Preferences and Attitudes of Health Care Providers Towards Pneumococcal Vaccines for Adults in the United States

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Introduction

- Adults are at an increased risk for pneumococcal disease based on age and risk status (presence of chronic medical conditions [CMCs] or immunocompromising conditions [ICs])[1]
- Currently, the Advisory Committee on Immunization Practices (ACIP) recommends pneumococcal vaccination for adults 19-49 years of age with ICs and CMCs and for all adults 50 years or older[2]
- As more higher-valent pneumococcal vaccines become available, understanding the factors that influence health care providers' (HCPs') preferences when evaluating and recommending pneumococcal vaccines is crucial

Objectives

To assess HCPs' preferences towards pneumococcal vaccines for adults

Methods

Study design and eligibility criteria

- Non-interventional cross-sectional survey using a discrete choice experiment (DCE)
- Survey conducted from March through May 2024 among HCPs
- HCPs who practiced in the US eligibility criteria:
  - Provided direct patient care to adult patients and recommended, prescribed, or administered vaccines as part of patient care
  - Worked in a practice that provided vaccines to adults
  - Spent at least 25% of work hours providing care to adult patients
  - Prescribed/administered to at least 20 patients (physicians and advanced practitioners only) or recommended/administered to at least 10 patients in a typical month (pharmacists only)
  - Were certified to administer vaccines (pharmacists)
  - Had a minimum number of years of experience (2 years for physicians and advanced practitioners and 1 year for pharmacists)
  - Were able to complete the survey in English

Survey development

- Findings from a targeted literature review, qualitive exploratory interviews, and pretest interviews were used to refine the content of the survey[3]
- The final survey included 6 sections: screener, electronic agreement form, DCE attribute descriptions (**Table 1**), and comprehension checks, DCE choice tasks, a knowledge/attitude/perceptions survey section, and demographic and practice characteristics

Table 1. Attributes and levels included in the DCE

Attributes	Levels and descriptions
Percent coverage of IPD in adults 65 years and older	• **40%:** This means that the pneumococcal vaccine covers 40% of IPD in adults 65 years and older
	• **53%:** This means that the pneumococcal vaccine covers 53% of IPD in adults 65 years and older
	• **60%:** This means that the pneumococcal vaccine covers 60% of IPD in adults 65 years and older
	• **85%:** This means that the pneumococcal vaccine covers 87% of IPD in adults 65 years and older
Disease label indication	• **Indication for IPD only:** This means that the pneumococcal vaccine has an indication for IPD but not for pneumococcal pneumonia
	• **Indication for IPD and pneumococcal pneumonia:** This means that the pneumococcal vaccine has an indication for IPD and for pneumococcal pneumonia
Target population(s)	• **Designed for the adult population:** This means that the pneumococcal vaccine has been specifically designed to target the adult burden of pneumococcal disease
	• **Not population specific:** This means that the pneumococcal vaccine has been approved for adults but was not specifically designed to address the adult burden of pneumococcal disease
Populations included in clinical trials	• **Healthy adults:** This means that the clinical trials for the pneumococcal vaccine included generally healthy adults 18 years old or older
	• **Healthy adults and at-risk/high-risk adults:** This means that the clinical trials for the pneumococcal vaccine included generally healthy adults 18 years old or older AND adults at increased risk for pneumococcal disease (eg, with chronic medical conditions and immunocompromising conditions)
Percent coverage of pneumococcal pneumonia in adults 65 years and older	• **50%:** This means that the pneumococcal vaccine covers 50% of pneumococcal pneumonia in adults 65 years and older
	• **60%:** This means that the pneumococcal vaccine covers 60% of pneumococcal pneumonia in adults 65 years and older
	• **87%:** This means that the pneumococcal vaccine covers 87% of pneumococcal pneumonia in adults 65 years and older

IPD, invasive pneumococcal disease.

Data analysis

- Descriptive univariate statistics were used to analyze HCP demographics and practice characteristics
- Dummy-coded conditional logit regression models were used to analyze the choice task responses and generate odds ratios (ORs). Relative attribute importance (RAI) scores were calculated to describe the proportion of total variance explained by individual attributes expressed as a percentage

Results

Table 2. HCP and practice characteristics

Variable	All HCPs (N=340)	Physicians (N=120)	Advanced practitioners (N=120)	Pharmacists (N=100)
Age, y, mean (SD)	44.9 (7.4)	47.7 (7.0)	43.7 (7.1)	43.1 (7.4)
Gender, N (%)				
Female	151 (44.4)	40 (33.3)	64 (53.3)	47 (47.0)
Male	189 (55.6)	80 (66.7)	56 (46.7)	53 (53.0)
Race[a], N (%)				
White	290 (85.3)	100 (83.3)	97 (80.8)	93 (93.0)
Black/African American	37 (10.9)	12 (10.0)	19 (15.8)	6 (6.0)
Asian	10 (2.9)	6 (5.0)	3 (2.5)	1 (1.0)
Other	2 (0.6)	1 (0.8)	1 (0.8)	0 (0.0)
Prefer not to answer	1 (0.3)	1 (0.8)	0 (0.0)	0 (0.0)
Hispanic, Latino, or Spanish origin,[a] N (%)				
Yes	70 (20.6)	22 (18.3)	31 (25.8)	17 (17.0)
No	269 (79.1)	97 (80.8)	89 (74.2)	83 (83.0)
Prefer not to answer	1 (0.3)	1 (0.8)	0 (0.0)	0 (0.0)
Provider type, N (%)				
Internal medicine	60 (17.6)	60 (50.0)	-	-
Family medicine	60 (17.6)	60 (50.0)	-	-
Nurse practitioner	60 (17.6)	-	60 (50.0)	-
Physician assistant	60 (17.6)	-	60 (50.0)	-
Pharmacist	100 (29.4)	-	-	100 (100.0)
Years in practice since residency/training, mean (SD)	13.5 (6.5)	16.2 (6.4)	12.0 (6.1)	12.2 (6.1)
Primary practice location,[a,b] N (%)				
Urban	199 (82.9)	98 (81.7)	101 (84.2)	-
Suburban	36 (15.0)	20 (16.7)	16 (13.3)	-
Rural	5 (2.1)	2 (1.7)	3 (2.5)	-
Primary pharmacy practice setting[c]				
Independent pharmacy	37 (37.0)	-	-	37 (37.0)
Chain pharmacy/drug store	32 (32.0)	-	-	32 (32.0)
Hospital pharmacy	20 (20.0)	-	-	20 (20.0)
Clinical pharmacy/ambulatory care pharmacy	10 (10.0)	-	-	10 (10.0)
Grocery store pharmacy	1 (1.0)	-	-	1 (1.0)
Practice type,[b,d] N (%)				
Solo/duo practice	67 (27.9)	43 (35.8)	24 (20.0)	-
Group practice	96 (40.0)	40 (33.3)	56 (46.7)	-
Hospital owned	100 (41.7)	42 (35.0)	58 (48.3)	-
Federally qualified health center	41 (17.1)	14 (11.7)	27 (22.5)	-
Academic health center	25 (10.4)	12 (10.0)	13 (10.8)	-
Integrated delivery network	3 (1.3)	3 (2.5)	0 (0.0)	-
Other	1 (0.4)	0 (0.0)	1 (0.8)	-

SD, standard deviation.
[a]Responses may not add up to 100% due to rounding.
[b]Asked among n=240 physicians and advanced practitioners.
[c]Asked among n=100 pharmacists.
[d]Respondents could select more than 1 response.

- A total of 340 HCPs (60 internal medicine physicians, 60 family medicine physicians, 60 nurse practitioners, 60 physician assistants, and 100 pharmacists) completed the online survey
- The average age was 44.9 years old, and most HCPs were male (55.6%), White (85.3%), and practiced in an urban location (82.9%)

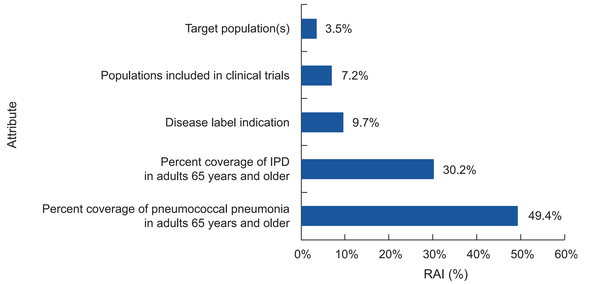
Table 3. OR results estimated from regression models

Attribute	Odds ratio	95% CI		*P*-Value
Percent coverage of IPD in adults 65 years and older				
40%	**Reference**	---		
53%	**1.15**	1.03	1.28	0.014
60%	**1.33**	1.17	1.51	<0.001
85%	**1.92**	1.62	2.27	<0.001
Target population(s)				
Not population specific	**Reference**	---		
Designed for the adult population only	**1.08**	1.00	1.17	0.055
Disease label indication				
Indication for IPD only	**Reference**	---		
Indication for IPD and pneumococcal disease	**1.23**	1.13	1.35	<0.001
Populations included in clinical trials				
Healthy adults	**Reference**	---		
Healthy adults and at-risk/high-risk adults	**1.17**	1.08	1.26	<0.001
Percent coverage of pneumococcal pneumonia in adults 65 years and older				
50%	**Reference**	---		
60%	**1.53**	1.36	1.71	<0.001
87%	**2.90**	2.44	3.43	<0.001

CI, confidence interval; IPD, invasive pneumococcal disease.

- HCPs were nearly 3× more likely to prefer a vaccine with 87% coverage of pneumococcal pneumonia in adults 65 years and older compared to a vaccine with 50% coverage, and nearly 2× more likely to prefer a vaccine with 85% coverage of invasive pneumococcal disease (IPD) for adults 65 years of age and older compared to a vaccine with 40% coverage for IPD
- There were smaller but significant preferences for a vaccine indicated for both IPD and pneumococcal pneumonia compared to one indicated for IPD alone. HCPs also favored a vaccine that had undergone trials among both healthy and at-risk/high-risk adults compared to trials conducted with healthy adults alone

Figure 1. RAI of vaccine attributes



- The most important attributes driving HCP decisions were related to disease coverage, including percent coverage of pneumococcal pneumonia in adults 65 years and older (RAI, 49.4%) and percent coverage of IPD in adults 65 years and older (RAI, 30.2%)

HCP knowledge and attitudes towards future pneumococcal vaccines

- Nearly all HCPs (95.9%) welcomed the idea of having more approved options, as they could recommend different options based on immune response for each vaccine, disease-specific indication, number of serotypes covered, patient characteristics, disease coverage, and less concern about supply and shipment problems
- HCPs would offer a supplemental dose of pneumococcal vaccine to increase disease protection for certain populations if they have already completed the recommended series including adults aged 19-49 years at high risk (59.1%), adults 50-64 years with CMCs (55.6%), adults 50-64 with ICs (65.9%), and adults 65 years and older regardless of their risk status (57.6%)

Limitations

- While the use of online membership-based panels allowed for the recruitment of verified HCPs, those who participate in online panels may differ from those who do not
- The design and cognitive burden of any DCE requires a high level of respondent attentiveness

Conclusions

- High disease coverage of both pneumococcal pneumonia and IPD for adults aged 65 years and older was preferred by HCPs when evaluating attributes of pneumococcal vaccines for adult populations
- HCPs favored having pneumococcal vaccine options tailored to their adult patients and supported use of a supplemental vaccine dose to provide additional disease coverage for their adult patients who have already completed the recommended series
- These findings suggest that new adult-specific pneumococcal vaccines and broader vaccination recommendations would be accepted and valued by US HCPs

References

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3. Mohanty S, et al. Preference and attitudes of healthcare providers (HCPs) and adult healthcare consumers (HCCs) towards pneumococcal conjugate vaccines (PCVs) in the United States (US). Presented at: International Society for Pharmacoeconomics and Outcomes Research 2024 (ISPOR 2024); May 5-8; Atlanta, GA.

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