

# Factors associated with pneumococcal vaccine uptake among vulnerable populations in the United States primary care setting

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## Introduction

- Healthy People 2020 pneumococcal vaccine targets have not yet been met (65 and older target: 90%; 65 and older prevalence in 2019: 71.7%) (CDC 2021).
- Research suggests that there are an average of 4.07-4.22 missed opportunities to administer the pneumococcal vaccine annually in the primary care setting (Olasupo et al. 2020).

## Objectives

- To determine factors associated with getting the pneumococcal vaccine among those with a primary care provider as their usual source of care using a nationally representative dataset.

## Methods

- 2018 Medical Expenditure Panel Survey full year consolidate data file with a total source population of N= 30,461.
- Eligible population (N=2,463) must have responded to ADPNEU42 question on the Self-Administered Questionnaire, have a primary care provider as their usual source of care, and be between 65 and 85 years old or be between 44 and 64 and have an “at risk” condition.
- Descriptive statistics of those who refused vs those who chose to get the vaccine and chi-square test for significant differences between groups.
- Bivariate logistic regression analysis used to test for significant association with outcome.
- Variables with significant associations in bivariate were entered into multivariate adjusted logistic regression. Results are in Table 1.

## Results

**Table 1. Factors significantly associated with pneumococcal vaccine uptake in adjusted model**

Variables Modelling Having ever got the Pneumococcal Vaccine (Ref=No)	Adjusted OR {95% CI}
Got the Influenza Shot within last 12 months (Ref= No)	16.7 {6.8,40.9}***
Ever Got the Shingles Vaccine (Ref= No)	16.0 {5.3, 47.9}***
Had a Colonoscopy within the last 10 years (Ref= No)	11.0 {4.3, 28.4}***
Has Diabetes Mellitus (Ref= No)	3.86 {1.4, 10.5}**
Number of provider office visits in 2018 (Ref= 0-1 visits)	
2 visits	0.2 {0.0, 6.0}
3 visits	0.04 {0.0, 0.6}*
4 or more visits	0.2 {0.0, 2.64}
Last time patient saw their provider (Ref= Never)	
Over a year	0.8 {0.1, 8.6}
Within last 12 months	8.4 {1.7, 41.0}**

**Footnote: \* p<0.05, \*\* p<0.01, \*\*\* p<0.001; CI: Confidence Interval; OR: Odds Ratio; BMI**

## Limitations

- This study is cross-sectional. Therefore, it is inappropriate to determine causal effects between associated factors and pneumococcal vaccine uptake.
- Low response frequencies for certain variables and pneumococcal vaccine question was asked of respondents 50 and older.

## Future Work

- Respondents may not be getting their vaccines from their primary care provider. Research should consider where respondents get their vaccines and why.
- The strong association between vaccine uptake across vaccines suggests that choosing to get vaccinated may be the largest consideration over which vaccine to get.

## Conclusions

- There is a strong association between getting the pneumococcal vaccine and get the influenza or shingles vaccine among vulnerable populations aged 44-85.
- Getting the pneumococcal vaccine was associated with lower odds of visiting the doctor more than 3 times a year. More research on vaccine behavior is needed to understand this result.

## References

1. Centers for Disease Control and Prevention. (2021, September 13). FastStats. Pneumonia. Retrieved November 1, 2021, from
2. Olasupo, O., Segal, R., & Brown, J. (2020). Missed opportunities for pneumococcal vaccinations in high-risk and older adults in the United States. *Journal of Infection and Public Health*, 13(1), 101-103.