Evidence for pharmacist vaccination

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Introduction

The development of vaccines and immunization programs has been one of the most important innovations in health care, resulting in control of once common vaccine-preventable diseases associated with significant morbidity and mortality. Despite this, immunization programs remain underused, so that many Canadians continue to experience unnecessary complications associated with diseases such as measles, pertussis, mumps and varicella. Adult immunization programs are a particular challenge. Data from the 2012 adult National Immunization Coverage Survey indicate that only 40% of Canadians between the ages of 18 and 64 years are fully immunized against hepatitis and that only 38% of those at risk have received pneumococcal vaccine.¹ Likewise, only 37% of at-risk adults under 65 years report receiving their annual influenza vaccine.¹

Traditionally, immunization programs have relied on public health or individual physicians to deliver vaccines. While these means have been effective in reaching some groups, such as children, many hard-to-reach populations, such as those in rural areas, healthy working adults and those without primary care providers, have been missed.²

Historically, pharmacist involvement in immunization programs was related to distribution of vaccines. Although this important role continues, more recently pharmacists have assumed additional responsibilities as educators, facilitators (hosting traditional providers in pharmacy-based clinics) and administrators, as legislation permits.³ Given that pharmacists are trusted and accessible health care providers, they have the potential to improve overall immunization rates, especially among hard-to-reach populations.⁴

Many studies have evaluated pharmacists' involvement in immunization. We completed a systematic review and meta-analysis of the

impact of pharmacists in their various immunization roles (see infographic on next page).

Methods

The research methods (search strategy, study selection and data extraction) and results are available in detail in the original publication.⁵ Briefly, PubMed, EMBASE, Cochrane Libraries, Cumulative Index to Nursing and Allied Health Literature, International Pharmaceutical Abstracts and Google Scholar were searched from inception until October 2015. Grey literature searches and hand searches of journals and publications of interest were also completed. Inclusion criteria were clinical or epidemiologic studies in which pharmacists were involved in the immunization process.

Results of the systematic review with meta-analysis

General characteristics of the studies

Thirty-six studies assessing the role of pharmacists in immunization were identified. Twenty-two of the studies assessed the role of pharmacists as educators and/or facilitators and 14 assessed their role as administrators of vaccines. Most studies were completed in the United States and only one was completed in Canada. Twenty-seven of the studies were nonrandomized, 3 were cluster randomized and 6 were randomized controlled trials. Most studies evaluated the role of pharmacists in providing influenza and pneumococcal vaccines; however, 3 studies evaluated zoster provision either alone or in combination with other vaccines and 1 study looked at provision of the tetanus, diphtheria and pertussis vaccine. Study settings were diverse and included community pharmacies, long-term care facilities, specialty clinics (e.g., diabetes clinics) and hospitals. See Tables 1 and 2 in the original publication for details on individual studies included.⁵

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Impact of Pharmacists as Immunizers

A Systemic Review and Meta-Analysis

Goal: Complete a systematic review and meta-analysis on the impact of pharmacists as immunizers on immunization rates

Study Methods:

Pharmacists as Immunizers Resulted in Increased Immunization Rates

Isenor et al. Vaccine. October 2016

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Characteristics of interventions

Interventions were diverse between studies, with many studies using a combination of strategies. The interventions included the following:

1. Patient education/counselling provided in person or by phone ($n = 6$)
2. Patient screening with personalized mailouts and generic mailouts ($n = 6$)
3. Patient assessment by pharmacist with orders written for nurse administration, administration by pharmacist or recommendation provided to the primary care provider ($n = 23$)
4. Pharmacist-led standing orders, vaccines administered by nurse or pharmacist ($n = 3$)
5. Advertising in the media ($n = 1$)

Effect on immunization coverage

All studies demonstrated an increase in vaccine coverage when pharmacists were involved in the immunization process, regardless of role (educator, facilitator, administrator), setting or vaccine administered, compared to vaccine provision by traditional providers without pharmacist involvement. Pooled analysis of the 4 randomized controlled trials evaluating pharmacists as educators and facilitators demonstrated a statistically significant increase in immunization rates with the addition of pharmacists (relative risk [RR], 2.96; 95% confidence interval [CI], 1.02-8.59), with similar results seen in the 2 randomized controlled trials evaluating pharmacists as vaccine administrators (RR, 2.64; 95% CI, 1.81-3.85). Pooled analysis of all 6 randomized controlled trials demonstrated a statistically significant increase in immunization rates with the addition of pharmacists as educators, facilitators and administrators (RR, 2.74; 95% CI, 1.58-4.74).⁵ See Figure 2 in the original publication to view the forest plot of the pooled analyses.⁵

Other outcomes of interest, such as safety and incidence of vaccine-preventable morbidity and mortality, were evaluated by very few studies. Four studies evaluated adverse events following immunization and reported no change in adverse events with the addition of pharmacists. One study evaluated clinical outcomes and found a decreased risk of self-reported influenza-like illness with the addition of pharmacists as immunization educators and/or facilitators.

Discussion

Based on results from this large systematic review of 36 studies, pharmacist involvement in immunization, whether as an educator, facilitator or administrator, increased vaccine uptake (RR, 2.74; 95% CI, 1.58-4.74). Although only one study evaluated clinical outcomes, improving overall immunization rates is known to decrease the overall burden of vaccine-preventable diseases and related morbidity and mortality.^{6,7}

Most studies included in this review were conducted in the United States, where the role of pharmacists as immunizers has been successfully implemented since 1995.⁸ Recent Canadian data, not included in this systematic review, support generalizability of these results in the Canadian context, as increased vaccination rates for influenza vaccines were observed with the addition of pharmacists as immunizers.⁹⁻¹¹

Implications

Pharmacists should be involved with immunization in whatever ways their legislation allows and however they are competent and comfortable. Those pharmacists without legislative authority or who are not comfortable injecting can play an important role in providing immunization education and facilitating immunization, as these roles have also been shown in this systematic review and meta-analysis to increase vaccine coverage.

The evidence from the review also supports the role of pharmacists in providing vaccines beyond influenza vaccines; however, few Canadian jurisdictions allow pharmacists to provide publicly funded vaccines beyond influenza. A report by The Conference Board of Canada specifically evaluated the impact pharmacists in Canada could have on the provision of pneumococcal vaccination, with their modelling finding that the addition of pharmacists would result in a reduction of hospitalizations for pneumonia, decreased mortality and cost savings.¹²

Conclusion

Research evidence strongly supports immunization by pharmacists to improve vaccination rates. The positive effects were seen regardless of the role played (educator, facilitator and administrator), the vaccine administered or the setting. Expanding the range of publicly funded vaccines

that can be administered by pharmacists has potential to reduce vaccine-preventable diseases

and complications through increased uptake. Further study is needed in this area in Canada. ■

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