

# A survey of Alberta pharmacists' actions and opinions regarding administering drugs by injection

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## Background

Pharmacists in Alberta can administer a wide variety of medications by injection; however, the provision of this service and their opinions regarding this service are unknown. Understanding the experiences of pharmacists in Alberta regarding injection services would inform development of strategies to improve delivery of injection services

This project is part of a larger program of research examining pneumococcal vaccine rates in people 65 years of age and older. Although guidelines recommend everyone 65 years and older receive a pneumococcal vaccine, less than 60% have. This is an important treatment gap because the Public Health Agency of Canada set a target of 80% coverage.

Pharmacists are uniquely equipped to address this gap in coverage due to their accessibility to patients in the community and growing recognition as resources for vaccinations. This study is an initial step in developing an intervention program to address the pneumococcal vaccine coverage gap. To address this gap, we must first understand the opinions, and actions regarding administering of injection services by Alberta pharmacists.

## Objectives

The objectives are:

1. to describe the frequency and types of medications pharmacists administer by injection, and
2. to identify perceived barriers and facilitators pharmacists face when providing injection services.

## Hypothesis

1. Pharmacists administer pneumococcal vaccines (PPSV23 and PCV13) as the second-most frequent injection after influenza vaccine.
2. The frequency that pharmacists use their authorization to inject is associated with the perception of barriers.

## Methods

An online survey was developed and distributed in Redcap software using previous literature regarding pharmacist provided injection services in the United States and Canada. A comprehensive list of medications was developed using Alberta Health guidelines and consultation with community pharmacists. Email invitations were sent to 5714 Alberta pharmacists.

Participants indicated their perceptions about three category of barriers (storage, practice-related, organization-related), benefits of providing injection services and strategies to promote injections services at community pharmacies. Each category of questions of analyzed separately, and respondents were excluded if they did not provide an answer to one or more questions within the category. Responses were assessed using descriptive statistics.

Pharmacists who administered at least one injection in the previous year were considered active providers and their opinions regarding injection services were compared to non-active providers. Statistical differences in perceived barriers between active and non-active providers were analyzed using Kruskal-Wallis H-tests. In addition, we stratified the Active Provider group according to number of injections in the previous year: Infrequent Providers administered 1 to 48 injections, Moderately Active Providers administered 49 to 150 injections, and Highly Active Providers administered over 150 injections. Mann-Whitney U-tests were performed to explore statistical differences in perceived barriers and the frequency of injections provided.

## Results

	Non-active	Active	Overall
Observations	44	353	397
Age, mean (sd)	48 (10)	41 (11)	42 (11)
Years as Pharmacist, mean (sd)	23 (11)	15 (12)	16 (12)
Females (%)	81%	65%	66%
Canadian Pharmacy Graduate (%)	90%	76%	76%
Authorization to administer medications by injection	-	100%	91%
Additional prescribing authorization (%)	57%	66%	65%
Community pharmacists (%)	37%	88%	82%

Figure 1: Proportion of active providers who administered or plan to administer a medication by injection in the past year (n=353)

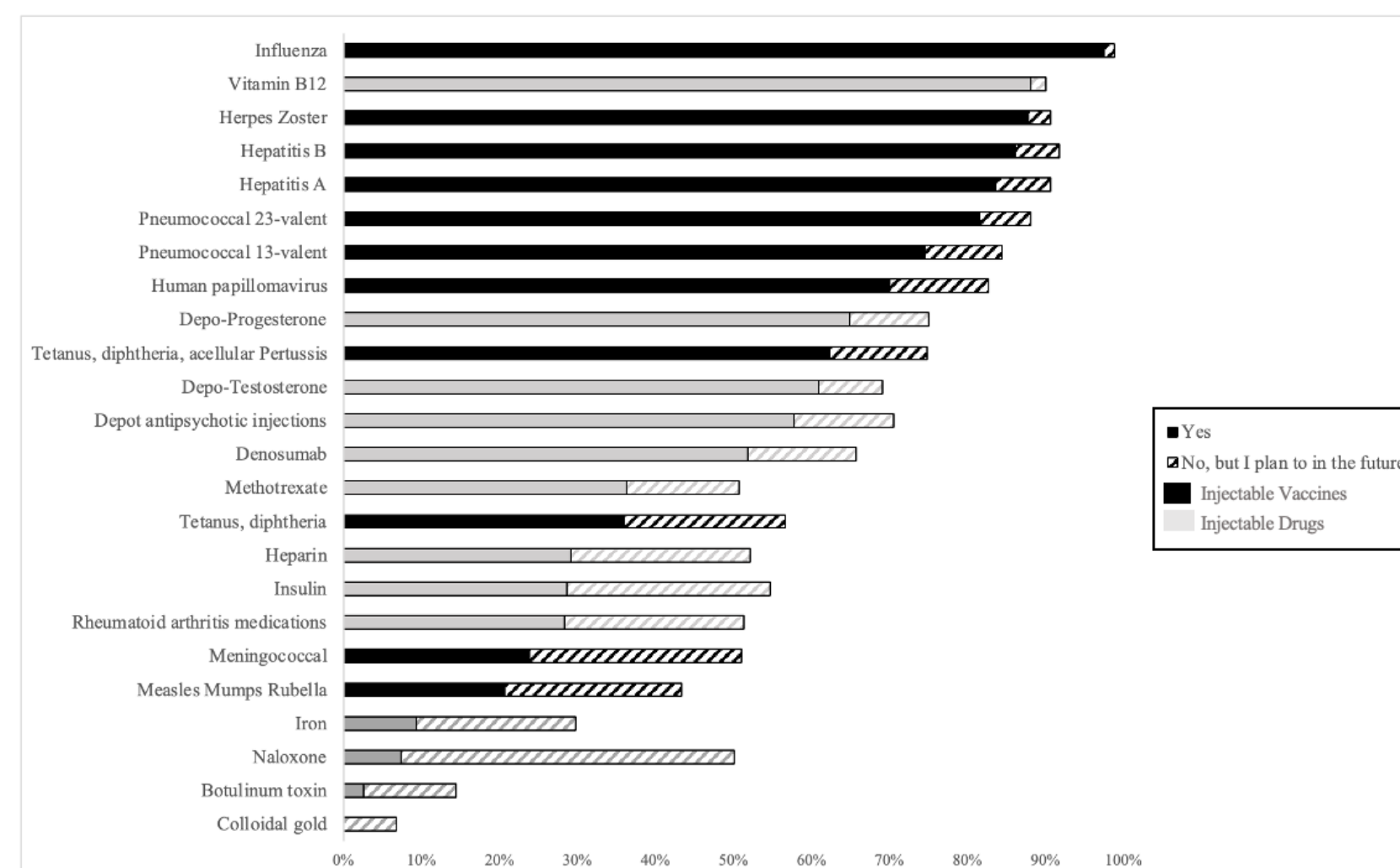


Figure 4: Opinions of individual patient-related strategies to increase injection services (n=370)

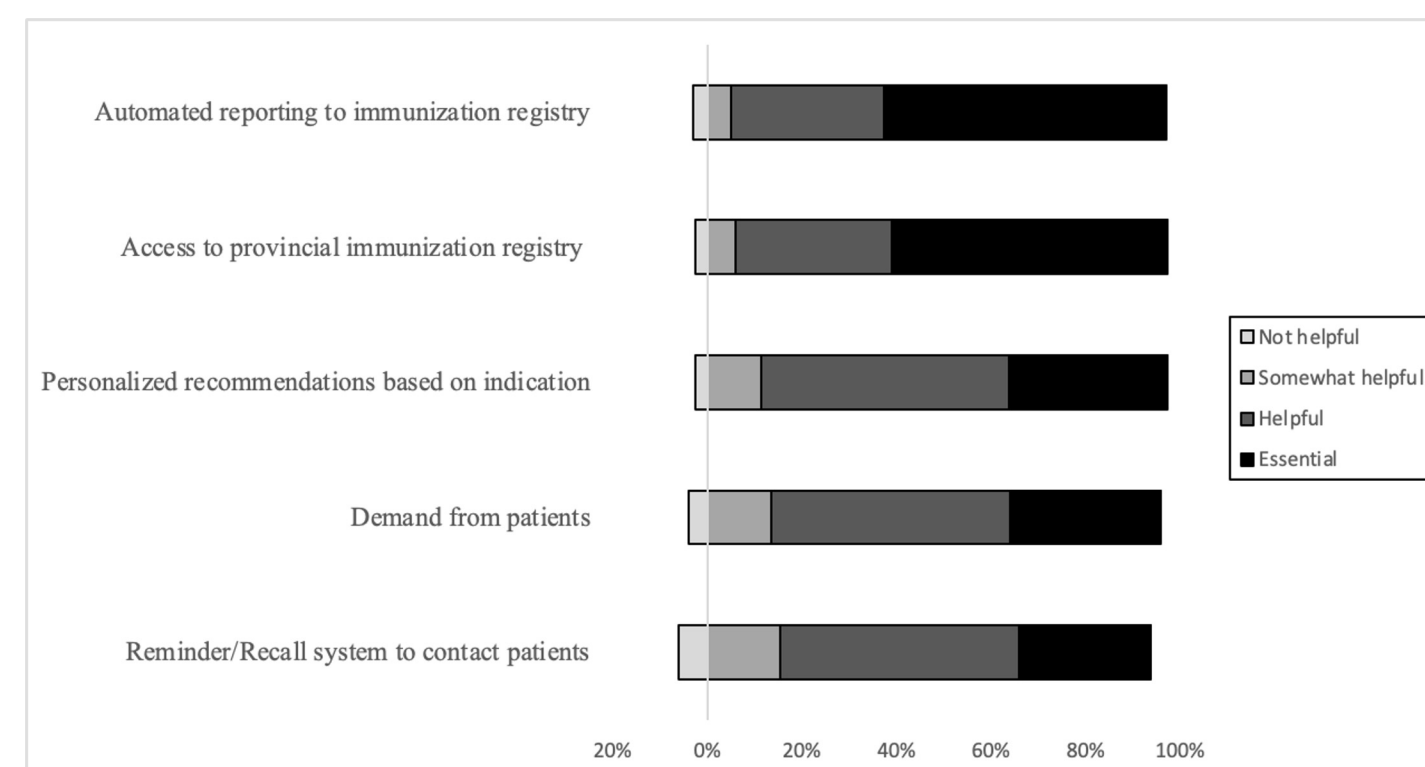


Figure 2: Pharmacist perceptions of practice-related barriers by activity status (n=378)

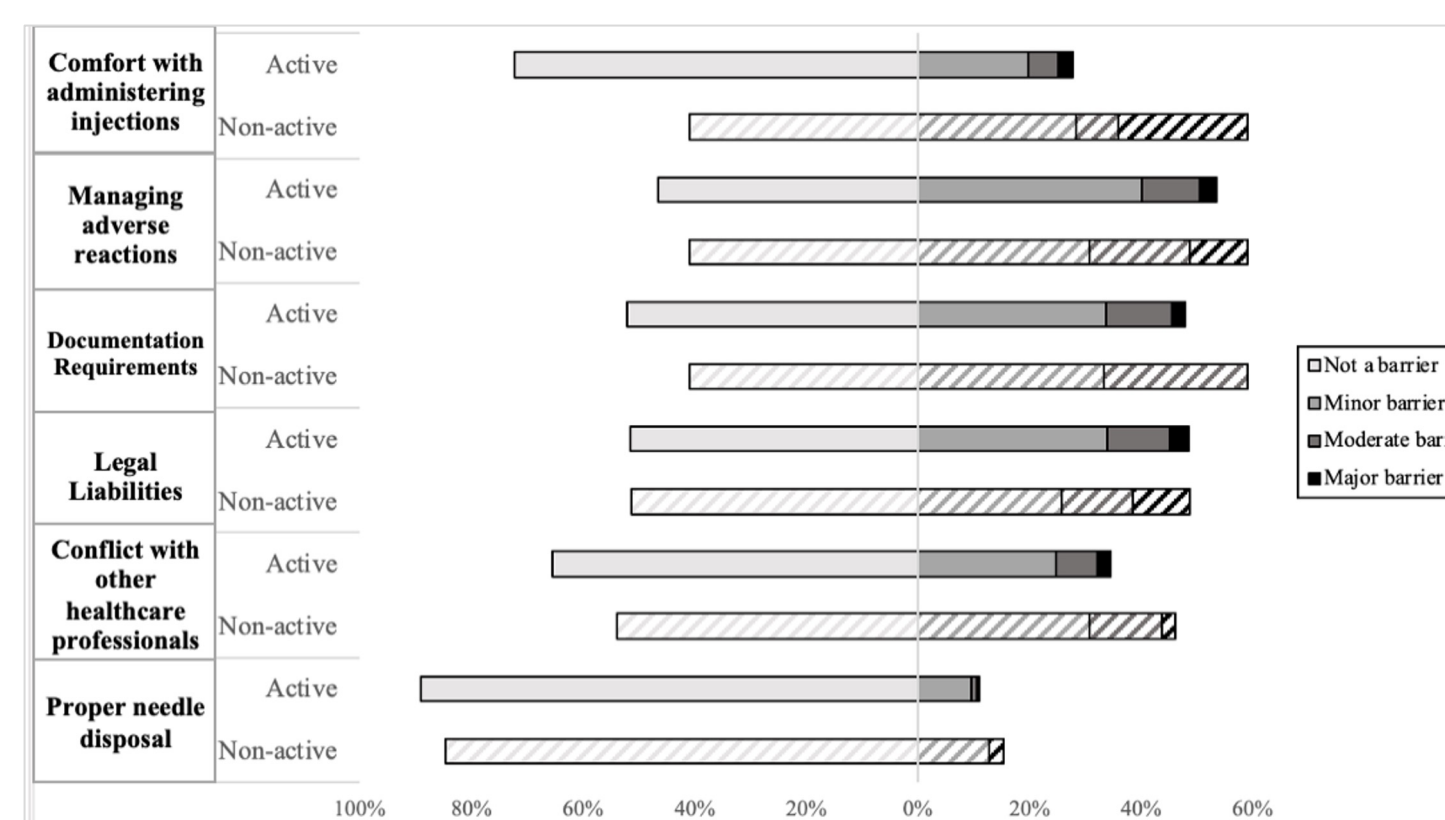
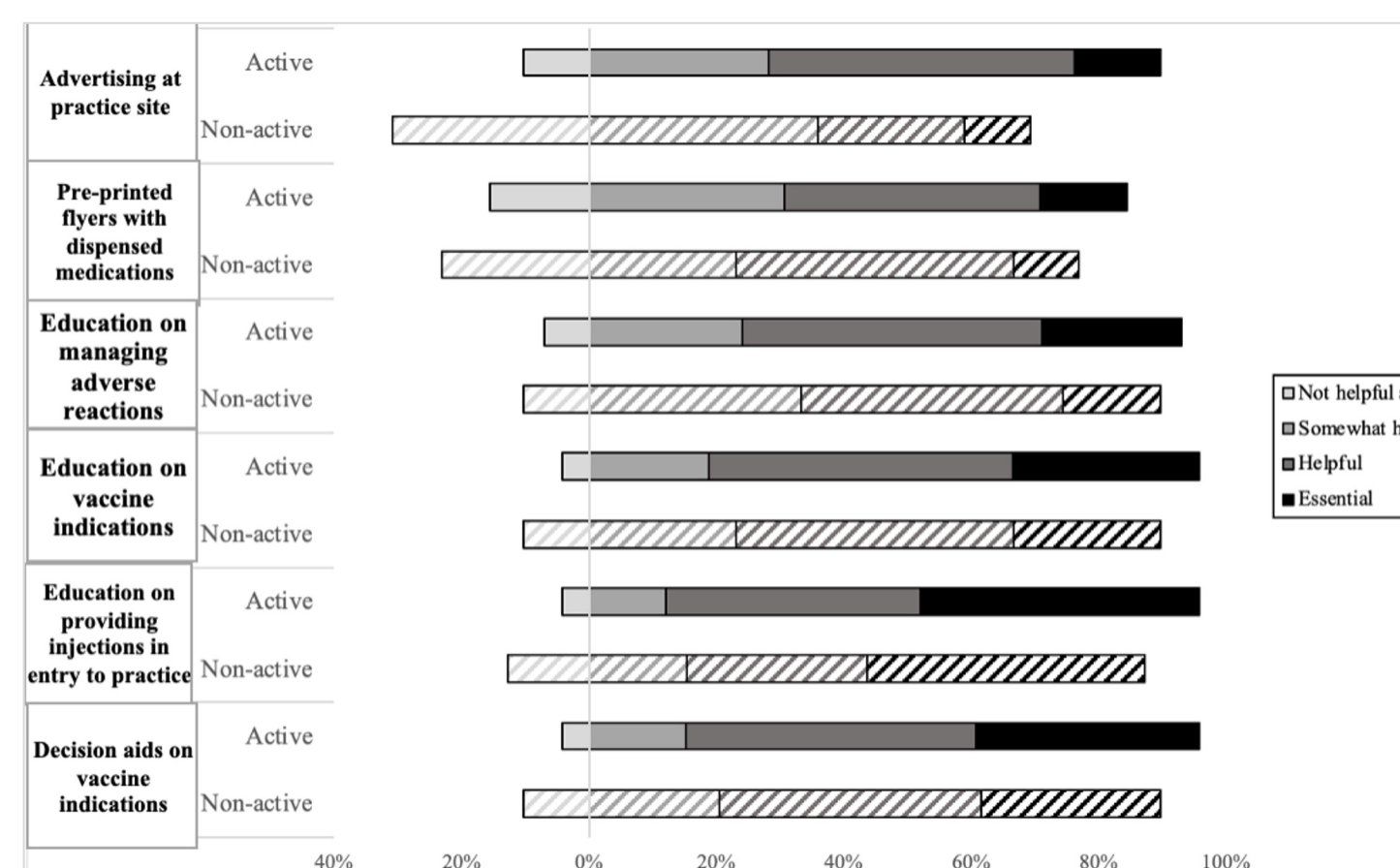


Figure 3: Perceived helpfulness of education strategies to increase injection services by activity status (n=368)



## Observations

A total of 397 pharmacists completed the survey. Influenza vaccine was the most common vaccine, administered by over 95% of Active Providers in the past year. Vitamin B-12 was the most common drug administered by Active Providers over the past year.

We observed that pharmacists who were Certified Diabetes Educators were twice as likely to administer insulin compared to pharmacists without this certification (p<0.001). Naloxone was administered by less than 10% of Active Providers in the past year; however over 40% reported they planned to administer this drug in the future, which was the highest proportion for this response category for any medication.

Almost 60% of Non-Active Providers reported comfort with administering injections as a barrier, whereas over 75% of Active Providers reported this was not a barrier (p<0.001). Non-Active Providers were also more likely to report comfort with managing adverse reactions as a moderate or major barriers compared to Active Providers (p=0.013). Over 40% of both groups felt that education and training on administering drugs by injection in an entry to practice program would be essential for increasing the frequency of injection services in pharmacies (p=0.091). Active Providers were more likely to consider advertising at their practice site as helpful or essential compared to Non-Active Providers (p<0.001).

Almost 60% of respondents indicated that automated reporting to the provincial immunization registry would be essential to providing more injections to patients.

## Discussion and Future Direction

Nine of the top 10 most frequently administered vaccines and drugs are not publicly funded in Alberta and require direct payment of supplementary health insurance. We also identified that Pneumococcal 13-valent injections were reported as being administered by a similar proportion of respondents as the publicly available Pneumococcal 23-valent. We also observed a high proportion of pharmacists administering commonly self-administered drugs such as Heparin, Insulin, depo-testosterone, and depo-progesterone to patients (~30%).

In general, we observed an inverse correlation between self-reported barriers and injection frequency. People who reported greater perceived practice-related barriers, such as personal comfort managing adverse reactions, were less likely to administer injections. We can assume that an increase in experience and familiarity with providing injections results in fewer perceived practice-related barriers. Alberta pharmacists indicated that time to conduct an assessment and administer an injection, support from staff, and increased coverage for injections are critical in providing injection services to patients.

Future research should 1) explore intervention strategies (including educational programs) to increase immunization uptake at community pharmacies, 2) explore the role of pharmacists in combating the opioid epidemic through naloxone administration, and 3) explore the administration of Insulin and other self-injected drugs (e.g., Heparin) by pharmacists and if there's a patient-initiated need to provide this service.

## Acknowledgements

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## References

References are available upon request