

ABSTRACT

Background: For adults in the United States, annual influenza vaccination is recommended for those who have certain high-risk medical conditions, are health care workers, are 50 years or older, or reside in a household with members who are 50 or older or younger than 5 years. The extent to which individuals in the latter category are vaccinated is not well known.

Objectives: (1) To determine the proportion of adults who received influenza vaccine during the 2007–2008 influenza season; (2) to determine vaccination levels in selected subgroups with an indication for vaccination; and (3) to evaluate determinants of influenza vaccination.

Methods:

Design: Population-based telephone surveys of adults 18 years or older sampled from directories of listed telephone numbers; conducted from September 2007 through April 2008 with a goal of 4,000 completed interviews.

Setting: Four predominantly rural to semi-urban counties in North Carolina.

Exposures or interventions: Influenza vaccination.

Main outcome measures: Proportion vaccinated overall and by indication (not including high-risk medical conditions, about which we did not have information).

Statistical analysis: Chi-square for contingency tables and logistic regression models that included covariables for age, sex, race and ethnicity, interview date, indication for vaccination, and influenza-related knowledge and behaviors.

Results: As of January 15, 2008, 1,582 individuals had completed interviews and 515 reported receiving influenza vaccine. By November, the proportion vaccinated reached a plateau at 49%. In logistic regression analyses restricted to respondents with an indication for vaccination, the odds ratios (ORs) of being vaccinated were 0.2 (95% confidence interval, 0.1–0.5) for ages 18–49 and 0.4 (0.3–0.6) for ages 50–64 relative to the >65 years group, and 0.8 (0.6–1.0) for residents of rural versus more urban counties. Relative to adults older than 50 years, the ORs of vaccination were 1.9 (1.0–3.7) for health care workers, 1.4 (0.6–3.2) for those whose main indication was living in households with young children, and 0.7 (0.3–1.6) for individuals whose only indication was living in a household with an adult over 50 years of age.

Conclusions: Age was the major determinant of vaccination. Among those with an indication for vaccination, vaccination coverage was highest among health care workers and lowest for individuals whose only indication was living in a household with an adult over 50 years of age. The results will be updated at the end of the influenza season.

BACKGROUND

- In the U.S., annual influenza vaccination is recommended for adults who:
 - have certain high-risk medical conditions
 - are health care workers
 - are age 50 or older
 - reside in a household with members who are 50 or older or younger than 5 years of age
- The extent to which individuals in the latter category are vaccinated is not well known.

OBJECTIVES

- To determine the proportion of adults who received influenza vaccine during the 2007–2008 influenza season
- To determine vaccination levels in selected subgroups with an indication for vaccination
- To evaluate determinants of influenza vaccination

METHODS

Design: Population-based telephone surveys of adults 18 years or older sampled from directories of listed telephone numbers; conducted from September 2007 to May 2008.

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Exposures or interventions: Influenza vaccination.

Main outcome measures: Proportion vaccinated overall and by indication (not including high risk medical conditions, about which we did not have information).

Statistical analysis:

- Kaplan Meier survival curves
- Proportional hazards regression models stratified by county and that included vaccination status and potentially confounding covariables
- Survival analyses were censored at vaccination date or interview date for those not vaccinated at the time of interview.

CONFLICT OF INTEREST

None

RESULTS

Respondent Characteristics

Characteristic	Proportion (N=4135)
Female	70%
Age	
18–49	31%
50–64	34%
≥65	35%
Race/ethnicity	
White, non-Hispanic	73%
Black, non-Hispanic	13%
Other	14%

Determinants of Influenza Vaccination

	Vaccination RR*	95% CI
Age		
18–49	1.0	referent
50–64	1.49	1.31–1.69
≥65	2.53	2.24–2.85
Women (vs. men)	1.00	0.91–1.11
Race/ethnicity		
White, non-Hispanic	1.00	referent
Black, non-Hispanic	0.79	0.67–0.92
Native American	0.85	0.69–1.06
Hispanic/other	0.86	0.70–1.06

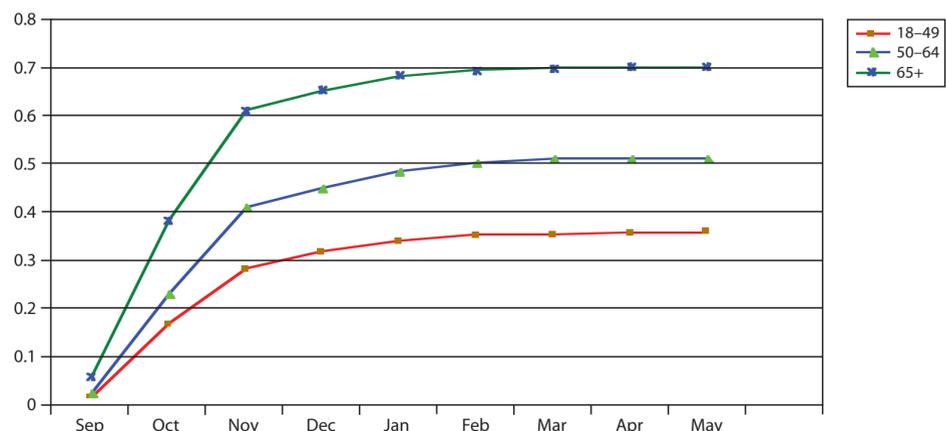
*Adjusted for county, sex, race and ethnicity, and preparedness factors.

Relative Incidence of Vaccination by Indication

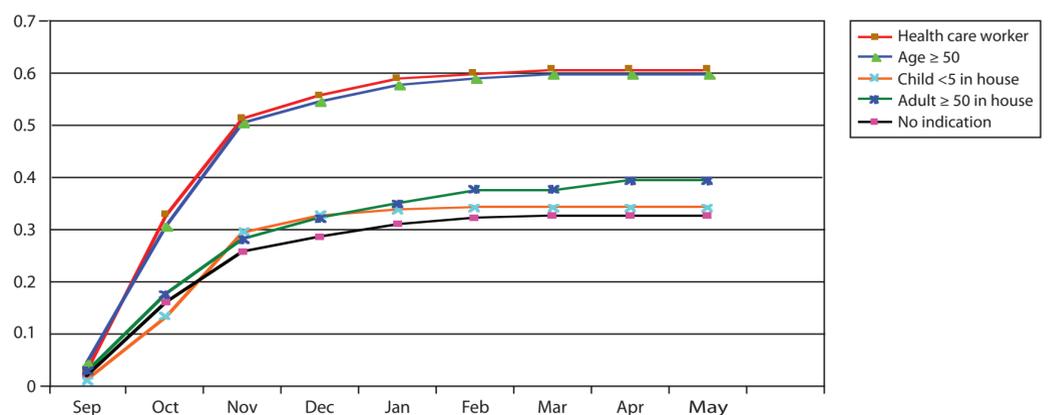
Indication	Vaccination RR*	95% CI
Health care worker	2.18	1.76–2.70
Respondent age ≥50	2.15	1.84–2.50
Child age <5 in household	1.05	0.81–1.19
Adult age ≥50 in household	1.21	0.92–1.60
No known indication	1.0	referent

*Adjusted for county, sex, race and ethnicity, and preparedness factors.

Cumulative Proportion Vaccinated, by Month and Age



Cumulative Proportion Vaccinated, by Month and Indication



CONCLUSIONS

- Age was the major determinant of vaccination.
- Vaccination coverage was highest among health care workers and those age ≥50.
- Recommendations to vaccinate individuals living in a household with a child less than age 5 or an adult age 50 or older did not seem to influence vaccination status.

CONTACT INFORMATION

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