

Community pharmacist–administered influenza immunization improves patient access to vaccination

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Recognizing the increased public demand for pharmacist-administered immunization and the lack of Canadian research in this area, we designed a survey to address this deficit. Our goal was to identify the demographic characteristics and risk factors of patients receiving influenza vaccination in community pharmacies and to understand patient experiences and perceptions surrounding being vaccinated by a pharmacist.

Les populations ayant de plus en plus besoin que les pharmaciens administrent des vaccins et étant donné le manque d'études à ce sujet au Canada, nous avons conçu une enquête pour combler cette lacune. Notre but était d'identifier les caractéristiques démographiques et les facteurs de risque des patients qui reçoivent le vaccin contre la grippe dans les pharmacies communautaires, et de mieux comprendre l'expérience et les perceptions des patients qui reçoivent la vaccination d'un pharmacien.

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ABSTRACT



Objectives: To describe the demographic characteristics and risk factors of patients receiving influenza vaccination in community pharmacies and to understand patient experiences and perceptions surrounding being vaccinated by a pharmacist.

Methods: Survey data were collected by research pharmacists at 4 different community pharmacy locations in Toronto throughout a period of 8 weeks during October and November 2013. Participation in the survey was voluntary, and all patients vaccinated by pharmacists were invited to complete a survey following immunization.

Results: During the course of the study, 2498 vaccine doses were administered among all study sites, and 1502 surveys were completed. Our data showed a high degree of patient satisfaction, with

92% of patients indicating they were *very satisfied* with the pharmacist's injection technique and the services they received. Furthermore, 86% of patients were *very comfortable* with being vaccinated by a pharmacist, and 99% of patients reported they would recommend that friends and family be vaccinated by a pharmacist. Convenience and accessibility were major determinants of patient satisfaction, as shown by 46% of all written comments specifically addressing these factors. Of the patients surveyed, 25% were not regular annual vaccine recipients, and 47% were classified as being at high risk for influenza complications according to Public Health Agency of Canada criteria. Notably, 28% of total patients and 21% of high-risk patients reported that they would not have been immunized this year if pharmacy-based vaccination were not available.

Conclusions: Our findings suggest that pharmacists provide a highly convenient and accessible option for seasonal flu vaccination that is viewed favourably by patients. Administration of the flu vaccine by pharmacists has the potential to positively affect public health by improving vaccination rates among high-risk patients, first-time or occasional vaccine recipients, and patients who may not otherwise have an opportunity to be vaccinated. It is hoped that expanding pharmacist vaccination services to include administration of other common vaccines would receive similar positive reception by patients and improve overall access to vaccination. *Can Pharm J (Ott)* 2014;147:359–365.

Introduction

Influenza (or the *flu*) is a common infectious respiratory disease that affects millions of Canadians each year, with up to 20,000 flu-related hospitalizations and 4000 deaths.^{1,2} Individuals with risk factors such as diabetes, cardiovascular

disease and respiratory conditions are even more susceptible to hospitalizations and complications.³ Influenza epidemics of variable extent and severity occur almost every winter. They impose an enormous burden in terms of morbidity, mortality and economic and social costs.

KNOWLEDGE INTO PRACTICE



- Patients report a high degree of satisfaction with being vaccinated against seasonal influenza by a community pharmacist. Convenience and accessibility were major contributors to the positive experience.
- A significant proportion of patients, many of whom were at high risk for influenza complications, reported that they would not have been vaccinated if pharmacist-administered vaccination had not been available.
- Vaccination by pharmacists has the potential to positively affect public health by improving vaccination rates among high-risk patients and first-time or occasional vaccine recipients.
- Pharmacists administering influenza vaccine are providing a service that is highly valued by patients, improves access to immunization, and may increase vaccination rates.
- Expanding pharmacist vaccination services to include other common vaccines would likely receive similar positive reception by patients and improve overall access to vaccination.

Immunization is the single most important advancement in public health of the past century. In the past 50 years, immunization has saved more lives in Canada than any other health intervention.⁴ Although the effectiveness of seasonal influenza vaccination can vary, its ability to reduce hospital admissions, complications and death has been well documented.⁵ Immunization remains the most cost-effective method to reduce influenza and influenza-related complications.⁶ The National Advisory Committee on Immunization recommends influenza vaccination for all Canadians aged 6 months and older. Despite this recommendation and the universal availability of the vaccine, Statistics Canada reports that only 28.9% of Canadians were vaccinated against the flu in 2012.⁷

The Ontario government has recognized the need to improve vaccination rates. As of the fall of 2012, the scope of practice of pharmacists in Ontario was expanded to include the administration of flu vaccines to patients aged 5 years and older.⁸ Pharmacists are highly trained and accessible health care providers who are ideally positioned to provide flu vaccinations to the public. Their services are widely available, and they typically do not require an appointment for consultation.⁹ Despite the benefits of immunization, scepticism about vaccination and general inconvenience continue to deter people from getting vaccinated. Pharmacists are a well-respected educational resource for patients, with the potential

to positively influence immunization rates.¹⁰ They are able to advocate for the importance of immunization, dispel common misconceptions and screen for high-risk patients. As early as 1996, the American Pharmacists Association (APhA) had begun its training program for pharmacist-administered vaccinations. As a result, U.S. pharmacists have increasingly become recognized as vaccine experts.¹¹ In Canada, this change in scope has just recently been implemented but is rapidly expanding. By the end of the 2012–2013 flu season, more than 250,000 Ontarians were vaccinated by pharmacists, far exceeding the provincial government's initial target of 100,000.¹² In the 2013–2014 flu season, the demand for pharmacist-administered flu vaccination continued to increase. Close to 2000 pharmacies are participating in the current Universal Influenza Immunization Program (UIIP), and, as of the end of the 2014 flu season, approximately 764,000 Ontarians had received their flu shot at a community pharmacy (N. Pojskic, Ontario Pharmacists Association, personal communication, May 12, 2014).

Recognizing the increased public demand for pharmacist-administered immunization and the lack of Canadian research in this area, we designed a survey to address this deficit. Our goal was to identify the demographic characteristics and risk factors of patients receiving influenza vaccination in community pharmacies and to understand patient experiences and perceptions surrounding being vaccinated by a pharmacist.

Methods

Survey data were collected by pharmacists at 4 different community pharmacy locations in Toronto throughout a period of 8 weeks during October and November 2013. All patients immunized by the pharmacists were invited to complete a survey following vaccination. Participation in the survey was voluntary. Consent was considered implied if a completed survey was submitted. To maintain anonymity and reduce the possibility of responder bias, pharmacists left the room after offering patients a survey form. This provided the patient the opportunity to complete the survey in private. Patients were instructed to deposit completed forms into a sealed receptacle. Individual responses could not be attributed to a particular respondent. Data from completed surveys were aggregated, analyzed and reported using descriptive statistics.

Results

During the course of the 8-week data collection period, 2498 flu shots were administered among the 4 participating locations, and 1502 surveys were completed. Table 1 shows the demographic characteristics of the study population. Gender distribution was roughly equal, with 48 male respondents. The average respondent age was 49 years. Nearly one-half of respondents (47%) reported having risk factors that placed them at increased risk of influenza-related complications according to Public Health Agency of Canada criteria.¹¹ Risk factor distribution is detailed in Table 1. Table 2 summarizes responses to the 5 survey questions. The majority of patients reported being *very comfortable* (86%) or *comfortable* (14%) with being vaccinated by a pharmacist and were *very satisfied* (92%) or *satisfied* (8%) with the pharmacist's services and injection technique. Although the bulk of respondents (75%) reported being annual vaccine recipients, 7% of respondents were first-time vaccine recipients, and 17% were occasional vaccine recipients. Notably, nearly one-third of respondents (28%) indicated that they would not have been vaccinated this year if pharmacist-administered vaccination were not available. A subgroup analysis of the high-risk patients surveyed found that 20.7% did not receive vaccination on an annual basis, and 6% were first-time vaccine recipients. Twenty-one percent of high-risk patients reported that they would not have been vaccinated this season if pharmacist-administered vaccination were not available. Furthermore, nearly all patients (99%) reported that they would recommend that friends or family be vaccinated by a pharmacist. Space was provided on the survey for patients to enter comments. More than half of the respondents (52%) left written comments, the vast majority of which (97%) were favourable or appreciative in nature. Comments were categorized according to content and summarized in Table 2.

Discussion

During the 2012–2013 flu season, the first in which Ontario pharmacists were licensed to administer the flu shot, more than 250,000 Ontarians were vaccinated by pharmacists.¹² By the end of the 2013–2014 season, approximately 764,000 patients had received their vaccination at community pharmacies throughout Ontario. Given the rapid uptake by both the pharmacy

MISE EN PRATIQUE DES CONNAISSANCES



- Les patients qui reçoivent d'un pharmacien communautaire le vaccin contre la grippe saisonnière se disent très satisfaits. Les principaux facteurs qui contribuent à cette expérience positive sont la commodité et l'accessibilité.
- Une grande partie des patients, dont bon nombre présentent des risques élevés de complications grippales, ont indiqué qu'ils n'auraient pas reçu le vaccin antigrippal s'ils n'avaient pas pu le faire auprès d'un pharmacien.
- L'administration des vaccins par les pharmaciens pourrait être bénéfique à la santé publique, car elle permettrait d'augmenter les taux de vaccination chez les patients à haut risque et ceux qui reçoivent le vaccin pour la première fois ou occasionnellement.
- Les pharmaciens qui administrent le vaccin contre la grippe offrent aux patients un service précieux qui améliore l'accès à la vaccination et qui pourrait accroître les taux d'immunisation.
- Les patients verraient sans doute d'un bon œil que les pharmaciens administrent d'autres vaccins courants, ce qui améliorerait l'accès général à la vaccination.

TABLE 1 Patient demographics and risk factors

Total number of patients	1502
Average age (years)	48.7
Males	716 (47.7%)
Children or teens (5 to 17 years)	63 (4.2%)
Adults (18 to 64 years)	1127 (75.0%)
Seniors (65 years or older)	312 (20.8%)
Patients with risk factors	703 (46.8%)
Risk factors	
Heart disease	120 (19.4%)
Respiratory disease	76 (12.3%)
Diabetes	97 (15.7%)
Cancer or immunosuppression	59 (9.5%)
Anemia or blood disorder	32 (5.2%)
Morbid obesity	7 (1.1%)
Pregnancy	24 (3.9%)
Aboriginal	13 (2.1%)
Living in a nursing home	2 (0.3%)
Close contact with high-risk population	189 (30.5%)

TABLE 2 Survey responses

Survey analysis	
1. How comfortable were you with a pharmacist administrating the flu shot?	
Uncomfortable	0.3%
Comfortable	13.9%
Very comfortable	85.7%
2. Were you satisfied with the pharmacist's services and injection technique?	
Dissatisfied	0.0%
Satisfied	8.2%
Very satisfied	91.8%
3. How often do you get your flu shot?	
Never	7.3%
Occasionally	17.4%
Annually	75.2%
4. Would you have gotten the flu shot this year if it were not possible to have it administered at a community pharmacy?	
Yes	72.5%
No	27.5%
5. Would you recommend getting the flu shot from a pharmacist to your friends and family?	
Yes	98.7%
No	1.3%
Comment analysis	n = 775
Convenience	354 (45.7%)
Good technique	64 (8.3%)
Professionalism	107 (13.8%)
Other positive comments	226 (29.2%)
Feedback or suggestions	24 (3.1%)

profession and the public, and recognizing the lack of Canadian data in this area, we designed a survey to explore the patient perspective further. Specifically, we sought to identify the demographic characteristics and risk factors of patients receiving influenza vaccination in community pharmacies and to understand patient experiences and perceptions surrounding being vaccinated by a pharmacist. Our findings suggest that pharmacists provide a highly convenient option for seasonal flu vaccination that is viewed favourably by patients. Administration of the flu

vaccine by pharmacists has the potential to positively affect public health by improving vaccination rates. It is hoped that expanding pharmacist vaccination services to include administration of other common vaccines would receive similar positive reception.

A key factor in the continued success and expansion of pharmacy-based vaccination efforts is the acceptance by patients of the vaccination experience at the pharmacy. In this regard, our data showed an overwhelmingly high degree of patient satisfaction with

pharmacist-administered flu vaccination, with 92% of patients indicating they were very satisfied with the pharmacist's injection technique and the services they received at the pharmacy. Furthermore, 86% of patients reported being very comfortable with the experience of being vaccinated by a pharmacist, which suggests a high level of confidence in the ability of pharmacists to safely and effectively administer the flu vaccine. This confidence was also reflected in the finding that 99% of patients would recommend that friends and family be vaccinated by a pharmacist.

More than half (52%) of the patients surveyed took the time to leave a written comment about their vaccination experience. An analysis of the comments from patients provided additional insight into the factors contributing to the observed patient satisfaction. The convenience of pharmacist-administered vaccination, praised by 46% of commenters, appears to be a major contributor to patient satisfaction. Several patients also commented favourably on the pharmacist's injection technique (8% of comments) and the professionalism of the service they received (14% of comments). Most of the remaining comments (29%) were general ones expressing appreciation and thanks for the service. A small number of patients (3%) left comments that were either unrelated to the vaccination experience or more critical in nature (e.g., "the shot was painful"). It is noteworthy that none of the comments expressed dissatisfaction with pharmacist-administered vaccination, and, similarly, no patients reported being dissatisfied with the pharmacist's service or injection technique in response to survey question 2.

One of the desired outcomes of pharmacist-administered flu vaccination is improved accessibility and a consequent increase in overall vaccination rates. The high level of patient satisfaction we observed is encouraging in this regard, because it suggests that patients will continue to view their community pharmacists as trusted and reliable sources for flu vaccination during future seasons. Other survey data further support the notion that pharmacist administration may increase vaccination rates. Notably, nearly one-third (28%) of patients surveyed reported that they would not have been vaccinated this year if it had not been possible to be vaccinated at the pharmacy. This finding reflects the potential for pharmacists to significantly increase vaccination

rates by improving access to vaccines for the general public. Further to this point, a large proportion of patients surveyed (47%) had one or more risk factors for flu complications, or they were close contacts of high-risk individuals. The Public Health Agency of Canada states that it is particularly important for such individuals to be vaccinated against seasonal influenza. The convenience and accessibility afforded by pharmacy-based vaccination may be particularly beneficial to these high-risk individuals. It is reasonable to suggest that the same conditions that place these patients at increased risk for flu complications may limit their ability to access other, less convenient options for vaccination in the community. Consequently, pharmacy-based vaccination should be especially beneficial in increasing the vaccination rates of high-risk individuals. In this regard, we found that 21% of high-risk patients reported that they would not have been vaccinated this season if pharmacist-administered vaccination were not available. This number increases to almost 25% in those patients in the most common risk factor categories: heart disease, diabetes and respiratory disease. This finding further emphasizes the potential for pharmacist-administered vaccination to significantly affect public health by increasing vaccination rates among those at increased risk for flu complications.

Of particular interest is the population of patients surveyed who do not currently seek vaccination on an annual basis. The decision of these first-time or occasional vaccine recipients to seek vaccination in the future may be directly influenced by their present experience of being vaccinated by a pharmacist. Of the patients surveyed, 25% were not regular annual vaccine recipients, and 7% were first-time vaccine recipients. Moreover, of the high-risk patients surveyed, 21% did not receive vaccination on an annual basis, and 6% were first-time vaccine recipients. These findings suggest that occasional and even first-time vaccine recipients, including those at increased risk for flu complications, trust in the pharmacist's ability to administer the flu vaccine and are willing to take advantage of pharmacy-based vaccination opportunities. Furthermore, our data suggest that most first-time vaccine recipients had a positive experience receiving the flu vaccine from a pharmacist. Of first-time recipients, 98% reported they would recommend pharmacist-administered vaccination to friends and

family, and 17% left favourable written comments regarding the convenience of pharmacy-based vaccination. These findings suggest that pharmacy-based vaccination efforts may be useful in increasing vaccine uptake and promoting regular annual vaccination among patients who were not previously vaccinated on an annual basis. Similar findings were seen in a recently published 2-year community cluster-randomized trial in rural British Columbia.¹³ The investigators targeted the elderly and at-risk patients to assess the effectiveness of pharmacy-based flu clinics on improving vaccination rates. The intervention group promoted the immunization service to eligible patients through personalized pharmacist invitations, posters and the local media. The mean vaccination rate was 57% in the control group and 80% in the intervention group for those ≥ 65 years of age. The authors concluded that pharmacist-led flu clinics, supported by proper awareness campaigns, are effective at increasing vaccination rates, particularly among elderly patients.

Limitations

One of the main limitations of our study is the possibility of selection bias with regard to favourable survey responses. It is reasonable to assume that only patients who were already comfortable with the notion of being vaccinated by a pharmacist would have sought vaccination from a pharmacist in the first place. That being said, we note that patient opinions on factors such as pharmacist professionalism, injection technique and the overall experience of being vaccinated by a pharmacist would largely be formed *after* vaccination and would likely be relatively independent of a patient's preconceived comfort level with pharmacists as vaccinators. We acknowledge that our design only captures the impressions of patients who sought vaccination from pharmacists. Our data do not represent the impressions of the general public regarding pharmacist-administered vaccination, although this would be an interesting topic for future study.

Bias in our data may also result from patients feeling compelled to respond favourably to avoid disappointing or offending observers. We attempted to minimize this type of responder bias by allowing patients to complete the surveys privately and anonymously. We do acknowledge that, as with all designs of this nature, it is nearly impossible to entirely eliminate this type of bias. A related source of bias is the exclusion of data from patients who declined to complete the survey (who may have had unfavourable impressions). We acknowledge that such bias could affect our results, although the actual magnitude of its impact is likely small because the response rate was very high. In this regard, we note that although 2498 patients were vaccinated during the study period and only 1502 surveys were completed, not all of the 2498 patients were asked to complete a survey. This occurred because not all of the vaccinating pharmacists at the research sites were actually involved with the research project. Although we did not record how many patients were invited to participate in the study and thus cannot report an actual response rate, anecdotally the research pharmacists confirmed that very few patients declined to complete the survey when invited.

Conclusion

Pharmacists are highly trained and accessible health care providers who are ideally positioned to provide flu vaccinations to the public. Our findings suggest that pharmacists provide a convenient and accessible alternative for seasonal flu vaccination that is viewed favourably by patients. Administration of the flu vaccine by pharmacists has the potential to positively affect public health by improving vaccination rates among high-risk patients and first-time or occasional vaccine recipients. It is hoped that expanding pharmacist vaccination services to include administration of other common vaccines would receive similar positive reception by patients and improve overall access to vaccination. ■

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