AAPA
American Academy of Physician Associates

Insights into PAs' Experience with Influenza Vaccines

Review & Recommendations

12/1/2022 • 2022 AAPA PAs and Influenza Vaccines Survey

Table of Contents

Abstract
Vaccination plays an important role in reducing the spread of influenza and the likelihood of experiencing severe complications from a case of the flu. As an essential piece of the healthcare system, PAs are often placed in a position to educate and counsel patients on the importance of influenza vaccination. To evaluate their practice behaviors, AAPA developed a survey to better understand the barriers PAs encounter when attempting to vaccinate patients, PAs knowledge on Centers for Disease Control and Prevention Advisory Committee on Immunization Practice (ACIP) recommendations surrounding influenza vaccination, and the percent of patients PAs vaccinated for influenza over the 2021-2022 influenza season. The retrospective recall of PAs on the vaccination rates of their patients in key age groups, such as patients aged 65 or older, were similar to nationwide influenza vaccination coverage rates. Future research is needed to identify how PAs with limited access to multiple formulations of the influenza vaccination implement the ACIP dosing and formulation recommendations across various patient groups.

Methodology
From September 12 to September 26, 2022, data were collected in a survey sent to 1,200 PAs in the United States (U.S.) who had not opted out of AAPA research surveys for which AAPA had a valid email address and had responded to an AAPA survey in the past two years. Fourteen PAs in specialties where the administration of influenza vaccines to adults was unlikely (e.g., general pediatrics and pediatric subspecialties, hospice and palliative care, ophthalmology, plastic surgery), and those who had no specialty were excluded from the study. A total of 1,199 emails were delivered, 348 responded (response rate 29.0%) to the invitation, and 312 completed the full survey. The overall survey margin of error is +/- 5.54% at a 95% confidence level. Response rates and margins of error vary by section and breakout. Table 9 provides select practice characteristics of the respondents.

Participants were offered $10 for their participation in the form of a gift card or a donation to the PA Foundation. Most PAs (222, 81.3%) received the gift card; 51 (18.7%) donated their funds to the PA Foundation.

"N" refers to the number of respondents and is generally the first column in the data tables. Totals do not always add up to 100% due to rounding.

Acknowledgement
This research is exempt form IRB approval in accordance with US Department of Health and Human Service's Policy for Protection of Human Research Subjects listed at 45 C.F.R. §46.104(d)(2)(ii). The author has no conflicts to report.

Disclosures

The 2022 AAPA PAs and Influenza Vaccines Survey was sponsored by Sanofi. AAPA had final approval for all questions within the survey. PAs were informed that Sanofi sponsored the study at the conclusion. Participant identities were not disclosed.

About PAs

PAs (physician associates/physician assistants) are licensed clinicians who practice medicine in every specialty and setting. Trusted, rigorously educated and trained healthcare professionals, PAs are dedicated to expanding access to care and transforming health and wellness through patient-centered, team-based medical practice. A PA's specific duties depend on the settings in which they work, their level of experience, and state law. There are approximately 159,000 PAs in the United States, who engage in more than 514 million patient interactions each year. To learn more about PAs, go to aapa.org.

About AAPA

Founded in 1968, the American Academy of Physician Associates is the national professional society for PAs (physician associates/physician assistants). It represents a profession of more than 159,000 PAs across all medical and surgical specialties in all 50 states, the District of Columbia, U.S. territories, and the uniformed services.

AAPA advocates and educates on behalf of the profession and the patients PAs serve. We work to ensure the professional growth, personal excellence, and recognition of PAs. We also enhance their ability to improve the quality, accessibility, and cost-effectiveness of patient-centered healthcare.

How to Cite

Insights into PAs' Experiences with Influenza Vaccines. 2022. American Academy of Physician Associates. Alexandria, VA.

Executive Summary

During the 2019-2020 influenza season, there were an estimated 35 million flu-related illnesses, 16 million flu-related medical visits, 380,000 flu-related hospitalizations, and 20,000 flu-related deaths[1]. While the Centers for Disease Control and Prevention Advisory Committee on Immunization Practice (ACIP) regarded the severity of the 2019-2020 flu season as moderate, it was also atypical in that it was more severe in children aged 0-4 and adults aged 18-49. 38% of all 2019 – 2020 flu deaths occurred amongst 18–64-year-olds, a group with historically low influenza vaccination coverage[1].

69%

of PAs were at least somewhat familiar with the 2022 ACIP recommendations for persons aged 6 months or older.

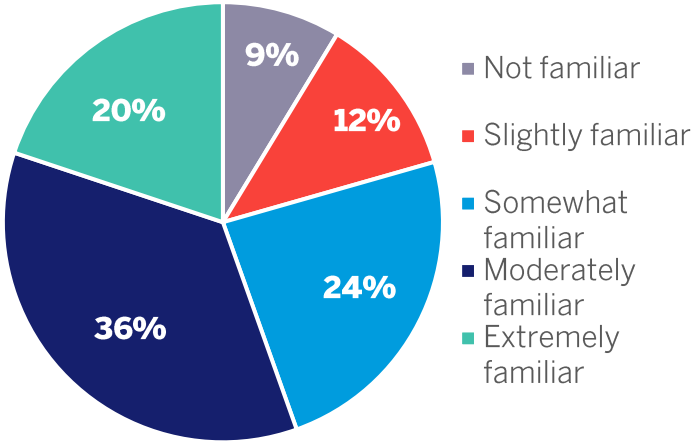
In response to data collected during influenza seasons, the CDC often updates guidance on influenza in preparation for the next season. The current guidelines from ACIP recommend routine annual influenza vaccines for all persons older than 6 months who do not have contraindications[2]. ACIP recommends adults aged 65 years or older "*preferentially receive any one of the following higher dose or adjuvanted influenza vaccines: quadrivalent high-dose inactivated influenza vaccine (HD-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (aIIV4).*" ACIP also recommends that in most instances "*children aged 6 months through 8 years require 2 doses of influenza vaccine administered a minimum of 4 weeks apart during their first season of vaccination for optimal protection.*"[2]

The ACIP released their current recommendations on August 26, 2022, or 16 days before the start of AAPA's survey. Despite this short delay between the release of recommendations and the start of data collection, approximately 80% of PAs in the sample were at least somewhat familiar with the 2022 ACIP recommendations for adults aged 65 or older (Figure 1). Additionally, almost 7 in 10 (69%) PAs were at least somewhat familiar with the ACIP recommendations for persons aged 6 months or older (Table 1).

[1] CDC. Estimated flu-related illnesses, medical visits, hospitalizations, and deaths in the United States – 2019 – 2020 flu season. *Center for Disease Control and Prevention.* Retrieved from: https://www.cdc.gov/flu/about/burden/2019-2020.html

[2] Grohskopf LA, Blanton LH, Ferdinands JM, et al. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2022–23 Influenza Season. *MMWR Recomm Rep 2022;71(No. RR-1)*:1–28. DOI: http://dx.doi.org/10.15585/mmwr.rr7101a1

Figure 1. PA Familiarity with the ACIP Recommendations for Influenza Vaccinations for Adults Aged 65 or Older



Importance of the Vaccines

Influenza is the source of a significant seasonal health burden. Within the general population, influenza is linked to excess winter mortality[3]. This is especially true amongst older adults and people with chronic illness. Historically, these two groups account for the most annual influenza-attributable deaths[4]. The principal strategy to control influenza and its complications is vaccination[5]. PAs play an important role in the provisioning of primary care services, such as influenza vaccination. To identify PA's opinions on the benefits of influenza vaccination, we asked them *What are the benefits of receiving an influenza vaccine?* Their responses to this open-ended question are displayed in Table 10.

Two major themes emerged within the PA responses. First, getting an influenza vaccination prevents illness and death. PAs whose response fell into this theme explained how obtaining an influenza vaccination reduced mortality and morbidity from influenza and reduced the severity of influenza infections. Second, the respondents also claimed getting an influenza vaccination helps others. These vaccinations, according to PAs, help others by reducing community spread and providing herd immunity to those unable to receive an influenza vaccine. A PA's response illustrated the importance of receiving a vaccination "to help prevent you and your loved ones from getting a severe influenza infection requiring hospitalization, or worse."

> *To help prevent you and your loved ones from getting a severe influenza infection requiring hospitalization, or worse.*

PAs also educate their patients on the importance of receiving an influenza vaccine. More than 4 in 5 PAs were somewhat, very, or extremely confident they could educate

[3] Thompson WW, Shay DK, Weintraub E, et al. Mortality associated with influenza and respiratory syncytial virus in the United States. *JAMA* 2003;289:179-86.
[4] Tillett HE, Smith JW, Clifford RE. Excess morbidity and mortality associated with influenza in England and Wales. *Lancet* 1980;1:793-5.
[5] Vamos EP, Pape UJ, Curcin V, Harris MJ, Valabhji J, Majeed A, Millett C. Effectiveness of the influenza vaccine in preventing admission to hospital and death in people with type 2 diabetes. CMAJ. 2016 Oct 4;188(14):E342-E351. doi: 10.1503/cmaj.151059. Epub 2016 Jul 25. PMID: 27455981; PMCID: PMC5047834.

and/or consul patients on influenza vaccination (Table 2, Figure 2). Additionally, 7 in 10 PA respondents were somewhat, very, or extremely confident in their ability to educate and/or counsel patients aged 65 or older on the differences between influenza vaccinations (Table 2). Almost all (99%) were at least slightly confident in their ability to counsel and/or educate patients on the impact of influenza on their health (Table 2).

Figure 2. PA Confidence when Educating/Counseling Patients on Influenza Vaccines

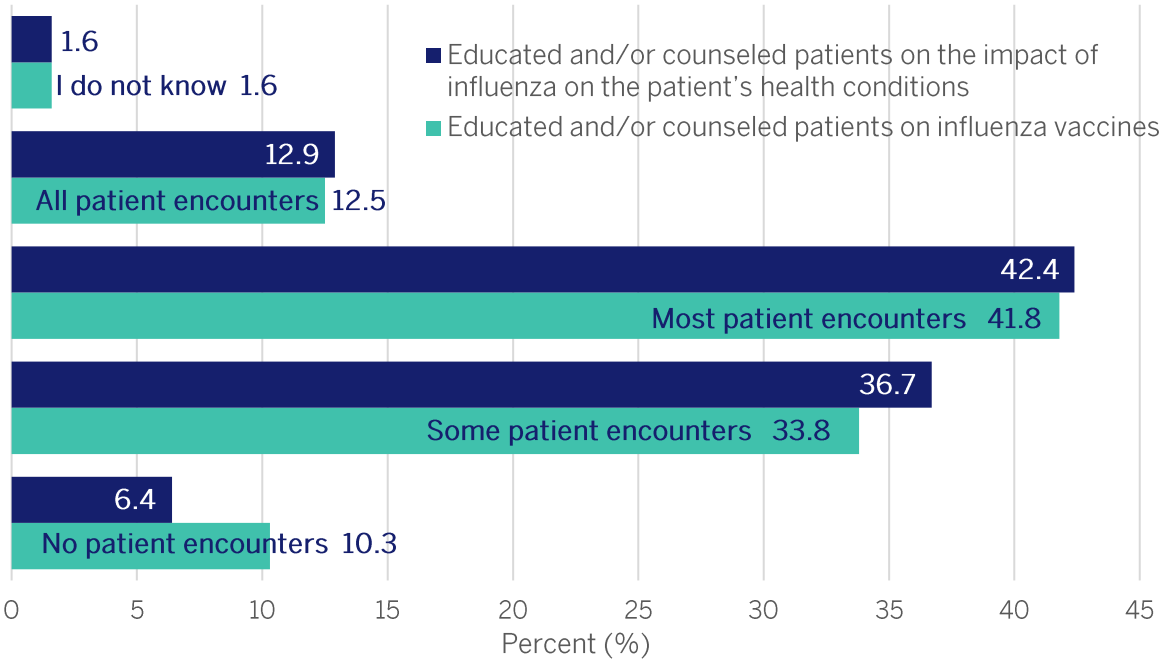
PAs and the 2021-2022 Flu Season

Almost 2 in 5 PAs (37%) reported 26-50% of their patients aged 18-64 years received an influenza vaccination during the 2021-2022 flu season(Table 5). Similarly, approximately 2 in 5 PAs (39%) reported inoculating 51-75% of their patients aged 65 or older during the 2021-2022 flu season (Table 5). Multiple formulations of the influenza vaccine exist and the ACIP has recommendations for vaccination providing guidance on which formulations and doses to administer to various age groups. For example, the ACIP recommends adults aged 65 or older receive a higher dose or adjuvanted quadrivalent vaccine during the 2022-2023 season[2]. However, the recommendations also note that any age-appropriate version of the influenza vaccination can be administered to a patient aged 65 or over if none of the recommend formulations are available.

During the 2021-2022 influenza season, only 48% of PAs had access to more than one formulation of the influenza vaccine (Table 3). PAs in our study were split on whether they would recommend a specific formulation of the flu vaccine during the 2021-2022 flu season. Almost one third (34%) of PAs reported they were not at all likely to recommend a particular vaccine based on their patient profile while approximately 1 in 4 PAs (27%) were very likely (Table 3). PAs who had access to more formulations of the flu vaccine were more likely to administer a specific formulation based on their patient's profile (Table 3b).

Overall, more than a third of PAs recommended an influenza vaccination and administered the vaccine to their patients in most of their patient encounters (36%, Table 4). Most PAs also educated and/or counseled patients on influenza vaccinations and the impact of influenza on the patient's health conditions during at least some of their patient encounters (Table 4, Figure 3). While 32% of PAs claimed they did not recommend or administer a higher dose or adjuvanted vaccination to patients aged 65, a quarter (25%) of the respondents did in most patient encounters and 14% carried out these practice behaviors in all patient encounters (Table 4).

Figure 3. Frequency PAs Recommended and Educated Patients During the 2021-2022 Influenza Season



Reasons for refusal

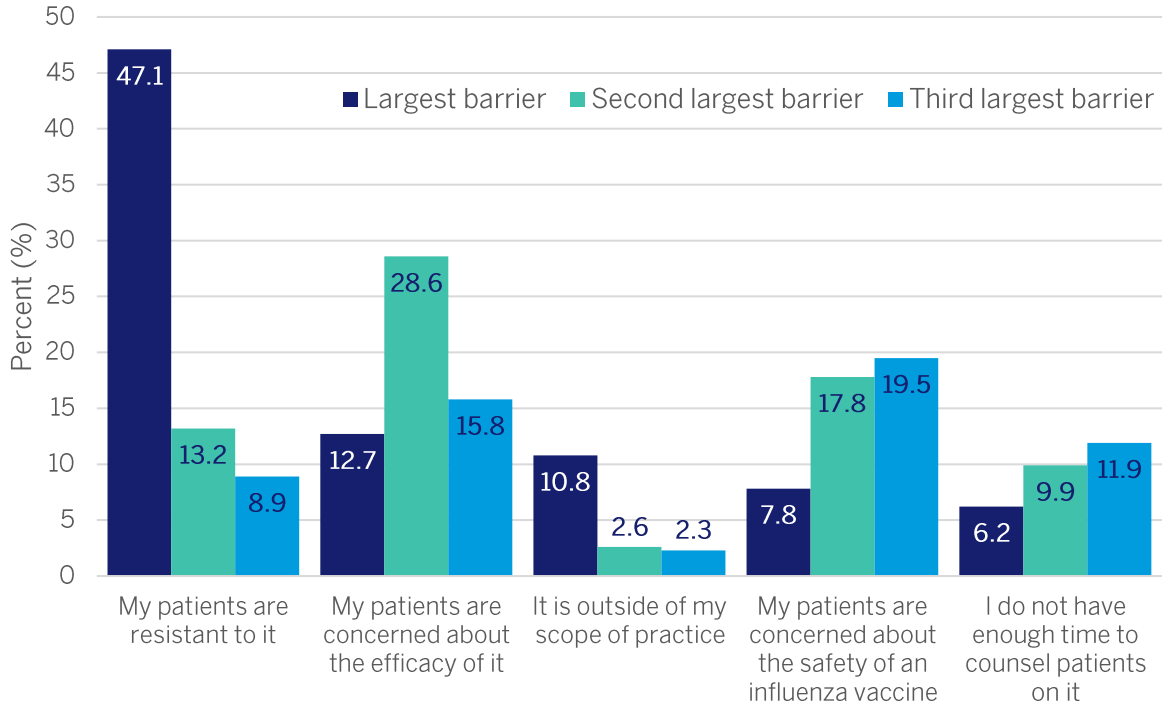
During the 2021-2022 flu season, the influenza vaccination coverage for all people 6 months to 17 years was 57.8% and 49.4% for all people 18 years or older[6]. To identify reasons why patients might refuse an influenza vaccination despite recommendations, we asked PAs *What are the top three barriers to your patients receiving an influenza vaccine each year?* The largest barrier was a general sense of resistance from patients, which was reported as the largest barrier by 47% of the survey respondents (Table 8). Moreover, this general resistance was selected as the largest, second largest, or third largest barrier by almost 7 in 10 surveyed PAs (Table 8).

The second and third most cited reasons were concerns over the efficacy of influenza vaccines and concerns over the safety of influenza vaccinations. When adding the percentage of PAs who indicated these factors were primary, secondary, or tertiary barriers to vaccination, 57% considered *perceived patients concerns over efficacy* as a barrier while 45% reported patients with safety concerns (Table 8, Figure 4). Despite these barriers, approximately 3 in 5 (64%) PAs in this sample were somewhat, very, or extremely confident they could overcome a patient's objection to receiving a flu vaccination (Table 2). As a group, PAs were also likely to get an influenza vaccination. Almost 9 out of every 10 PAs (89%) were

[6] CDC. Flu Vaccination Coverage, United States, 2021–22 Influenza Season. *Center for Disease Control and Prevention.* Retrieved from: https://www.cdc.gov/flu/fluvaxview/interactive-general-population.htm

extremely likely to get an influenza vaccine in the lead up to the 2022-2023 flu season (Table 7).

Figure 4. Top 5 Reported Patient Barriers to Influenza Vaccination, by Rank



Summary and Conclusions

As a group, PAs are receiving influenza vaccinations at a higher rate than the rest of the U.S. population. 92.4% received influenza vaccine during the 2021-2022 season[7]. Almost 9 out of every 10 PAs (89%) were extremely likely to get an influenza vaccine in the lead up to the 2022-2023 flu season (Table 7). Only 4% expressed that it was unlikely or extremely unlikely for them to receive an immunization (Table 7). Additionally, many of the PAs surveyed for this report were at least slightly familiar with the ACIP's 2022 recommendations for providing influenza vaccinations to persons aged 6 months or older and adults aged 65 years or older (Table 1). However, 15% of PAs admitted to not being familiar with the updated recommendations for persons 6 month or older and 9% were not familiar with the 2022 recommendations for persons aged 65 or older (Table 1). However, the proportion of PAs who were not familiar with the updated recommendations could be higher than reported in this publication due to responder bias.

The ACIP released new recommendations 16 days before the start of the survey data collection. We recommend all clinically practicing PAs consult the new guidance for the

[7] Razzaghi H. Influenza and COVID-19 Vaccination Coverage Among Health Care Personnel—United States, 2021–22. *MMWR Morbidity and Mortality Weekly Report.* 2022;71

Guidance on Influenza Vaccines

The CDC releases data on influenza vaccination and flu mitigation throughout the year, but the ACIP recommendations for administering vaccinations are an important tool for practitioners. The 2022 flu season recommendations were released August 26th.

Children aged between ***6 months and 8 years*** should receive 2 doses of the flu vaccine if they have never been previously vaccinated or have had only one flu vaccination in their lifetime.

Adults ***aged ≥65 years*** should receive any one of the higher dose or adjuvanted influenza vaccines, such as the quadrivalent high-dose inactivated influenza vaccine (HD-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (aIIV4)

To find out more, visit the ACIP's 2022 recommendations

2022-2023 flu season available for download from the August 26, 2022, issue of Morbidity and Mortality Weekly Report. Every year, influenza infections place a significant burden on health systems around the U.S. These concerns were echoed by the PAs in our study whose responses illustrated the importance of receiving an influenza vaccination to protect others and reduce the likelihood of severe influenza complications (Table 10). The findings illustrate PAs are working to educate patients and alleviate their concerns regarding influenza vaccination, but more research is needed to identify how PAs without access to multiple formulations of the influenza vaccine work to meet the needs of their patient populations and implement ACIP recommendations in their practice.

American Academy of Physician Associates

Tables

Table 1. PA Familiarity with Current ACIP Recommendations on Influenza Vaccine by Patient Age Group

Patient age groups	N	Familiarity				
		Not at All	Slightly	Somewhat	Moderately	Extremely
		Percent (%)				
Persons aged 6 months or older	312	14.7	16.3	26.0	32.4	10.6
Adults aged 65 years or older	312	8.7	11.9	24.0	35.6	19.9

Question: How familiar are you with the current Advisory Committee on Immunization Practices (ACIP) recommendations (August 2022) on influenza vaccines for...

Table 2. PA Confidence with Influenza Vaccines

Area of Practice	N	Amount of Confidence				
		Not at All	Slightly	Somewhat	Very	Extremely
		Percent (%)				
Educate and/or counsel patients on influenza vaccines	312	0.6	15.7	31.1	42.6	9.9
Educate and/or counsel patients on the differences between influenza vaccines and influenza vaccines for persons aged 65 years or older	312	9.6	19.9	35.9	26.6	8.0
Educate and/or counsel patients on the impact of influenza on the patient's health conditions	312	1.0	7.7	22.1	50.3	18.9
Confidence in overcoming objections to the flu vaccine	311	9.3	26.4	50.2	12.5	1.6

Question: Please indicate your level of confidence for the following areas of your practice.
Question: If a patient comes into your clinic and declined an influenza vaccine, how confident are you to overcome their objections?

Table 3. PA Experiences During the 2021-2022 Influenza Season

Measure	N	Percent (%)
Access to more than one formulation of influenza vaccines in 2021-2022 influenza season		
No	145	46.8
Yes	148	47.7
Other	17	5.5
Total	310	100.0
Likelihood of recommending a particular vaccine based on their patient profile		
Not at all likely	105	33.8
Slightly likely	37	11.9
Somewhat likely	62	19.9
Very likely	84	27.0
Extremely likely	23	7.4
Total	311	100.0

Question: During the 2021–2022 influenza season, did you have access to more than one (1) influenza formulation?
Question: During the 2021–2022 influenza vaccine, how likely were you to recommend a particular type of influenza vaccine for a given patient based on their patient profile?
Note: Only includes PAs who were clinically practicing at some point during the 2021–2022 influenza season.

Table 3b. PA Likelihood of Recommending a Particular Vaccine for Their Patients by Access to More Than One Formulation of Influenza Vaccine

Access	N	Likelihood				
		Not at All	Slightly	Somewhat	Very	Extremely
		Percent (%)				
No	145	51.0	13.1	21.4	13.1	1.4
Yes	148	13.5	10.8	19.6	42.6	13.5
Other	17	58.8	11.8	12	11.8	5.9

Question: During the 2021–2022 influenza season, did you have access to more than one (1) influenza formulation?
Question: During the 2021–2022 influenza vaccine, how likely were you to recommend a particular type of influenza vaccine for a given patient based on their patient profile?
Note: Only includes PAs who were clinically practicing at some point during the 2021–2022 influenza season.

Table 4. Frequency PAs Recommended and Educated Patients During the 2021-2022 Influenza Season

Practice Behavior	N	Proportion of Patient Encounters				
		None	Some	Most	All	Do Not Know
		Percent (%)				
Recommend an influenza vaccine and administer the vaccine	311	20.6	28.3	36.0	8.4	6.8
Recommend a higher dose or adjuvanted influenza vaccine to patients aged 65 or older and administer the vaccine	311	31.5	19.0	25.1	14.1	10.3
Educated and/or counsel patients on influenza vaccines	311	10.3	33.8	41.8	12.5	1.6
Educated and/or counsel patients on the impact of influenza on the patient's health conditions	311	6.4	36.7	42.4	12.9	1.6

Question: During to the 2021–2022 influenza season, with regard to patients who had not yet received an influenza vaccine, approximately how often did you…
Note: Only includes PAs who were clinically practicing at some point during the 2021–2022 influenza season.

Table 5. Percent of PAs' Patients Who Received an Influenza Vaccine During the 2021-2022 Influenza Season by Age

Patient Age Groups	N	0%	1% to 25%	26% to 50%	51% to 75%	76% to 100%	I do Not Know
		Percent(%)					
Patients aged 18–64 years who received influenza vaccines	311	1.3	16.4	37.3	26.0	7.1	11.9
Patients aged 65 years or older who received influenza vaccines	311	1.6	12.2	17.4	38.6	16.7	13.5

Question: During the 2021–2022 influenza season, approximately what percent of your patients fall into the following categories?
Note: Only includes PAs who were clinically practicing at some point during the 2021–2022 influenza season.

American Academy of Physician Associates

Table 6. Primary, Secondary, or Tertiary Reasons Patients Provide to PAs for Refusing an Influenza Vaccine, by Ranking

Reasons	N	Percent (%)
They do not think influenza vaccines work very well	180	58.3
They never get influenza	151	48.9
They are concerned about getting influenza from influenza vaccines	148	47.9
They are concerned about potential side effects from influenza vaccines	121	39.2
They do not think influenza is a serious illness	101	32.7
They do not trust the system	63	20.4
Influenza vaccines are not reliable	58	18.8
There are harmful substances in influenza vaccines	48	15.5
Vaccines are a political game	35	11.3
Influenza vaccines are a money-making venture	14	4.5
They do not have enough information about influenza vaccines	8	2.6
Total	309	100.0

Question: What are the top 3 most common reasons your patients provide for refusing an influenza vaccine.
Note: Primary, secondary, and tertiary categorization was collapsed to reflect the percent of respondents who indicated the reason was expressed to them as a rational for refusing an influenza vaccine.

Table 7. Percent of PAs Likely to Get an Influenza Vaccine in the 2022–2023 Influenza Season

Likelihood	N	Percent (%)
Extremely likely	276	88.5
Likely	20	6.4
Undecided	3	1.0
Unlikely	5	1.6
Extremely unlikely	6	1.9
I prefer not to answer	2	0.6
Total	312	100.0

Question: How likely are you to get an influenza vaccine for the 2022–2023 influenza season?

Table 8. Barriers to PAs' Patients Receiving and Influenza Vaccine

Barriers	Top three Barriers Ranked		
	First Largest	Second Largest	Third Largest
	Percent (%)		
My patients are resistant to it	47.1	13.2	8.9
My patients are concerned about the efficacy of it	12.7	28.6	15.8
It is outside of my scope of practice	10.8	2.6	2.3
My patients are concerned about the safety of an influenza vaccine	7.8	17.8	19.5
I do not have enough time to counsel patients on it	6.2	9.9	11.9
There are other health priorities that my office or I put forward	3.3	6.3	7.9
There are other health priorities that patients' parents put forward	2.9	8.2	11.2
It does not improve my patients' overall health	2.0	1.3	2.3
There is limited availability of it in my location	1.3	2.0	3.0
It is too expensive for patient population	1.0	1.6	2.0
I am concerned about the safety of it	1.0	0.3	0.0
It is not covered/reimbursed by health insurance	0.7	1.3	2.3
I am concerned about the efficacy of it	0.7	1.0	1.3
I am not as familiar with standard practices or guidelines as I could be	0.3	3.0	3.0
Other barriers	2.3	3.0	8.7

Question: What are the top three barriers to your patients receiving an influenza vaccine each year?

Table 9. Characteristics of PAs' Who Responded to Survey

Characteristics	N	Percent (%)
Primary specialty		
Primary care	93	29.8
Internal medicine subspecialties	73	23.4
Emergency medicine	42	13.5
Other specialties	104	33.3
Total	312	100.0
Primary setting		
Outpatient clinic or physician office	143	46.0
Hospital	118	37.9
Urgent care center	31	10.0
Other	19	6.1
Total	311	100.0
Experience as a PA		
Less than 2 years	8	2.6
1 year	7	2.3
2 to 4 years	105	33.8
5 to 9 years	111	35.7
10 to 14 years	59	19.0
15 to 19 years	13	4.2
20 or more years	8	2.6
Total	311	100.0

*Question: Please indicate your primary specialty as a PA. *(collapsed to 4 larger specialty subgroups)*
Question: How long have you been a PA?
Question: Please indicate your primary setting in which you practice as a PA.
Note: Fourteen PAs in in specialties where the administration of influenza vaccines to adults was unlikely (e.g., general pediatrics and pediatric subspecialties, hospice and palliative care, ophthalmology, plastic surgery), and as well as those who had no specialty were excluded from the study.

Table 10. Open-Ended Responses to Benefits of Receiving an Influenza Vaccine

Global code	Subtheme	Significant quotation
Prevents Illness and death from Influenza	Reduced mortality & morbidity from influenza	*Development of acquired immunity to a particular strain of influenza to decrease probability of morbidity and mortality.*
	Reduced influenza severity	*Reduction of hospitalization and severe symptoms related to an influenza infection*
Helps others	Decrease spread	*To help prevent you and your loved ones from getting a severe influenza infection requiring hospitalization or worse*
	Herd immunity	*Protection from severe illness. Protection against spreading illness to immunocompromised population.*

Question: What are the benefits of receiving an influenza vaccine?