Pharmacists play an important role in helping Canadians successfully manage respiratory related illnesses.

There is a significant burden to the health care system when diseases are improperly managed, in the case of respiratory illnesses, pharmacists can fill a gap in care by providing educational services to patients. Policy changes can also reduce costs to the system; however, the need for pharmacist-driven intervention in these cases is essential to minimize negative patient outcomes. Four recent Canadian studies highlighted the role that pharmacists and policy changes can play in managing respiratory illnesses in the community.

- Patient education provided by pharmacists on self-management of asthma produced a significant improvement in short-term symptoms.
- Enhanced asthma care results in improved clinical, holistic and economic outcomes in patients.
- Insights into factors guiding community pharmacists to participate in a billing program for asthma services.
- The implementation of a policy change in Nova Scotia had a substantial impact on the drug use patterns for wet nebulisation therapy in patients with respiratory disease.

Patient education provided by pharmacists on self-management of asthma produced a significant improvement in short term symptoms.


**Issue:** Asthma is a prevalent disorder that affects 6% of adults and up to 12% of children in Canada. Many of these individuals do not receive sufficient education in order to effectively self-manage their asthma.

**A solution:** Community pharmacists are ideally situated to counsel patients regarding the proper use of medications, and to educate them on the management of their disease. They are easily accessible and are able to provide convenient follow-ups when patients refill their medications. The objective of this study was to assess the efficacy of a pharmacy-based asthma education intervention program on improving patient outcomes.

Based on the results obtained, the pharmacy-based intervention program was able to identify poorly managed cases of asthma, and was also able to significantly improve short-term outcomes in asthma patients. Forty-two percent of patients seen demonstrated improper inhaler techniques; 32% were recommended to use inhaled steroids regularly; and another 21% were advised to see their physician regarding maintenance therapy. In the month following the intervention program, there was a significant decrease in the use of reliever medication, and nocturnal awakenings.

**Implications:** These results demonstrate the ability of community pharmacy-based intervention programs to a) identify poorly managed cases, b) educate patients regarding the proper use of inhalers, and c) refer to physicians regarding maintenance therapy. These programs decrease the use of reliever medication and nocturnal awakenings. As government and health regions seek to optimize primary health care, pharmacy-based programs to manage asthma should be considered.
Background or research methods: The plan was to deliver an asthma clinic day at 536 pharmacies across Canada on March 5, 1997.

A one-day training seminar for pharmacists to train regional trainers was developed based on the Canadian Asthma Consensus Conference summary of recommendations. Fifty-five pharmacists from across Canada took part in this program, and subsequently provided training to pharmacists in their region over a three month period. Asthma education was integrated into the day-to-day practice of the pharmacist, leading up to the national asthma clinic day.

Pharmacists provided a questionnaire to the patients in order to assess patient technique in the utilization of medication. Pharmacists would then provide solutions/education to patients based on their questionnaire.

Patient education provided by pharmacists on self-management of asthma produced a significant improvement in short term symptoms. (continued)

Enhanced asthma care results in improved clinical, holistic and economic outcomes in patients.


Issue: The rising morbidity/mortality rate amongst asthma patients in the past decade has also led to rising costs to the health care system.

A solution: Community pharmacists as asthma educators can be utilized to provide pharmaceutical care for improved patient outcomes and to reduce the financial burden on the health care system.

If the pharmacist is well trained, this approach may be effective in improving patient outcomes, and more cost effective than a physician or hospital visit.

The group assigned to receive enhanced asthma care by the pharmacist saw statistically significant improvements in certain clinical outcomes. There was a reduction in physician (from 1.33 visits/month to 0.39 visits/month) and ER visits; quality of life was improved, with a difference of 19% between the enhanced care group and the usual care group, and symptom scores (cough, wheeze, SOB, chest tightness, etc.) were significantly better in the enhanced care group over the usual care group. In addition, a cost comparison of usual care and enhanced care showed significant cost savings of >$100/patient/month.

Implications: Patients with asthma have been shown to benefit from interventions offered by community pharmacists. Furthermore, there is a cost saving of $100/month/patient. Given that 12% of children and 6% of Canadian adults are affected by asthma, this type of initiative should be considered as a significant health enhancing and cost saving measure.

Background or research methods: Thirty-three specially trained pharmacists in BC participated in this study. Eleven of those pharmacists were already involved in asthma education, and their patients were randomized to receive either enhanced (EC) or usual care (UC). The remaining 22 pharmacists were divided into pairs based on geography, and were randomly assigned EC/control, UC/control, or EC/UC.

The enhanced group received “pharmaceutical care” level of service with sit-down sessions initially and approximately every 2 months for 1 year; in addition, readiness-to-change was assessed and initiation adjusted to patients’ readiness.

Only 20 of the pharmacists subsequently completed the study, with a final total of 119 patients assigned to EC, 105 to UC, and 226 to the control group.

Financial support: Health Transition Fund, Health Canada.
Insights into factors guiding community pharmacists to participate in a billing program for services provided to patients with respiratory illness.


**Issue:** There are few reimbursement strategies available for cognitive services provided by pharmacists. The factors that influence pharmacists to bill for their professional services are an important component of any successful reimbursement strategy. It is therefore essential to develop a better understanding of these particular factors.

**A solution:** A survey was sent out to pharmacists participating in an initiative in Nova Scotia which involved the reduction in use of wet nebulization medication in patients with respiratory disease. The initiative involved billing for professional services, such as education, provided to patients during the switch, optimization, or replacement of therapy for patients affected by the change to the Senior’s Pharmacare Program in 2000 (see next summary for additional information).

The survey provided a starting point towards understanding the factors predisposing, enabling, and reinforcing pharmacists to bill for professional services that they provide to their patients.

The study showed that predisposing factors (e.g. age, gender, awareness of professional services fees, etc.) appeared to be the most important element in encouraging pharmacists to bill for professional services provided. On the flip side, it was discovered that the complicated billing process was the primary barrier for pharmacist participation in the billing program. This shows a need for better billing methods.

**Implications:** Given the evidence supporting community pharmacy based interventions in patients with respiratory disease, it is important to recognize in implementing these programs that the billing system needs to be as simple as possible to ensure maximum participation from pharmacists, and therefore better educate patients with respiratory illnesses.

---

**Background or research methods:** In Nova Scotia, the Senior’s Pharmacare Program changed the reimbursement policy for wet nebulization respiratory drugs. This change initiated an intervention in which community pharmacists provided patient education in order to facilitate the conversion between wet nebulisation medications to portable inhalers. The pharmacists could then bill for the professional services after providing patient education for switching people from wet nebulized medications to inhalers, optimizing inhaler technique with holding chambers, or replacing a holding chamber.

A survey of pharmacists was distributed to gather information on demographics, work environment, professional experience, financial aspects, billing experiences, and the billing process in order to identify facilitators/barriers to billing for professional services. Of the 766 Nova Scotia pharmacists that were sent surveys, 297 returned completed surveys.

**Financial support:** Canadian Health Services Research Foundation (CHSRF), Canadian Institutes of Health Research (CIHR), Nova Scotia Health Research Foundation (NSHRF).
The implementation of policy change in Nova Scotia had a substantial impact on the drug use patterns for wet nebulisation therapy in patients with respiratory disease.


**Issue**: Respiratory illness represents a significant cost to the health care system. Inappropriate therapy results in improperly managed disease, and can result in an added cost.

**A solution**: A policy change resulting in specific criteria for reimbursement of wet nebulization therapy was implemented by the Nova Scotia government because wet nebulization therapy is a more expensive medication that is not necessarily superior to other available therapies. Multifaceted intervention programs were put into place at the same time in order to facilitate patient education and conversion to alternative therapies.

This study assessed the impact of the policy change and intervention on the use of respiratory drugs. It also monitored the rate of physician visits and hospitalizations related to respiratory issues.

The study showed a distinct decrease in wet nebulization usage rates that coincided with the policy implementation. Wet nebulization usage decreased as much as 100% to 36% in the heavy usage group. This decrease in wet nebulization usage was also paralleled with an increase in portable inhaler use, and a significant increase in spacer device usage.

The study also found that the policy was not associated with an increase in physician visits or hospital admissions for respiratory conditions.

**Implications**: Reimbursement criteria in combination with multifaceted interventions to facilitate patient education and conversion can be effective in managing changes in drug use. A pharmacy education intervention with patients was implemented to contribute to the successful outcome of the policy.

**Background or research methods**: In February of 2000, a change in the reimbursement criteria of the Nova Scotia Seniors’ Pharmacare Program resulted in the development of interventions in order to help patients with the transition. The new policy placed specific criteria around the reimbursement for wet nebulization therapy, and interventions were geared towards facilitating the patient’s transition from nebulization medication to inhalers (or other treatment methods). The impact of the policy change was assessed by analyzing the use of respiratory drugs, physician visits, and hospitalizations, from April 1998 – February 2002 in an interrupted time-series design.

The study groups were separated based on the use of inhaled respiratory drugs from January 1, 1999 – December 31, 1999. Those patients who received portable inhalers during this year were considered the control group, those on wet nebulization therapy were placed in the wet nebulization group, and those patients who used wet nebulization therapy all 12 months were placed in the heavy wet nebulization user group.

**Financial support**: Nova Scotia Department of Health, Drug Evaluation Alliance of Nova Scotia; CHSRF/CIHR/NSHRF