



Primary Care Physicians' Perspective on Pharmacists Delivering Vaccines to Adults

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Introduction: Since 2009, pharmacists in all fifty states have been authorized to provide vaccinations to adults in some capacity. The objective of this study was to assess primary care physicians' (PCPs) experiences with and attitudes about pharmacists administering vaccinations to their adult patients.

Methods: Internet and mail survey from January-February 2019 of PCPs representative of the American College of Physicians' and American Academy of Family Physicians' memberships.

Results: Response rate was 69% (642/926). Ninety-eight percent of respondents agreed (79% 'Strongly,' 19% 'Somewhat') that it is their responsibility to assure that their adult patients receive recommended vaccinations even if they get them outside of their practice. Most respondents agreed that pharmacists either did not have access to patient medical information (33% 'Strongly,' 45% 'Somewhat') or did not have adequate vaccination history (33% 'Strongly,' 41% 'Somewhat') to determine if an adult needs a vaccination. The majority also agreed that pharmacists did not inform them when vaccinations were given (35% 'Strongly,' 39% 'Somewhat') and did not enter vaccinations administered into immunization information systems (IIS) (20% 'Strongly,' 37% 'Somewhat'). However, 83% agreed (31% 'Strongly,' 52% 'Somewhat') that it is helpful to have pharmacists share the role of vaccinating adults with physicians.

Conclusions: PCPs have mixed feelings about pharmacists delivering vaccines to adults. Universal use of IIS by pharmacists could partially address physicians' concerns by providing a systematic way for pharmacists and physicians to share patient vaccination histories.



Introduction:

Adult vaccinations have proven effective at preventing morbidity and mortality as well as protecting the community from vaccine-preventable diseases, yet vaccines for adults are underutilized.¹ Vaccinations have traditionally been delivered in physician practices, hospitals and public health systems. Pharmacists administering vaccinations has been a rapidly growing practice since the 1990s. Since 2009 pharmacists in all 50 states have been authorized to provide vaccinations, and during the 2014-2015 influenza season 22% of adults received a vaccination at a retail pharmacy.²⁻⁴

As more pharmacists deliver vaccinations there has been increased discussion surrounding the pharmacist's role in administering vaccinations including dialogue around how receipt of a vaccination in a pharmacy would affect the patient's "medical home".⁴ In 2007 the "Joint Principles of the Patient-Centered Medical Home" was issued, outlining an approach to provide comprehensive primary care for children, youth and adults. These principles outline the importance of the use of information technology and communication for coordinated care across all disciplines within the complex health care system.⁵ To address the concerns of how vaccinations received in a pharmacy would affect the integrity of the patient's "medical home," the National Vaccine Advisory Committee (NVAC) published Standards for Adult Immunization Practice that highlighted the critical role that all vaccine providers have in improving vaccination coverage as well as documenting receipt of vaccination.⁶ The American Pharmacist Association (APhA) coined the term "immunization neighborhood" outlining a collaborative approach to providing vaccinations.^{4,6,7} Pharmacists have an important role in providing vaccinations to adults due to several vaccines being covered by Medicare Part D, a pharmaceutical benefit,



therefore they can play a large role in establishing an immunization neighborhood. Thus, understanding primary care physicians' (PCPs') perceptions and experience with pharmacists administering vaccinations is a fundamental next step for furthering this relationship.⁷

This study aimed to assess PCPs' experience with and attitudes about pharmacists administering vaccinations to their adult patients.

Methods:

Study setting

From January to February 2019, we administered a survey to physicians who spent at least half their time practicing primary care. The survey was conducted by the Vaccine Policy Collaborative Initiative, a survey effort that assesses physician attitudes about vaccine issues in collaboration with the Centers for Disease Control and Prevention (CDC). We established a network of primary care physicians by recruiting general internal medicine physicians (GIM) and family practice physicians (FP) from the membership of the American College of Physicians (ACP) and the American Academy of Family Physicians (AAFP). We performed quota sampling to ensure that networks of physicians were comparable to the ACP and AAFP memberships with respect to practice setting, region and urban versus rural location.^{8,9}

Survey design

We used 4-point Likert scales for assessing physician agreement with statements about delivery of vaccinations to adult patients by pharmacists (“strongly agree” to “strongly disagree”). A national advisory panel of GIMs (n=6) and FPs (n=5) pre-tested the survey, which



was modified based on their feedback. We pilot-tested the survey among 71 GIMs and 13 FPs nationally and further modified the survey instrument based on their feedback.

Survey administration

Depending on individual physician preference, the survey was administered through US mail or the internet (using Qualtrics). We sent the mail group an initial mailing and up to 2 additional mail reminders, and the internet group an initial e-mail with up to 8 e-mail reminders. Non-respondents in the internet group were also sent up to 2 mail surveys in case of problems with e-mail communication reminders.⁹

Statistical analysis

We pooled internet and mail surveys for analyses.^{8, 10-12} We compared characteristics of respondents with non-respondents, and responses by type of practitioner (GIM or FP) and practice setting (private practice, HMO, hospital/clinic) using t-tests for continuous variables and Pearsons's chi-squared or Fisher's Exact tests for categorical variables, as appropriate. Characteristics of non-respondents were obtained from the recruitment survey for the sentinel networks. All analyses were performed using SAS, version 9.4 (SAS Institute, Cary, North Carolina).

Results:

The overall response rate was 69% (642/926), with GIM response rate of 74% (364/494) and FP response rate of 64% (278/432). . Respondents were on average younger and had a

larger median number of providers in their practice. Respondents did not differ from non-respondents by other practice and physical characteristics (Table 1).

Ninety-eight percent of respondents agreed (79% ‘Strongly,’ 19% ‘Somewhat’) that it is their responsibility to see that their adult patients receive recommended vaccines even if they get them outside of the practice. Most respondents had concerns that pharmacists either did not have access to patient medical information (33% ‘Strongly,’ 45% ‘Somewhat’) or did not have adequate vaccination history (33% ‘Strongly,’ 41% ‘Somewhat’) to determine if an adult needs a vaccination, with more GIM’s strongly agreeing that pharmacists do not have access to patient medical information than FP’s ($p=0.005$). The majority also reported that pharmacists did not inform them when vaccines are given (35% ‘Strongly,’ 39% ‘Somewhat’) and did not enter vaccines administered into immunization information systems (IIS) (20% ‘Strongly,’ 37% ‘Somewhat’) (Figure 1). There were no other differences in responses between type of practitioner or practice setting.

Discussion:

This study found that a high proportion of physicians had concerns that pharmacists do not have access to adequate patient medical information or vaccination history to determine if an adult needs a vaccination, that pharmacists do not inform them when vaccinations are given, and do not enter vaccinations administered into IIS. These findings suggest that collaboration between PCPs and pharmacists needs improvement. Despite these concerns, a large majority of respondents felt that it is helpful to have pharmacists share the role of vaccinating adults with physicians, and 50% agreed that it is more convenient for adults to get vaccinations at a



pharmacy than at their practice, highlighting the important role pharmacists have in providing adult vaccinations as part of an immunization neighborhood.

Pharmacists play a key role in providing vaccinations to adults. First, some adult vaccines are covered by Medicare Part D, a pharmaceutical benefit, and therefore cannot easily be delivered in a PCP office. Medicare Part B, an office-based benefit, provides coverage for most vaccines that adult patients need including hepatitis B, influenza, and pneumococcal vaccines and vaccines directly related to treatment of an injury or direct exposure to a disease or condition. Medicare Part D covers all commercially available vaccines, except those covered by Part B.¹³ A recognized challenge in the delivery of adult vaccines is the presence of these various Medicare plans.¹⁴ There are platforms (TransactRX[©]) by which PCPs can bill for Medicare Part D covered vaccines, though this process can be cumbersome; therefore, it is often less complicated for patients to receive vaccinations covered by Medicare Part D at a pharmacy. Having all adult vaccines covered by Medicare Part B has been considered, but ultimately decided against,^{15, 16} thus care needs to be given to better systematically improve the current process. Second, the practice of pharmacists providing adult vaccinations has substantially increase since 1995.¹⁷ Not only are more US based pharmacy schools incorporating vaccination practices into their curriculum, but over 90% of the US population lives within 2 miles of a pharmacy, making pharmacy-based immunization services a more convenient way to obtain an important health service.¹⁸⁻²⁰

Alongside PCPs' reported concerns about pharmacists giving vaccinations, pharmacists have also reported barriers including lack of time or staff at the pharmacy and inadequate vaccination expertise.²¹ Knowing that both PCPs and pharmacists have concerns and recognizing that pharmacists are an integral part of the immunization neighborhood is important



for furthering the pharmacist-provider relationship. These findings and known challenges highlight key opportunities for pharmacists to ensure they are following NVAC published standards and establishing immunization neighborhoods. The NVAC standards state that all vaccinators, pharmacists included, incorporate routine immunization assessment into daily interactions with patients, administer recommended and needed vaccinations, provide patients with vaccine information, record the vaccination in the vaccine registry and communicate receipt of vaccination with the patient's medical home, as well as serve as a role model for patients.^{4,6} Pharmacists fulfilling the NVAC standards, specifically recording within the IIS and communicating receipt of vaccination to the patient's medical home will help to strengthen the immunization neighborhoods that have already been established, and would help to address the concerns raised by PCPs'.

Documentation of vaccination by pharmacists within their employer's electronic medical record is likely occurring on a consistent basis, but it is not standard practice across the United States that pharmacists are documenting within the IIS. A 2014 survey by the American Immunization Registry Association (AIRA) assessed pharmacy reporting of vaccinations to IIS. Of the 45 state IISs that responded, 36 (80%) reported that pharmacies reported vaccinations to the IIS, but only 22 (49%) states had mandatory reporting laws for pharmacies.²² The variation among states as well as not having mandatory reporting laws or a streamlined process for reporting in all states impacts the ability for pharmacists to adequately report receipt of vaccination to IIS and highlights the need for changes in policies and procedures.

There are both strengths and limitations to our study. The results of this study were generated from PCPs across the nation with an overall excellent response rates for a physician survey. Although the sample of PCPs was designed to be representative of ACP and AAFP



memberships, the experience and attitudes reported may not be fully generalizable. In addition, non-respondents may have had different views or experiences with pharmacists giving vaccinations than respondents did.

To our knowledge this is the first survey to assess the physician's perspective on the role of pharmacists in delivering vaccinations. These findings illustrate that PCPs have mixed feelings about pharmacists delivering vaccinations to adults. Greater use of the IIS and communication by pharmacists to the patient's medical home could partially address physicians' concerns by providing a systematic way for pharmacists and physicians to share patient vaccination history.



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Table 1: Comparison of Characteristics of Responders and Non-Responders (n=926)

Characteristic	Category	Non-Responder Col % (n) N=284	Responder Col % (n) N=642	p value
Gender	Female	41.0% (116)	45.7% (293)	0.18
	Male	59.0% (167)	54.3% (348)	
Practice setting	Hospital or Clinic	16.5% (47)	20.2% (130)	0.37
	HMO	4.9% (14)	5.5% (35)	
	Private practice	78.5% (223)	74.3% (477)	
Census Location	Rural	10.3% (29)	9.7% (62)	0.05
	Urban-Non-Inner	59.4% (167)	67.3% (429)	
	Urban-Inner	30.2% (85)	22.9% (146)	
Region of Country	Midwest	26.1% (74)	25.5% (164)	0.98
	Northeast	21.1% (60)	20.4% (131)	
	South	31.7% (90)	31.9% (205)	
	West	21.1% (60)	22.1% (142)	
Decision-making	Independent	58.0% (163)	57.4% (366)	0.86
	Larger System Level	42.0% (118)	42.6% (272)	
Mean (sd) / Median age in years		56.5 (9.0) / 58	53.9 (9.5) / 54	<.0001
Mean (sd) / Median number of providers		9.5 (20.5) / 5	14.6 (83.6) / 6	0.03*

* Wilcoxon test

Figure 1: Physicians attitudes and experience regarding delivery of vaccines to adult patients, United States, 2019 (n=642)

