

# Predictors of tetanus-diphtheria-acellular pertussis vaccination among adults receiving tetanus vaccine in the United States: Data from the 2008 National Health Interview Survey

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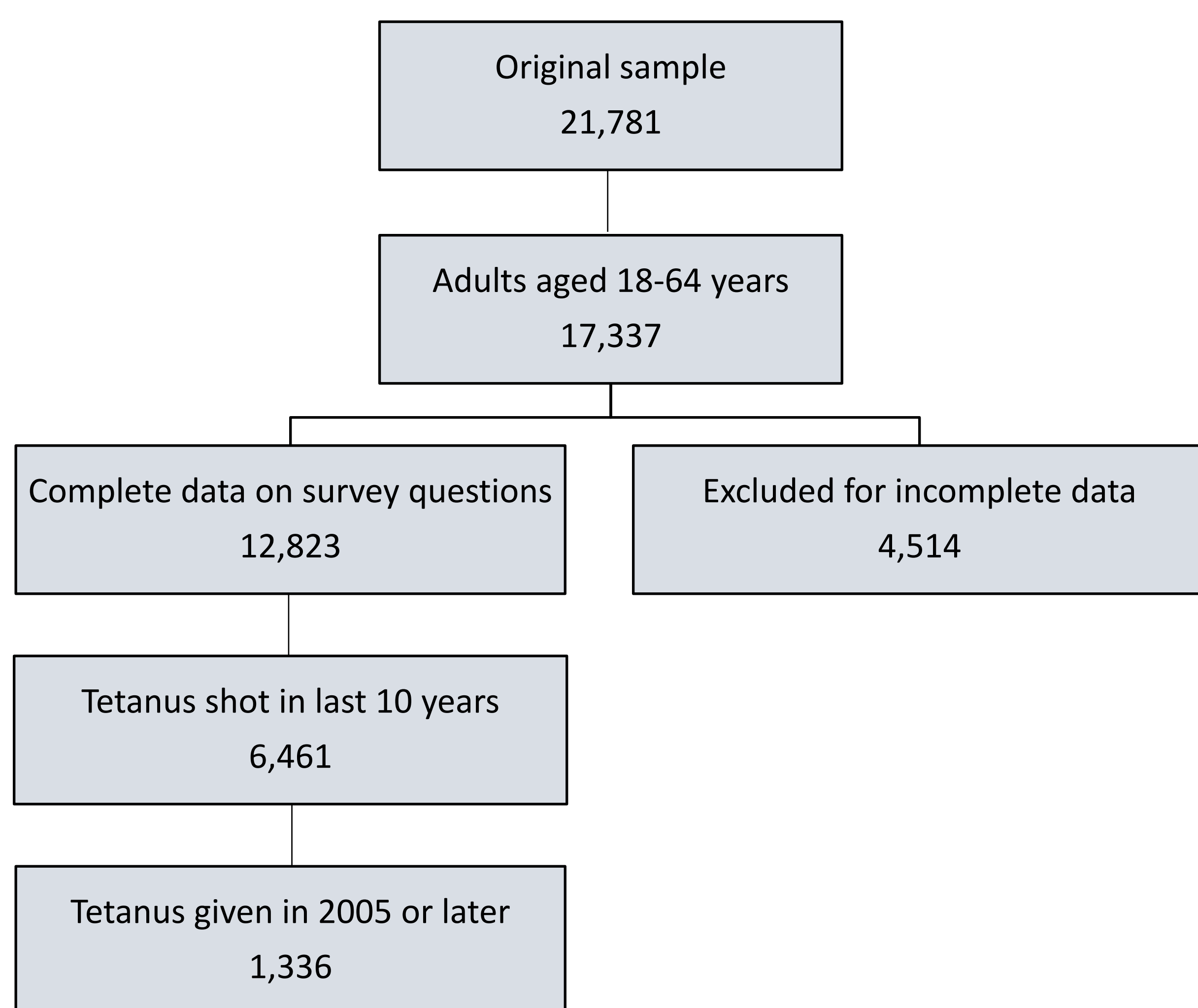


## INTRODUCTION

The incidence of pertussis in the US has been rising since 2007, peaking in 2010 with 27,550 cases reported.<sup>1</sup> Infants are at highest risk for complications and death from pertussis. In order to protect infants that are too young for vaccination, adults are recommended to receive the tetanus-diphtheria-acellular pertussis (Tdap) vaccine.<sup>2</sup> However, among adults who report receiving tetanus vaccination, only about half receive Tdap. The reasons for this are unclear. The objective of this study is to describe factors associated with Tdap vaccination among US adults aged 18-64 years who received tetanus vaccination.

## METHODS

This study used data from the 2008 National Health Interview Survey (NHIS), which is conducted annually by the National Center for Health Statistics of the CDC. Selection of observations is described in the Figure. A total of 1,336 NHIS respondents could be evaluated for Tdap vaccination. This primary dichotomous outcome variable was tested for relation to potential explanatory variables, including socio-demographic, health service utilization, health status, and preventive health care behavior characteristics. Unadjusted and adjusted odds ratios were determined using logistic regression procedures.



## RESULTS

Of 1,336 respondents, 51.1% who received tetanus vaccination reported receiving Tdap in 2008. Unadjusted odds ratios were statistically significant for the variable categories listed in Table 1 compared to the reference value. However, only the variables listed in Table 2 remained significant in multivariate analysis.

Table 1. Factors associated with Tdap vaccination in univariate analysis.

Higher Odds	Lower Odds
Female gender	Age 25-49 or 50-64 years
Asian or other race/ethnicity	Non-English language
College education	Barrier to access
2-3 office visits in the past yr	Medical illness
Receiving other vaccines	Functional limitation
	Lower rating of health

## RESULTS

Table 2. Factors associated with receiving Tdap in multivariate analysis

Characteristics	Sample (n)	Pertussis-Containing Vaccine (%) <sup>a</sup>	Adjusted OR (95% Wald CI)
<b>Age</b>			
18-24	171	63.1	1 (ref)
25-49	778	51.8	0.76 (0.52-1.11)
50-64	387	44.5	0.61 (0.38-0.96)*
<b>Education</b>			
High school or less	303	41.0	1 (ref)
Some college	1031	53.8	1.55 (1.16-2.07)*
<b>Visits last 12 mo.</b>			
None	194	43.4	1 (ref)
1	248	49.3	1.39 (0.92-2.11)
2-3	365	59.1	2.01 (1.32-3.06)*
4-9	334	51.5	1.60 (1.06-2.42)*
≥10	195	45.5	1.49 (0.91-2.46)
<b>Functional limits</b>			
Not limited	958	54.9	1 (ref)
Limited	378	42.0	0.70 (0.54-0.91)*

<sup>a</sup> Weighted proportion \* p<0.05

## CONCLUSIONS

In 2008, approximately half of adult Td vaccinations included acellular pertussis, suggesting a need for increased awareness regarding pertussis, its consequences, and methods of prevention. Patients, as well as providers, should be targets of public health campaigns. Older individuals, those who are educationally disadvantaged, and those with functional impairment may be especially suited for supplemental immunization initiatives.

## REFERENCES

1. Pertussis (whooping cough). Surveillance and reporting. Centers for Disease Control and Prevention Website. <http://www.cdc.gov/pertussis/surv-reporting.html#trends>. Accessed October 26, 2011.
2. CDC. Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) in pregnant women and persons who have or anticipate having close contact with an infant aged < 12 months-Advisory Committee on Immunization Practices (ACIP), 2011. MMWR 2011;60:1424-26.

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