The role of pharmacists in screening and prevention

It is estimated that approximately 89% of all deaths in Canada are caused by chronic diseases, including diabetes, heart disease and cancer. This number is expected to climb, necessitating a national strategy for prevention and intervention. As accessible, frontline health care providers, pharmacists are in an excellent position in which to optimize patient health through screening and prevention. This issue of the Translator brings to light the impact of pharmacists on detection and prevention of disease, as well as adverse health outcomes:

- A comparison between pharmacists’ ideal contribution and their actual level of involvement in health promotion and disease prevention
- Contributions of community pharmacists to coronary heart disease screening services
- Identification of previously undiagnosed cases of knee osteoarthritis by community pharmacists
- The role of clinical pharmacists in monitoring for significant drug-drug interactions in medical intensive care settings

A comparison between pharmacists’ ideal contribution and their actual level of involvement in health promotion and disease prevention


Issue: The positioning of community pharmacists within the health care system allows them to be accessible by a large segment of the population due to their extended work hours and wide geographical distribution. This accessibility, complemented by pharmacists’ extensive knowledge of health promotion and disease prevention, along with the increasing prevalence of chronic disease, supports an expansion of their scope of practice. Despite the increased interest in broadening the role of pharmacists, there is minimal information on Canadian pharmacists’ perception of their role in public health. Such data can be used in both the development and in optimizing the uptake of pharmacy tools and services.

A solution: This cross-sectional study set out to assess the ideal and actual involvement of community pharmacists in health promotion and disease prevention, in addition to

A comparison between pharmacists’ ideal contribution and their actual level of involvement in health promotion and disease prevention (cont.)

exploring potential barriers. The questionnaire was completed by 571 eligible pharmacists, with the majority of respondents identifying pharmacists as the most appropriate providers for counseling on lifestyle changes, screening for hypertension and diabetes, and promoting sexual health. Also, most reported that pharmacists should ideally be “very involved” in screening for hypertension (81.8%), diabetes (76.0%), dyslipidemia (56.9%), and sexual health (61.7% to 89.1%). In contrast, the proportion of pharmacists who reported actually being “very involved” in each service was 5.7% for lifestyle changes, 19.3% for sexual health, 44.5%, 34.8%, and 6.5% for screening for hypertension, diabetes and dyslipidemia, respectively. The main barriers to health promotion and disease prevention reported by pharmacists include lack of time (86.1%), lack of coordination with other health care professionals (61.1%), lack of staff or resources (57.2%), lack of financial compensation (50.8%), and lack of clinical tools (45.5%).

Implications: Research shows that community pharmacists in Canada recognize that they play a significant role in health promotion and disease prevention and appreciate that this responsibility translates into the provision of more tools and services. However, this particular paper compares pharmacists’ ideal perception of their role to what is actually happening on the ground. Although the majority of pharmacists believe that they should be involved in counseling on smoking cessation and sexual health and screening for hypertension, diabetes and dyslipidemia, the extent to which these tasks are carried out is significantly lower. This paper also explores some of the barriers to the implementation of public health programs, suggesting that the development of such services should focus on continuity of care and maximizing collaboration among other health care providers. It should be noted that only the pharmacists who chose to respond to the questionnaire were taken into account, which may represent a more motivated group of individuals. This can potentially mean that the measured involvement of Canadian pharmacists in health promotion and disease prevention may have been overestimated.

Contributions of community pharmacists to coronary heart disease screening services


Issue: Although community pharmacists in the UK are the health care providers most patients make contact with first, pharmacists’ roles have traditionally been restricted to drug dispensing and disease management. However, in 2005, pharmacists were formally granted the opportunity to play a role in disease prevention as well. Since then, a variety of different screening services have been offered by pharmacies, including the Healthy Heart Assessment (HHA) service for individuals at risk of developing coronary heart disease (CHD). CHD is a chronic disease with a variety of modifiable risk factors that can be prevented through exercise, dietary changes and smoking cessation. Pharmacists used this service to evaluate patients’ projected 10-year risk of developing CHD based on the Framingham risk calculator. However, there has been little research that assesses community pharmacists’ involvement in providing CHD screening services and the type of patient populations targeted.

A solution: The HHA service was launched in a specific chain of pharmacies in the UK after simvastatin 10 mg became accessible over-the-counter (OTC) for hypercholesterolemia, a significant clinical condition that can lead to premature CHD. This paper aims to investigate the characteristics of some of these participants and community pharmacists’ ability to provide CHD assessment for different socioeconomic sectors of the population. Although results indicate that men are more likely to have a moderate-to-high risk of developing CHD, up to half the difference in mortality can be attributed to modifiable risk factors, most of which are issues that can be addressed by pharmacists. In addition, the likelihood of moderate-to-high risk for those in socioeconomic categories “constrained by circumstances” and “blue collar communities” versus those in the more privileged “prospering suburbs” was higher with relative risk ratios (RRR) of 1.15 (p < 0.05) and 1.13 (p < 0.05), respectively.

Implications: The accessibility of pharmacists makes them ideal for providing screening services such as the HHA used to...
This study was conducted to assess the risk of CHD. This paper shows that such pharmacy services can reach all socioeconomic sectors of the population, identifying men and those individuals from less advantaged communities more likely to have a moderate-to-high risk of developing CHD. Also, pharmacists were reported to prioritize advice on healthy living over recommendations for an OTC statin regardless of the patient’s CHD risk. This emphasizes pharmacists’ professionalism in providing valuable advice to everyone who can benefit from reducing their risk of developing CHD, as distinct from any interest in increasing overall sales.

**Background or research methods:** A total of 8287 individuals accessed the HHA service, 35% of whom were at moderate-to-high risk of developing CHD. Low risk was defined as less than 15% absolute risk of developing CHD over 10 years, while moderate-to-high risk was 15% or higher absolute risk. Socioeconomic category was based on the seven clusters of the Office of National Statistics’ Output Area Classification (OAC) system, which groups different geographical areas according to common characteristics. Finally, the act of creating associations between the different variables of age, gender and socioeconomic status was possible through cross tabulation of raw data and the use of Pearson chi-square.

Identification of previously undiagnosed cases of knee osteoarthritis by community pharmacists


**Issue:** Osteoarthritis (OA), the most common joint disorder, results in both physical and economic implications on the individual and society as a whole. It is a leading cause of disability and along with other musculoskeletal diseases is estimated to cost the Canadian government billions of dollars in medical care and lost wages. With the aging of the population, the prevalence of OA is estimated to increase by 50% within the next 10 to 20 years. However, the majority of patients with knee OA do not seek medical attention and those who do are often incorrectly diagnosed. As a result, more than half of patients with hip or knee OA do not receive simple recommendations for exercise and weight loss or any pharmacotherapy.

**A solution:** This study was conducted to evaluate the role of community pharmacists in identifying individuals with previously undiagnosed knee OA using a short screening questionnaire. Pharmacists were chosen for the task because they are thought to possess the necessary knowledge and skills in disease assessment, are highly accessible by patients, and are strategically placed for consultation on over-the-counter (OTC) analgesics commonly used for the management of musculoskeletal pain. Of the 411 participants screened, 194 met all the inclusion/exclusion criteria, were declared eligible for further physical examination and radiographs, and were interested in fully participating in the study, while 98% of individuals referred for physical examination by the pharmacist met the American College of Rheumatology (ACR) clinical criteria for knee OA. Further radiographic results confirmed that the majority of participants likely had mild OA.

**Implications:** Research has repeatedly shown that only a very small percentage of elderly individuals with knee pain voluntarily consult their physician and rarely receive any form of treatment or advice on improving their quality of life, function or pain. The results of this study suggest that pharmacists’ accessibility and expertise in screening and disease management can be used to target individuals with likely knee OA, who would otherwise remain undiagnosed. In addition, the early detection of OA increases the opportunity for a number of interventions to be applied that may potentially decelerate the progression of the disease. Although these findings highlight significant implications for screening programs in the future, further research should assess a more comprehensive role for pharmacists that involves recruiting patients, providing a pharmacotherapy review, and referrals as warranted.

**Background or research methods:** All pharmacists received training on elements of the study, OA topics and how to administer the questionnaire. Interested participants were administered the pharmacist-led questionnaire and were screened for study entry based on the inclusion/exclusion criteria. Eligible individuals were then advised to make an appointment for a physical examination and a knee radiograph at the Arthritis Centre. Based on the interview, the patients’ clinical history and the knee examination, individuals were classified with knee OA according to ACR clinical criteria. A knee radiograph was also performed. The Kellgren-Lawrence osteoarthritis grading scale was applied to classify disease severity.
The role of clinical pharmacists in monitoring for significant drug-drug interactions in medical intensive care settings


**Issue**: Critically ill patients admitted to medical intensive care units (MICU) are subject to a high degree of adverse drug reactions (ADRs). This is often attributed to the frequent prescribing of multiple medications, which increases the potential for drug-drug interactions (DDIs). In many hospitals, such as St. Luke’s/Roosevelt (SLR) Hospital Center (New York, US), an electronic physician order entry system alerts prescribers to DDIs. However, according to a study published in 2003, physicians overrode 89.4% of high-severity drug interaction alerts. This is partly due to the overwhelming number of irrelevant alerts and partly because some prescribers may not be as experienced as clinical pharmacists at assessing the significance of different DDIs. Although research has demonstrated the benefit of critical care pharmacists within a MICU, no studies have addressed the value of assigning a critical care pharmacist to review significant DDIs.

**A solution**: The objective of this paper was to assess the impact of assigning a critical care pharmacist to review significant DDIs within a MICU. This was made possible by comparing a typical baseline period to an intervention period where a pharmacist was expected to review and attempt to minimize all significant DDIs. In addition, the impact of decreasing the frequency of DDIs on the length of stay (LOS), discharge status, and mortality was also evaluated. At baseline, 175 DDIs were identified, 25 of which were considered to be clinically significant. Since pharmacist intervention was not available at the time, the incidence of relevant interactions was calculated to be 23.36/1000 patient-days. However, during the intervention period, a total of 111 interactions were identified, 28 of which were considered relevant, with 23 interventions being accepted. This resulted in a lower incidence of relevant interactions of 5.96/1000 patient-days. Further analysis showed that being female and having a higher number of medications was associated with a higher number of serious DDIs (p < 0.01); while being male and having more comorbidities was associated with longer LOS (p < 0.05). According to the multiple linear regression, a lower number of DDIs was associated with significantly shorter LOS (p < 0.01). Also, after controlling for other variables, mortality rate was much lower in the intervention group (p = 0.01). Mortality rate was not significantly associated with number of clinically important DDIs.

**Implications**: The implementation of this screening procedure resulted in a 65% reduction in the rate of DDIs, which corresponds to significantly shorter LOS. This conclusion coincides with the recommendations set by the Center for Disease Research and Therapeutics, which suggest consulting a clinical pharmacist to review patients’ medication records for DDIs. This is of particular interest to intensive care units (ICUs), where patients are often on a variety of different medications and the rate of ADRs has been shown to increase exponentially in patients taking 4 medications or more. Limitations of this paper include that it is non-randomized, subjecting it to confounding bias, other initiatives that may decrease LOS were not accounted for, and finally, this study was conducted at a particular hospital and results may not extrapolate to other ICU settings.

**Background or research methods**: Data for baseline analysis was collected retrospectively for the months of May to August (2008), while the prospective intervention period was 10 weeks long and was conducted between October and December (2008). The MICU at the St. Luke’s site has 12 beds, although it often exceeds that capacity. All new patients admitted to the MICU during the study period were included in the intervention group. Patients were evaluated by the pharmacist on a daily basis and an interaction analysis was performed with each new medication. Lexi-Comp was used in the analysis and identification of DDIs and those interactions classified as potentially resulting in ADRs were communicated to a physician or the pulmonary fellow, an individual with the authority to review proposed changes.