Interprofessional collaboration with pharmacists improves health outcomes

The studies selected for this issue of the Translator highlight research that demonstrates how pharmacists working in collaborative teams can help identify and minimize adverse events and drug related problems.

- Pharmacists help optimize prescribing in primary care settings
- Heart failure patients benefit from pharmacists’ care
- Pharmacists and physicians collaborate to help improve elderly patients’ drug therapy
- Community pharmacists in collaborative teams help patients improve asthma control

Pharmacists help optimize prescribing in primary care settings


**Issue:** Suboptimal prescribing results in the “under-use, overuse and inappropriate use of medications” and means patients may not be receiving the beneficial drug therapy that they need. This can lead to preventable drug-related hospitalizations and increased costs to patients and the health care system. As medication experts, pharmacists are ideally positioned to play a positive role in multidisciplinary collaborative care teams that can help minimize the incidence of suboptimal prescribing.

**A solution:** Incorporating pharmacists into the primary care setting is an important way to help ensure that patients have access to the important guidance and expertise that pharmacists can offer. The Integrating Family Medicine and Pharmacy to Advance Primary Care Therapeutics (IMPACT) project was a pilot project set up to determine the long-term feasibility of incorporating pharmacists into primary care practice teams.

The IMPACT practice model incorporated four pharmacist interventions. Pharmacists conducted individual medication assessments, health care provider education, and system-level practice enhancements such as a diabetes care monitoring system, a prescription renewal process and a drug sampling process. This practice model also focused on cultivating collaborative pharmacist-physician relationships and an office system to accommodate the needs of collaborative, team-based care.

Over the 24-month course of the project, participating physicians referred 1,554 patients to a participating pharmacist for a comprehensive assessment. Almost every physician (94%) located at an IMPACT practice site referred at least one patient to the pharmacist. Pharmacists identified adverse drug reactions in 26.5% of patients.

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assessed at least one Drug-Related Problem (DRP) in 93.8% of patients and played an important role in identifying adverse drug reactions, found in 26.5% of patients.

Implications: The results of this pilot study are promising. Results suggest that pharmacists help optimize prescribing and use of medications, thus helping to reduce DRPs and subsequent medication-related hospitalizations. Pharmacists collaborating with physicians in primary care settings enhance the level of care, medication safety, and cost-effectiveness of the health system.

Background or research methods: IMPACT was a large-scale demonstration project that placed a pharmacist into each of seven family medical practice sites across Ontario. Starting 1 June 2004, each pharmacist worked on site 2-3 days a week. All pharmacists had previous experience working within a community setting. Prior to placement pharmacists attended a 2-day workshop to help become familiarized with the family practice setting. Further analyses are under way to examine patient satisfaction, costs, and the effectiveness of the integration in improving medication monitoring, prescribing and clinical outcomes.

Financial Support: IMPACT was funded by the Ontario Ministry of Health and Long-Term Care (MOHLTC) through the Primary Health Care Transition Fund.

Heart failure patients benefit from pharmacists’ care


Issue: Heart Failure (HF) is associated with a high burden of illness. Within one year of initial hospitalization with HF, up to 40% of patients will die and up to 50% of patients will be re-hospitalized. Multidisciplinary teams have been proposed as one mechanism for helping to improve the health outcomes for HF patients. Given that pharmacists are medication experts and HF is a condition almost entirely managed with medication, it is important to consider the precise role played by pharmacists on these teams, and the contribution that they can make to improving health outcomes for patients.

A solution: A systematic review was conducted to identify randomized controlled trials that engaged pharmacist care, both independently and as part of a multidisciplinary team, in patients with HF. Study authors were contacted to define pharmacists’ roles and contributions to multidisciplinary teams. Twelve randomized controlled trials met the inclusion criteria and eleven of the trial authors provided information on the exact role played by the pharmacists. Of the 12 studies that were included, seven included the interventions that were directed by the pharmacist, while the remainder included the pharmacist as a member of the multidisciplinary team.

Study authors indicated that pharmacists played key roles in educating patients about HF and medication, adherence aides and self-monitoring. Pharmacists also made recommendations to physicians about HF pharmacotherapy. The study found that interventions that included pharmacist care reduced HF and total hospitalization rates by almost one third.

Implications: Pharmacists contribute to the reduction of hospitalizations in patients with HF. HF is one of the leading causes for hospitalization and significant cost savings could occur with a reduction in HF associated hospitalizations. Pharmacists are the only health care professional trained to focus on the safe and effective use of medications and are ideally positioned to use this knowledge in the treatment of HF.

Background or research methods: With assistance from a librarian, the authors searched the following electronic databases from their inception until August 2007: PubMed, MEDLINE, EMBASE, International Pharmaceutical Abstracts, Web of Science, Scopus, Dissertation Abstracts, CINAHL, PASCAL, and the Cochrane Central Register of Controlled Trials. Pharmacy-related and HF-related terms were searched. The bibliographies of identified studies were hand searched. Two authors independently screened the citations to determine eligibility. Studies had to be randomized controlled trials that tested the impact of pharmacist care on patients with HF and measured the outcomes of all-cause hospitalizations, HF hospitalizations or all-cause mortality. The primary study authors were contacted to provide more detail about the role the pharmacist played in the multidisciplinary team.

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Pharmacists and physicians collaborate to help improve elderly patients’ drug therapy


Issue: Medication use and multiple prescriptions among elderly patients are increasing. A variety of problems have been associated with multiple medications including increased risk of drug interactions, therapeutic failure and non-compliance. Little research has examined the effectiveness of pharmacist consultations with family physicians to help simplify elderly patients’ daily medications, thus potentially reducing costs and hospital admissions.

A solution: Pharmacists may help improve outcomes for elderly patients using multiple medications by optimizing their medication regimen through consultation with patients and the patient’s family physician. Expanded Role Pharmacists (ERPs) are practicing pharmacists who have received training in patient-centred counselling to optimize the drug therapy of seniors and provide consultations to family physicians. In this study, ERPs conducted structured medication assessments with patients in their physician’s office. After the interview the pharmacist summarized a list of the patient’s medications, Drug-Related Problems (DRPs) and recommended possible solutions to those problems. The physician and pharmacist subsequently met to discuss the pharmacist’s findings and recommendations. Pharmacists identified at least one DRP in 79.8% of the seniors in the intervention group. The most common DRP was that the patient was not receiving a required medication. Physicians implemented or attempted to implement 72% of pharmacists’ recommendations and fully implemented 46% of pharmacists’ recommendations within five months after the initial assessment.

Implications: This study shows that pharmacists and physicians can collaborate to help improve elderly patients’ drug therapy and that the intervention was cost neutral. Although no reduction in the number of medications (daily units) or reductions in health care costs were observed between the control and intervention groups after five months; the sample size and length of the follow up may have been too small to detect a statistically significant change. The authors suggest that the impacts of improved drug therapy are also difficult to capture in a five month timeframe, and that further study is required.

Background or research methods: Twenty-four ERPs volunteered for the study, residing in 16 towns within a 2-hour drive of Hamilton, Ontario. Drawing on a database of physicians maintained by the College of Physicians and Surgeons of Ontario, Family Physicians (FPs) located in the postal area of ERPs were identified, recruited, paired and randomly assigned to either the intervention or control group. A Clinical Research Nurse (CRN) visited each FP’s office to discuss the study protocol, time commitment and expectations. Office staff, with the assistance of the CRN, generated lists of patients initially deemed eligible for the study; that is, patients who were taking five or more medications, aged 65 and older, not institutionalized and English speaking. Overall, 48 FPs and 889 seniors were recruited. CRNs blinded to the allocation of participants interviewed research participants at baseline and at the termination of the study. Outcome measures included the daily units of medication taken, daily medication costs, use of health care services, and health-related quality of life.

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Community pharmacists in collaborative teams help patients improve asthma control


Issue: Close to three million Canadians live with asthma and almost 500 will die from asthma or asthma related complications every year. For those living with asthma, absenteeism at work and school, increased use of health care resources and decreased quality of life are well documented. Hospital admissions, emergency department visits, and deaths can be attributed to underuse of asthma medications. Many of these poor outcomes for patients and the healthcare system could be mitigated through education, planning and proper use of medications.

A solution: The Better Respiratory Education and Asthma Treatment in Hinton and Edson (BREATHE) study documents the impact of pharmacist, physician and Respiratory Therapist (RT) collaboration on improving health outcomes for patients with asthma in rural settings. Through pharmacists’ interventions in providing education to patients and assessing their asthma therapy, patients in both the usual care and intervention groups improved their levels of asthma control. Written action plans were a core component of the education portion of the intervention. These plans were developed and approved by the collaborative care team members, initiated by the pharmacist and reinforced by the RT. 

Implications: Although, no statistically significant changes were observed in health outcomes between care groups, the study found that those patients who received written action plans as part of the education component had improved outcomes compared to those who did not, and all patients improved their asthma control. The outcomes of this study suggest that while written action plans appear to improve asthma control, improved study design and motivation for professionals involved in the research has the potential to yield better results. In this study the authors found that follow-ups with pharmacists, physicians and RTs were not consistent across the intervention group and this may have limited the impact of the intervention. Furthermore, some patients assigned to the usual care group were followed by pharmacists who were asthma educators and were providing high-levels of asthma patient care. If these factors are mitigated in other studies, outcomes may reveal further evidence of improved outcomes for patients in the intervention group.

Background or research methods: For this study, a total of 70 high risk asthma patients from Hinton and Edson Alberta, between the ages of 17 and 54 were recruited by community pharmacists. These patients had a self-reported diagnosis of asthma, had an ED visit or hospital admission due to asthma in the previous year or other indicators of poorly controlled asthma. Patients were randomized, using an Internet randomization service provided by the Epidemiology Coordinating and Research Centre (EPICORE) at the University of Alberta, to either the intervention or usual care groups. The intervention group was led by a pharmacist that provided education to patients and assessed their current asthma therapy. This group also received a referral to an RT and/or physician as needed. Five follow-up visits with pharmacists and two follow-up visits with RTs were also part of the protocol for the group. The usual care group was given more general support by pharmacists through an asthma education booklet and advice when needed. They were referred to an RT at the start of the study and were only given pharmacist follow-up twice during the study period. Comparison between groups was measured by a change in Asthma Control Questionnaire (ACQ) scores over the six-month study period.

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