promotion—Ontario Stroke System funded the study.

Fewer psychoactive medications are prescribed to nursing home residents when pharmacists intervene

Patterson SM, Hughes CM, Crealey G, et al. An evaluation of an adapted U.S. model of pharmaceutical care to improve psychoactive prescribing for nursing home residents in Northern Ireland (Fleetwood Northern Ireland study). *J Am Geriatr Soc.* 2010;58(1):44-53.

Issue: Psychoactive medications include, amoung others, antipsychotics and medications to help with sleep and anxiety. The use of these medications in older people is associated with increased sedation, confusion and falling. Complications from falls can result in increased institutionalization and morbidity. Research indicates that residents living in nursing homes are being overprescribed and overmedicated with these agents, putting them at greater risk of experiencing adverse events.

A solution: Pharmacists can play a pivotal role in optimizing medication management in the older population living in nursing homes. This study was designed to evaluate changes in the proportion of residents prescribed inappropriate psychoactive medications and also to assess if there were changes in the number of falls. Nine pharmacists participated by visiting each intervention nursing home monthly. The pharmacist assembled a best possible medication history by obtaining medication records from pharmacies, GPs, nursing homes and interviewing the residents and their primary caregivers. They reconciled any discrepancies, and recommendations were discussed with the health care team. Additionally, an algorithmic approach was used to ascertain whether the residents were taking psychoactive medications which were not appropriate, aiming to optimize the use and prescribing of these medications by monitoring their safety and efficacy in the nursing home residents. Control group nursing homes received usual care (— a clinical pharmacist was not on the team).

At the end of the 12-month intervention period, a much lower proportion of patients in the intervention group (19.5%) were taking inappropriate psychoactive medications compared to those in the control group (50%).

Before the intervention, it was noted that 77.4% of residents were taking one or more inappropriate psychoactive medications. After 12 months, the end of the intervention period, a significantly lower proportion of patients in the intervention group (19.5%) were taking inappropriate psychoactive medications compared to those in the control group (50%, $p<0.01$). There was no significant difference in the proportion of falls between the residents in the intervention and control groups.

Implications: The findings of this study demonstrate that a pharmaceutical care model implemented in nursing homes can successfully decrease the proportion of inappropriate psychoactive medications being prescribed and taken. Pharmacists are ideally positioned to conduct the medication review process to minimize discrepancies and optimize drug therapy. A limitation of this study is that it only focused on changing the prescribing of particular drugs. This model of care may be extended to provide a holistic approach to pharmaceutical care for older residents in nursing homes.

Background or research methods: This randomized cluster controlled trial involved 334 residents in 22 nursing homes in Northern Ireland. Nursing homes were randomly assigned as intervention, where residents received enhanced pharmaceutical care (n=11 homes) or as control, usual care (n=11 homes). Residents over the age of 65 without terminal illnesses were eligible for inclusion. This study evaluated an adapted U.S. model of pharmaceutical care and assessed for changes in the number of residents who received inappropriate psychoactive medication. The secondary outcome measure was change in the rate of falls. Follow-up was done at 3, 6, and 12 months to assess for changes in outcome measures.

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