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Pharmacy patron perspectives of community pharmacist administered influenza vaccinations

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ABSTRACT

Background: One approach to boost influenza vaccination coverage has been to expand immunization authority. In 2012, the province of Ontario gave community pharmacists the authority to administer the influenza vaccine.

Objective: This study investigates the perspectives of Ontario pharmacy patrons, who had not recently received this vaccine from a pharmacist, regarding this pharmacist service.

Methods: A survey was administered in six Ontario community pharmacies to pharmacy patrons who had not received an influenza vaccination from a pharmacist during the previous year. The instrument included questions about influenza vaccination, and knowledge of and attitudes toward vaccines and pharmacist-administered immunization.

Results: A total of 541 pharmacy patrons completed the survey (53.9% response rate). About one-third (30.5%) of respondents were not aware that pharmacists could give the influenza vaccine, with younger individuals being less likely to be aware (OR 0.48, 95% CI 0.29–0.77, p<0.05) and less likely to receive the vaccine annually (OR 0.28, 95% CI 0.19–0.42, p<0.05). Leading reasons respondents gave as to why they did not receive their influenza vaccine from a pharmacist included not wanting or feeling they needed to be immunized (41.6%) and being used to receiving the vaccine from a physician (16.5%). Concerns about the experience and training of pharmacists and lack of privacy in a community pharmacy were uncommon.

Conclusion: Reduced awareness of the availability of pharmacist-provided influenza vaccine is still common. Pharmacists have a significant opportunity to address lack of awareness and vaccine hesitancy issues. They can promote this service to increase influenza vaccination rates among pharmacy patrons who do not utilize this professional service.

Keywords: Pharmacist, immunization, influenza, patrons, patients, survey, awareness, vaccine hesitancy

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Highlights:

- The public’s awareness of pharmacist-administered vaccinations can be further enhanced
- Vaccine hesitancy is a common reason why individuals are not being vaccinated by pharmacists
- Pharmacy patrons indicate they would get vaccinated if a health care professional recommended it
- Enhanced advertising and accessibility might further attract the public to this pharmacist service
INTRODUCTION

Pharmacist scope of practice has expanded greatly in North America over the past 20 years and with it a gamut of professional services that community pharmacists can provide. These services include renewal and extension of prescriptions as well as administration of vaccines.\(^1\) In the United States, pharmacists have been allowed to vaccinate in some jurisdictions since the mid-1990s. By 2009, all 52 states and territories had granted pharmacists the authority to immunize. Nonetheless, the vaccine type, extent of authority, and restrictions on the age of immunization recipients vary from one state to the next. However, regardless of jurisdiction, all community pharmacists in the United States can administer the influenza vaccine.\(^2\) An increasing number of countries now allow pharmacists to administer influenza vaccinations.\(^3\) In Canada, pharmacist immunization authority has grown from two provinces in 2009, driven in part by a need to respond to the anticipated H1N1 pandemic,\(^4,5\) to nine of ten provinces as of 2016.\(^1\) In Ontario — Canada’s most populous province — pharmacists were granted the authority to administer the influenza vaccine during the fall of 2012. Pharmacists gave some 250,000 influenza shots that year - a figure that tripled to 750,000 doses during the next influenza season.\(^6\) Several studies and systematic reviews have documented the impact this North American-wide expansion of pharmacist’s immunization authority has had on increasing influenza vaccination rates substantially.\(^7-13\) However, further enhancement of influenza vaccination rates is still needed. The most recent estimates from the Canadian population in 2013 revealed that only 31% received seasonal influenza vaccine in the previous 12 months.\(^14\)

Understanding the public’s perception of the role of pharmacists as immunizers can enhance uptake of this service and address concerns the public may have. Previous studies of clients who had received a pharmacist-administered vaccine found high satisfaction levels, great appreciation of the knowledge and professionalism of pharmacists, high levels of intent to return to a pharmacist for future immunizations, and willingness to recommend pharmacists as immunizers to others.\(^15-23\) However, these studies did not explore the reasons of not receiving a vaccination from a pharmacist among individuals who did not get this service. Blake et al\(^15\) documented that even among patients who received immunizations from their pharmacist...
within a family health team, in a jurisdiction where the service was recently introduced, few
individuals were able to recall that pharmacists can administer vaccines. Patients also
expressed concerns that community pharmacies were not an appropriate venue to receive a
vaccine. Additionally, they questioned whether pharmacists were qualified to immunize. While
the literature offers insight into the experience of individuals who have been immunized by a
pharmacist, gaps remain in understanding why individuals have not participated in pharmacist-
administered influenza vaccinations, especially in a community pharmacy setting.

As the province of Ontario had recently granted pharmacists the authority to provide influenza
immunizations, we had an opportunity to capture the perspectives of pharmacy patrons about
this new professional service. Accordingly, the aims of this study were to determine (1) the
proportion of pharmacy patrons who were aware that pharmacists are able to administer the
influenza vaccine, (2) factors and changes that need to be made for pharmacy patrons to
increase willingness to access this service in the future, and (3) if the age of pharmacy patrons
affects their awareness and perceptions of pharmacist-administered influenza immunizations.

METHODS

This was a quantitative cross-sectional survey study conducted over a period of two weeks
(September 18th to October 1st) after the 2013/14 influenza season and prior to the 2014/15
influenza season (when influenza vaccines are usually administered) at six community
pharmacies in the Greater Toronto Area—Canada’s most populous metropolitan region with
more than 2,400 pharmacies. These community pharmacies belong to the largest national retail
chain in Canada. The sample of six pharmacies was a convenience sample that was selected to
include both urban and suburban locations and had offered immunizations during the previous
influenza season. Pharmacy patrons aged 18 or older, can communicate in English, and who
had not received the influenza vaccination from a pharmacist during the past year were eligible
to be included in the study.

The survey used in this study was developed specifically for this study. This survey sought to
assess awareness, experience, attitudes, and beliefs about pharmacists as immunizers among
pharmacy patrons who had not received the influenza vaccine from a pharmacist within the
past year. The survey included questions on knowledge of pharmacists as immunizers, influenza vaccination experience (how often, from which healthcare providers in the past/future), attitudes toward pharmacists as immunizers (willingness to receive the vaccine from a pharmacist, changes that might increase the likelihood of receiving the vaccine from a pharmacist), general attitudes toward vaccines, and personal demographics. Respondents could choose one or more answers to the same question in the survey. Modifications to the survey were made based on qualitative feedback obtained from pilot testing with five pharmacists, pharmacy students and non-pharmacist research staff. Both face and content validity were examined in this pilot testing. The modified survey was then used in the study.

As previous research has noted concerns regarding bias in pharmacist-administered surveys of client perspectives, a research assistant—who had not been in, employed by, or involved with any of the six community pharmacies previously-administered the survey. The research assistant spent two days at each community pharmacy. Adult pharmacy patrons who were in the pharmacy but were not receiving a professional pharmacist’s service were approached and informed, using scripted words, of the purpose of the survey and asked if they would be willing to answer an eligibility question. Those who met the inclusion criteria and agreed to participate were given a handout outlining the study and consent details. Participants were offered the option to complete a paper or iPad version of the questionnaire in the store, or to provide their email address to complete the questionnaire by email within the next week. All versions of the questionnaire were identical. Survey questions are available in Appendix 1. Both the iPad and emailed versions of the survey were delivered using Qualtrics online survey software (Provo, Utah, USA). All participants were thanked and offered nominal compensation (piece of candy) in appreciation of their participation. The study received approval from human research ethics boards at the University of Waterloo and University of Toronto.

Frequencies and percentages from survey responses were analyzed using SAS 9.4 (SAS Institute Inc., Cary, NC, USA). Differences in frequency distributions between older participants (≥ 65) and younger participants (<65) were assessed using the chi-square test, and relative risk was estimated by calculating odds ratios (ORs) with 95% confidence intervals (95% CI).
RESULTS

In total, 1,004 individuals from six community pharmacies were invited to participate in the survey. Of these, 72 (7.1%) were ineligible because they had been vaccinated by a pharmacist in the past year and 391 (38.9%) either declined to participate immediately or did not respond to the email directing them to the questionnaire. In total, 541 (53.9% of invited individuals) completed the survey using the paper (n=433, 80.0%), iPad (n=93, 17.2%) or the emailed version (n=15, 2.8%). Of the 90 individuals who provided an email address, 82 emails were delivered (8 bounced back) and 15 (16.7%) responded to the survey invitation. Almost two-thirds of the survey sample (n=346, 64%) were female, 398 (73.6%) were less than 65 years old, and 262 (48.4%) were born outside Canada. Respondent characteristics are provided in Table 1.

Table 1: Survey participant demographics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n=541)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>15 (2.8%)</td>
</tr>
<tr>
<td>18–25</td>
<td>48 (8.9%)</td>
</tr>
<tr>
<td>26–40</td>
<td>125 (23.1%)</td>
</tr>
<tr>
<td>41–55</td>
<td>149 (27.5%)</td>
</tr>
<tr>
<td>56–64</td>
<td>76 (14%)</td>
</tr>
<tr>
<td>65–79</td>
<td>103 (19%)</td>
</tr>
<tr>
<td>80+</td>
<td>25 (4.6%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>11 (2%)</td>
</tr>
<tr>
<td>Man</td>
<td>182 (33.6%)</td>
</tr>
<tr>
<td>Woman</td>
<td>346 (64%)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (0.4%)</td>
</tr>
<tr>
<td>Born in Canada?</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>13 (2.4%)</td>
</tr>
<tr>
<td>Yes</td>
<td>266 (49.2%)</td>
</tr>
<tr>
<td>No</td>
<td>262 (48.4%)</td>
</tr>
<tr>
<td>Ethnic origin</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>16 (3.0%)</td>
</tr>
<tr>
<td>Aboriginal/First Nations/Metis</td>
<td>3 (0.6%)</td>
</tr>
<tr>
<td>Latin/Central/South American</td>
<td>22 (4.1%)</td>
</tr>
<tr>
<td>North American</td>
<td>176 (32.5%)</td>
</tr>
<tr>
<td>Caribbean</td>
<td>31 (5.7%)</td>
</tr>
<tr>
<td>Asian (includes Middle East, South Asia, etc.)</td>
<td>104 (19.2%)</td>
</tr>
<tr>
<td>African</td>
<td>21 (3.9%)</td>
</tr>
<tr>
<td>European</td>
<td>165 (30.5%)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (0.6%)</td>
</tr>
</tbody>
</table>
Almost two-thirds of respondents (n=333, 61.6%) indicated they were either likely or very likely to get a vaccine that had been recommended by a health professional. A small proportion of individuals indicated that they were unlikely or very unlikely to get a vaccine that has been recommended by a health professional (n=69, 12.8%). More than one-third of respondents reported that they had never received an influenza vaccination (n=200, 37.0%), whereas 185 (34.2%) indicated they receive it every year. The remainder of respondents either received the vaccine occasionally every 2 to 3 years (n=116, 21.4%), received it last year for the first time (n=13, 2.4%), or planned on getting it for the first time this year (n=15, 2.8%).

Younger individuals (<65) were less likely to receive the vaccine every year than were individuals 65 years or older (OR 0.28, 95% CI: 0.19–0.42, p<0.01). However, sex and place of birth did not affect the likelihood of receiving the vaccine every year (OR 1.18, 95% CI: 0.81–1.72, p=0.38 for male vs. female and OR 1.02, 95% CI: 0.71–1.46, p=0.91 for patrons born in Canada vs. patrons born outside of Canada). The family physician’s office was the most common location to receive the vaccine (n= 183, 33.8%), followed by the workplace (n=32, 5.9%) and public health clinics (n=14, 2.6%). Few individuals indicated that they are at higher risk of contracting influenza or experiencing influenza-related complications because of a weakened immune system (e.g., due to illness or treatments) (n= 32, 5.9%), having a chronic illness (e.g., diabetes or hypertension) (n=48, 8.9%), or being pregnant (n=7, 1.3%).

Slightly less than one-third of respondents (n=165, 30.5%) indicated that they were not aware that pharmacists could administer the influenza vaccine. Younger individuals (<65) were even less likely to be aware of the availability of vaccination through pharmacists (OR 0.48, 95% CI 0.29 to 0.77, p<0.01). Among respondents who were aware that pharmacists could administer the influenza vaccine, individuals were made aware mainly by TV or radio advertisements (n=147, 39.1%), or directly from the pharmacy itself (n=143, 38.0%). Other means of awareness included word of mouth (n=62, 16.5%), newspaper ads (n=53, 14.1%), and doctors’ offices (n=34, 9.0%).
The most common reasons survey respondents provided for not receiving the vaccine from community pharmacists was not wanting or needing the influenza vaccine (n=225, 41.6%), not having the knowledge that pharmacists can administer the vaccine (n=98, 18.1%), being more accustomed to getting the vaccine from a doctor or nurse (n=89, 16.5%), or finding influenza vaccination to be more convenient from a doctor or a nurse (n=63, 11.6%). Pharmacy-specific concerns such as potential lack of privacy (n=7, 1.3%) or inadequate pharmacist experience (n=6, 1.1%), and training to provide the vaccine (n=2, 0.4%) were expressed uncommonly. Table 2 provides all patron responses for not receiving the influenza vaccine from a community pharmacist.

**Table 2**: Pharmacy patron reasons for not getting the flu shot from a pharmacist in the past year

<table>
<thead>
<tr>
<th>Reason (More than one reason could be chosen)</th>
<th>Frequency (n=541)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not want/need the flu shot</td>
<td>225 (41.6%)</td>
</tr>
<tr>
<td>I did not know pharmacists provided the flu shot</td>
<td>98 (18.1%)</td>
</tr>
<tr>
<td>I’m used to getting it from my doctor/nurse</td>
<td>89 (16.5%)</td>
</tr>
<tr>
<td>It’s more convenient to get from my doctor/nurse</td>
<td>63 (11.6%)</td>
</tr>
<tr>
<td>Other</td>
<td>54 (10%)</td>
</tr>
<tr>
<td>No reason, it just did not happen</td>
<td>37 (6.8%)</td>
</tr>
<tr>
<td>I have more trust in my doctor/nurse</td>
<td>29 (5.4%)</td>
</tr>
<tr>
<td>I got elsewhere</td>
<td>26 (4.8%)</td>
</tr>
<tr>
<td>Not enough privacy at a pharmacy</td>
<td>7 (1.3%)</td>
</tr>
<tr>
<td>Pharmacists do not have enough experience in this area</td>
<td>6 (1.1%)</td>
</tr>
<tr>
<td>Pharmacists do not have enough training in this area</td>
<td>2 (0.4%)</td>
</tr>
<tr>
<td>The wait time is too long in a pharmacy</td>
<td>2 (0.4%)</td>
</tr>
<tr>
<td>It’s difficult to get to the pharmacy</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

The family doctor’s office was the most common intended future location for influenza vaccination among respondents (n= 144, 26.6%), with community pharmacies at 11.5% (n=62). Work place (n=28, 5.2%) and public health clinics (n=6, 1.1%) being lower preference locations.

When asked about future intention to be immunized, 55.7% (n=301) of respondents indicated they would be willing to receive the influenza vaccine from a pharmacist and 5.9% (n=32)
indicated they might be willing. About one-third of the respondents (n=186, 34.4%) stated that no specific factor would increase their willingness to get the influenza vaccine from a pharmacist. Of these respondents, two-thirds (65.6%, n=122) reported not wanting or needing the influenza vaccine as the primary reason for not getting vaccinated by a pharmacist and 94.6% (n=176) expressed a complete lack of interest in influenza vaccination by indicating “Nowhere (will not get it)” to the question that asked “Where do you plan to get the flu shot this year?” Almost two-thirds of these individuals had never had an influenza vaccination before (n=116, 62.4%).

Slightly more than one-third of respondents (n=192, 35.5%) indicated that they visit their community pharmacy at least once a week, with younger individuals (<65) being less likely than their older counterparts to do so (OR 0.45, 95% CI: 0.30–0.67, p<0.01). Among respondents, 42.1% (n=228) reported visiting their community pharmacy at least once a month and 20.5% (n=111) reporting that they visit a few times a year. More flexible or extended hours (n=61, 11.3%), shorter wait times (n=64, 11.8%), and more privacy at pharmacies (n=57, 10.5%) were reported as specific factors that would increase the willingness of individuals to get the flu shot from a pharmacist. Table 3 provides the factors respondents indicated would increase patron willingness to get the influenza vaccine from a pharmacist.

Table 3: Factors that would increase pharmacy patron willingness to get the flu shot from a pharmacist

<table>
<thead>
<tr>
<th>Factor (More than one factor could be chosen)</th>
<th>Frequency (n=541)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing, I will not get a flu shot</td>
<td>186 (34.4%)</td>
</tr>
<tr>
<td>Increased advertising/promotion</td>
<td>74 (13.7%)</td>
</tr>
<tr>
<td>More flexible or extended hours (evenings, walk ins)</td>
<td>64 (11.8%)</td>
</tr>
<tr>
<td>Shorter wait times</td>
<td>61 (11.3%)</td>
</tr>
<tr>
<td>A more private space to get the shot</td>
<td>57 (10.5%)</td>
</tr>
<tr>
<td>Increased pharmacists’ experience</td>
<td>40 (7.4%)</td>
</tr>
<tr>
<td>More flu clinics in the pharmacy</td>
<td>40 (7.4%)</td>
</tr>
<tr>
<td>The option to make an appointment with the pharmacist</td>
<td>36 (6.7%)</td>
</tr>
<tr>
<td>Increased pharmacists’ training</td>
<td>31 (5.7%)</td>
</tr>
<tr>
<td>More time to talk with the pharmacist about the flu shot</td>
<td>16 (3%)</td>
</tr>
</tbody>
</table>
DISCUSSION

We demonstrate in this cross-sectional survey study that, almost one year after the introduction of influenza vaccination service by pharmacists in community pharmacies, two barriers to immunization at a community pharmacy still exist: lack of awareness of pharmacist-administered immunization and perceived lack of necessity (i.e. complacency) to be vaccinated, both in general and at pharmacies. Influenza vaccination is the most effective public health measure to prevent influenza morbidity and mortality, work absenteeism, and lost productivity and earnings the illness causes. In 2000, Ontario’s Ministry of Health and Long-Term Care launched the Universal Influenza Immunization Program to provide free influenza vaccinations in physician offices, public health clinics, and workplaces to all Ontarians aged 6 months and older. To increase immunization coverage, in 2012 the Ministry gave injection-certified pharmacists the authority to immunize Ontarians aged 5 years or older. Pharmacists and community pharmacies were targeted, as both this healthcare profession and the sites where many practice are highly accessible. Indeed, 91% of Ontario residents live within 5 km of a pharmacy and 65% live within 800 meters. Moreover, community pharmacies typically have more convenient hours of operation than physician offices and public health clinics. Some 51% of Canadians visit a community pharmacy at least once a month. Most pharmacies are open during evenings and weekends, and appointments are often unnecessary for services pharmacists provide.

During the second year that Ontario’s community pharmacists could offer influenza immunizations, some 750,000 doses were administered during that influenza season, with approximately 50% of community pharmacies offering this new service. Although studies have found that recipients of pharmacist-administered vaccinations are very satisfied with the service, our study demonstrated that increasing the public’s awareness about this service is required.

Our survey revealed that about one-third of respondents were unaware of the service, even among individuals who visit the pharmacy. Awareness was lower among younger individuals, which may reflect their reduced interest in influenza vaccination in general, as these individuals
were also less likely to receive the vaccine every year regardless of vaccination venue. Chain, franchise, and independent community pharmacies may be able to overcome lack of awareness by improving their promotional efforts. Our survey revealed that a similar proportion of respondents became aware of the availability of pharmacist immunization through radio and TV advertisements as from in-pharmacy contact and promotion. Increased advertisement was reported as the factor with the highest potential to increase willingness to receive a vaccination from a pharmacist. The next two most important factors were extending hours and shortening wait times, both of which underscore the importance of highlighting the convenience of community pharmacies when developing influenza immunization promotional materials.

As the collective public health goal of influenza immunization is to have everyone immunized each season, the venue where they are immunized is less important that they get immunized. Knowing that some clients will value pharmacist-provided vaccination based on convenience and that previous research shows that recipients are highly satisfied with pharmacist-administered immunizations, public health officials and other primary care providers (i.e. family physicians and nurse practitioners) should promote pharmacist-administered vaccination to increase public awareness and uptake of this service. Vice versa, with some survey respondents indicating that they prefer to get vaccinated in their physician’s office, in the workplace or with public health, it is important for pharmacists to support and encourage these immunization venues.

The SAGE working group states that “vaccination complacency exists where perceived risks of vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action”. In our survey, more than one-third of respondents (n=225, 41.6%) indicated not wanting or needing the influenza vaccine as the reason for not receiving the vaccine from a pharmacist, a finding consistent with the published literature across all HCPs who provide the vaccination. About one-third of respondents indicated they would not receive the influenza vaccine anywhere, yet 61.6% of respondents indicated that if a healthcare provider recommended a vaccine they would get vaccinated. These findings highlight the need for healthcare providers to distinguish the outright refusal from those who could be persuaded to
receive the vaccine. Research is limited regarding pharmacist’s training, role, strategies and
successes in overcoming vaccine hesitancy. However, given the high level of public trust
pharmacists enjoy,\textsuperscript{39} and the frequent opportunities they have to talk to the public and those at
high risk of getting influenza, pharmacists could be quite successful in overcoming vaccine
hesitancy.

Understanding the perspectives of different age groups could help pharmacists better target
their efforts. Although younger individuals visit pharmacies less often, they indicated they were
more likely to receive the influenza vaccine from a pharmacist in the future than were
individuals 65 years of age or older. In contrast, older individuals reported they valued
convenience and being accustomed to receiving the influenza vaccination from their physician
or nurse and identified few factors that would increase their willingness to get the influenza
vaccine from a pharmacist.

When asked why they did not get the influenza vaccine from a pharmacist, few respondents
expressed concerns about inadequate privacy or pharmacists not having sufficient experience
or training to immunize. However, pharmacists should be prepared to address privacy concerns
and reassure clients that they are professionally competent to provide immunizations.

The study has several limitations. Although pharmacy patrons were surveyed at six community
pharmacies, individuals who completed the survey were customers in a single retail pharmacy
chain. Surveys at other pharmacies or pharmacy chains could have yielded different findings.
Moreover, the survey was conducted using a small convenience sample of six pharmacies in the
Greater Toronto Area, Canada’s most diverse and populous city. Thus, our findings may not be
generalizable to smaller, rural communities.

\textbf{CONCLUSION}

Lack of public awareness about the availability of influenza vaccine administration by
pharmacists is common, especially among younger patrons. It is essential for pharmacists to
promote this service to increase influenza vaccination rates and for other healthcare
professionals to support pharmacists as one of several healthcare providers who offer this
important public health service. Pharmacists have an opportunity to address vaccine hesitancy issues, both in general and those that are pharmacy specific, and to promote influenza vaccination to pharmacy patrons who have not taken advantage of this recent professional service.

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Author contributions
DC and LW were responsible for the design and delivery of the survey. MWA was responsible for the data analysis and drafting of the manuscript. All other authors conceptualized the project, designed the survey, and contributed to the completed manuscript.
References


