

# Expanding Pharmacy Personnel Scope of Practice to Increase Adult Pneumococcal Vaccination Coverage Rates at a State-level

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## Introduction

- Adult pneumococcal vaccination coverage rates (pVCR) in the United States (US) consistently fall below national targets.
- In the US, every state permits pharmacists to administer vaccinations.
- While allowing pharmacists to vaccinate has been associated with increased uptake of immunizations, it is unclear if allowing other pharmacy personnel to vaccinate will support vaccination initiatives.

## Objective

- Assess how US state-level vaccination administration scope of practice laws for pharmacy personnel may impact pVCRs.

## Methods

- State-level scope of practice laws for pharmacy interns, students, and technicians were extracted from Lexis Advance and converted to binary variables (i.e., yes/no, can/cannot vaccinate).
  - All 50 states plus Washington DC were included in this analysis (n=51); for this analysis, Washington DC was referred to as a state.
  - A “Sum of Pharmacy” variable was created, which represents the effect of adding additional personnel types to the model (>1).
- pVCRs were extracted from the Centers for Disease Control and Prevention (CDC)’s Adult VaxView.
  - pVCRs were stratified by white and non-white (all other races)
- Generalized linear models, weighted by the inverse of the pVCR variance and adjusted for state-level sociodemographic factors, were used to estimate the effect of each personnel type on pVCR and the additive effect of more than one personnel type (i.e., Sum of Pharmacy).
  - Models were adjusted by state-level sociodemographic data from Kaiser Family Foundation:<sup>7</sup> percent insured via Medicaid/Medicare, percent uninsured, percent unemployed, percent by race (White, Black, Hispanic).

## Results

### Differences in Average pVCRs by Age Group Across Pharmacy Personnel Types Adjusted Model Results [Mean pVCR, (CI), p-value]

Age and Race Stratifications	pVCR Point Estimate (mean, (SD))	Pharmacy Personnel (n=states able to vaccinate/out of 51)			
		Pharmacy Intern (n=41/51)	Pharmacy Student (n=6/51)	Pharmacy Technician (n=5/51)	Sum of Pharmacy (effect of >1 types)
<b>18-64 years, high risk (all races)</b>	30.9 (3.4)	1.32 (-0.20-2.85) p= .088	1.28 (-1.15-3.70) p= .303	2.15 (-0.32-4.62) p= .088	<b>1.49 (0.28-2.71) p= .016</b>
<i>White</i>	32.6 (3.4)	1.72 (-0.18-3.62) p= .076	1.35 (-1.57-4.27) p= .366	<b>3.32 (0.11-6.53) p= .043</b>	<b>1.95 (0.37-3.53) p= .016</b>
<i>Non-White</i>	27.5 (4.8)	-2.27 (-5.55-1.01) p= .175	-0.23 (-5.44-4.98) p= .930	-0.42 (-4.62-3.79) p= .846	-1.39 (-3.76-0.98) p= .252
<b>65+ years (all races)</b>	72.9 (3.5)	0.24 (-1.55-2.03) p= .795	0.16 (-2.40-2.72) p= .904	<b>3.00 (0.26-5.75) p= .032</b>	0.79 (-0.68-2.26) p= .290
<i>White</i>	75.0 (2.9)	0.13 (-2.19-2.45) p= .914	<b>3.87 (0.76-6.99) p= .015</b>	3.00 (-0.46-6.47) p= .090	1.62 (-0.33-3.56) p= .103
<i>Non-White</i>	63.2 (10.0)	-3.90 (-10.5-2.75) p= .250	1.62 (-8.60-11.8) p= .756	<b>12.9 (4.09-21.8) p= .004</b>	1.79 (-3.68-7.25) p= .522

- Cells with green highlights indicate positive, significant results at the p<.05 level

## Conclusion & Recommendations

Increased scope of practice for any 2 types of pharmacy personnel demonstrated positive associations in all and white races in 18-64 yr old high-risk groups

Increased pharmacy technician scope of practice associated with increased pVCRs in 3 out of 6 stratifications

Potential to increase VCRs by expanding the scope of practice for pharmacy personnel

## Limitations

- Only scope of practice laws indexed by Lexis Advance were considered in this analysis.
  - Definitions for pharmacy intern and student differ between states but often refer to the same role.
  - While state laws may allow pharmacy personnel to administer vaccinations, this does not indicate routine practice.
- Study design was observational and did not consider pVCR changes pre-/ post- state law implementation.
- Number of states that allow pharmacy technicians and students to vaccinate is small which may affect generalizability.

## Looking Ahead

- This research suggests increasing types of pharmacy personnel who can vaccinate may increase VCRs; however, additional research is needed.
- These findings may have implications for advocacy efforts focused on expanding scope of practice for pharmacy personnel.
- Opportunities exist to better understand who is administering vaccinations within pharmacies, not just those who are legally permitted.
- Some variations seen when stratifying by race; disparity impact should be explored in future research.