

# Non-Influenza Vaccination Coverage Among Adults

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## Overview of Presentation

- ❑ **Data Source**
- ❑ **Coverage Highlights**
- ❑ **Non – influenza adult vaccination coverage by age, race/ethnicity, and target group status**
- ❑ **Conclusions**

## **Data Source: National Health Interview Survey, 2011**

- ❑ Annual in-home survey of U.S. noninstitutionalized civilian population**
- ❑ Detailed health survey of one sample adult in the household**
- ❑ Provides national coverage estimates**
- ❑ Vaccination questions**
  - $\leq 2007$ : Influenza, PPSV, HepB
  - $\geq 2008$ : HPV, Zoster, Td/Tdap, HepA
- ❑ Information on high-risk status for hepatitis A or B was not collected**
- ❑ Final sample adult component Response Rate: 66.3%**

## Highlights: Non-Influenza Adult Vaccination Coverage – NHIS, 2011

Compared with 2010 NHIS, modest increases only for :

- ❑ HPV vaccination ( $\geq 1$  dose) (29.5%) -- women, 19-26 years (+8.8 percentage points)
- ❑ Tdap vaccination (12.5%) – 19-64 years (+4.3 percentage points)
- ❑ Coverage for overall tetanus vaccination past 10 years unchanged

# Highlights: Non-Influenza Adult Vaccination Coverage – NHIS, 2011

Compared with 2010 NHIS, limited increases for :

- ❑ Pneumococcal vaccination (62.3%) -- adults  $\geq 65$  years (+2.6 percentage points)
- ❑ Hepatitis B vaccination (  $\geq 3$  doses) (35.9%) – adults, 19-49 years (+2.1 percentage points)
- ❑ Hepatitis A vaccination (  $\geq 2$  doses) (12.5%) – adults, 19-49 years (+1.8 percentage points)
- ❑ Pneumococcal vaccination (20.1%) -- high-risk adults, 19-64 years (+1.6 percentage points)
- ❑ HPV vaccination ( $> 1$  dose) (2.1%) -- men, 19-26 years (+1.5 percentage points)
- ❑ Herpes zoster (shingles) vaccination (15.8%) – adults,  $\geq 60$  years (+1.4 percentage points)

## Pneumococcal Vaccination, 19-64 years, High-risk by Race/Ethnicity

Group	2010 (%)	2011 (%)	Difference*
<b>19-64 years, HR, Overall</b>	18.5	20.1	<b>+1.6</b>
<b>Race/ethnicity</b>			
White, non-Hispanic	19.0	20.1	
Black, non-Hispanic	18.6	22.8	
Hispanic	14.8†	18.3†	
Asian, non-Hispanic	11.5†	12.0†	
Others	26.0	21.7	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.

## Pneumococcal Vaccination, $\geq 65$ years by Race/Ethnicity

Group	2010 (%)	2011 (%)	Difference*
<b><math>\geq 65</math> years, Overall</b>	59.7	62.3	<b>+2.6</b>
<b>Race/ethnicity</b>			
White, non-Hispanic	63.5	66.5	<b>+3.0</b>
Black, non-Hispanic	46.2†	47.6†	
Hispanic	39.0†	43.1†	
Asian, non-Hispanic	48.2†	40.3†	
Others	58.4	67.4	

\* $p < 0.05$  by T test for comparisons between 2011 and 2010 within each level of each characteristic.

†  $p < 0.05$  by T test for comparisons with non-Hispanic white as the reference.

# Tetanus Vaccination, Past 10 Years, 19-49 years, NHIS 2011

Group	2010 (%)	2011 (%)	Difference*
<b>19-49 years, Overall</b>	64.0	64.5	
<b>Race/ethnicity</b>			
White, non-Hispanic	69.3	69.6	
Black, non-Hispanic	56.8†	54.8†	
Hispanic	54.4†	56.3†	
Asian, non-Hispanic	50.3†	52.5†	
Others	62.2†	69.6	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.



# Tetanus Vaccination, Past 10 Years, 50-64 years, NHIS 2011

Group	2010 (%)	2011 (%)	Difference*
<b>50-64 years, Overall</b>	63.4	63.9	
<b>Race/ethnicity</b>			
White, non-Hispanic	67.3	67.7	
Black, non-Hispanic	52.7†	54.4†	
Hispanic	50.9†	52.6†	
Asian, non-Hispanic	47.8†	45.1†	
Others	68.4	67.9	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.

## Tetanus Vaccination, Past 10 Years, $\geq 65$ years, NHIS 2011

Group	2010 (%)	2011 (%)	Difference*
<b><math>\geq 65</math> years, Overall</b>	53.4	54.4	
<b>Race/ethnicity</b>			
White, non-Hispanic	56.3	57.0	
Black, non-Hispanic	39.7†	44.4†	
Hispanic	43.8†	45.1†	
Asian, non-Hispanic	36.5†	37.9†	
Others	62.0	63.2	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.

## Tetanus Vaccination Including Pertussis Vaccine, Past 6 Years, 19-64 years - NHIS, 2011

Group and Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>19-64 years, Overall</b>	8.2	12.5	<b>+4.3</b>
White, non-Hispanic	9.1	13.8	<b>+4.7</b>
Black, non-Hispanic	7.4 <sup>†</sup>	11.0 <sup>†</sup>	<b>+3.6</b>
Hispanic	4.8 <sup>†</sup>	7.7 <sup>†</sup>	<b>+2.9</b>
Asian, non-Hispanic	9.2	11.7	
Others	8.4	19.7	<b>+11.3</b>
Living with an infant aged<1 year	10.6	21.5	<b>+10.9</b>
Not living with an infant aged<1 year	8.1	12.1	<b>+4.0</b>

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

<sup>†</sup> p<0.05 by T test for comparisons with non-Hispanic white as the reference.

## Tdap Estimates – NHIS, 2011: Potential for Bias

Many were excluded (32.1% of respondents[n=25,783]):

- ❑ All those without a “yes” or “no” response for tetanus vaccination, past 10 years (4.3%)
- ❑ All those without response to tetanus vaccination during 2005-2011 (3.1%)
- ❑ Those who reported tetanus vaccination but not told what type (3.4%)
- ❑ Those who reported tetanus vaccination but did not know the vaccine type (21.3%)
- ❑ Sensitivity analysis to assess magnitude of bias: Tdap coverage could range from: 8.0% -36.4%

## Tetanus Vaccination: Proportion Tdap, 19-64 years, NHIS 2011

Group	Not Told (%)	Not Recall (%)	Tdap/Td+Tdap*
<b>Adults, 19-64 years, Overall</b>	55.9	8.9	61.1
<b>HCP, 19-64 years†</b>	38.8	5.4	<b>66.8<sup>§</sup></b>
<b>Non-HCP, 19-64 years</b>	58.3	9.4	59.7

\*Respondents who reported that the doctor did not inform them of the vaccine type they received and those who could not recall the vaccine type were excluded.

† Adults were classified as HCP if they reported they currently work in a hospital, medical clinic, doctor's office, dentist's office, nursing home or some other healthcare facility, including part-time and unpaid work as well as professional nursing care provided in the home.

§p<0.05 by T test for comparisons between HCP and non-HCP 19-64 years.

## Hepatitis A Vaccination (at least 2 doses) Ever and Travel Status, 19-49 years – NHIS , 2011

Travel status	2010 (%)	2011 (%)	Difference*
<b>Had traveled outside the United States since 1995</b> (to countries other than Europe, Japan, Australia, New Zealand, or Canada)	16.6	20.1	<b>+3.5</b>
<b>Had not traveled outside the United States since 1995</b> (except to Europe, Japan, Australia, New Zealand, or Canada)	7.5	8.4	

\* p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

## Hepatitis A Vaccination (at least 2 doses) Ever, 19-49 years, NHIS 2011

Group	2010 (%)	2011 (%)	Difference*
<b>19-49 years, Overall</b>	10.7	12.5	<b>+1.8</b>
<b>19-49 years, Chronic Liver Dis</b>	19.7	17.1	
<b>Race/ethnicity</b>			
White, non-Hispanic	10.4	12.3	<b>+1.9</b>
Black, non-Hispanic	10.3	11.2	
Hispanic	10.3	11.3	
Asian, non-Hispanic	15.3†	19.1†	
Others	16.5†	21.1†	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.

# Hepatitis B Vaccination (at least 3 doses) Ever – NHIS, 2011

Age Group and Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>19-49 years, Overall</b>	33.8	35.9	<b>+2.1</b>
White, non-Hispanic	35.6	37.8	
Black, non-Hispanic	34.5	33.0†	
Hispanic	25.3†	28.9†	<b>+3.6</b>
Asian, non-Hispanic	37.2	40.7	
Others	37.5	44.1	
<b>19-59 years, with diabetes, overall</b>	22.8	26.9	
<b>60 years and over, with diabetes, overall</b>	10.9	12.4	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

† p<0.05 by T test for comparisons with non-Hispanic white as the reference.



# Herpes Zoster (shingles) Vaccination, 60 years and older – NHIS, 2011

Group and Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>60 years and over, Overall</b>	14.4	15.8	
White, non-Hispanic	16.6	17.6	
Black, non-Hispanic	4.5 <sup>†</sup>	7.9 <sup>†</sup>	<b>+3.4</b>
Hispanic	4.4 <sup>†</sup>	8.0 <sup>†</sup>	<b>+3.6</b>
Asian, non-Hispanic	12.7 <sup>†</sup>	14.0 <sup>†</sup>	
Others	8.2 <sup>†</sup>	12.0	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

<sup>†</sup>p<0.05 by T test for comparison with non-Hispanic white as the reference.

# Human Papillomavirus Vaccination Among Females (at least 1 dose) – NHIS, 2011

Age Group and Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>19-26 years, Overall</b>	20.7	29.5	<b>+8.8</b>
White, non-Hispanic	22.4	32.5	<b>+10.1</b>
Black, non-Hispanic	20.4	28.3	
Hispanic	15.1 <sup>†</sup>	20.2 <sup>†</sup>	
Asian, non-Hispanic	22.6	22.3	
Others	16.5	39.0	
<b>19-21 years, Overall</b>	28.2	43.1	<b>+14.9</b>
<b>22-26 years, Overall</b>	16.5	21.5	<b>+5.0</b>

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

<sup>†</sup>p<0.05 by T test for comparison with non-Hispanic white as the reference.

## Human Papillomavirus Vaccination Among Males (at least 1 dose) – NHIS, 2011

Age group	2010 (%)	2011 (%)	Difference*
19-26 years, total	0.6	2.1	<b>+1.5</b>
19-21 years, total	0.3	2.8	<b>+2.5</b>
22-26 years, total	0.8	1.7	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

†p<0.05 by T test for comparison with non-Hispanic white as the reference.

## Health Care Personnel (HCP) Tetanus Vaccination Including Pertussis Vaccine, past 6 years, 19-64 years

Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>HCP, 19-64 years, Overall</b>	20.3	26.8	<b>+6.5</b>
White, non-Hispanic	21.5	27.2	
Black, non-Hispanic	14.0	21.7 <sup>†</sup>	
Hispanic	13.8	30.1	<b>+16.3</b>
Asian, non-Hispanic	26.9	27.8	
Others	--- <sup>§</sup>	--- <sup>§</sup>	§

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

<sup>†</sup>p<0.05 by T test for comparison with non-Hispanic white as the reference.

<sup>§</sup>Estimates are not reliable because of small sample size or relative standard error (standard error/estimates) >0.3.

## Health Care Personnel (HCP) Hepatitis B Vaccination (at least 3 doses) Ever, $\geq 19$ years

Race/ethnicity	2010 (%)	2011 (%)	Difference*
<b>HCP, <math>\geq 19</math> years, Overall</b>	63.2	63.8	
White, non-Hispanic	63.7	65.1	
Black, non-Hispanic	58.7	57.1 <sup>†</sup>	
Hispanic	57.0	59.4 <sup>†</sup>	
Asian, non-Hispanic	72.7	70.4 <sup>†</sup>	
Others	70.2	70.0	

\*p<0.05 by T test for comparisons between 2011 and 2010 within each level of each characteristic.

<sup>†</sup>p<0.05 by T test for comparison with non-Hispanic white as the reference.

## Limitations of Findings

- ❑ NHIS excludes persons in the military and those residing in institutions – might result in underestimation or overestimation of coverage estimates
  - ❑ Response rate 66.3% -- low response rate can result in sampling bias if the nonresponse is unequal among participants regarding vaccination
  - ❑ Self-report of vaccination subject to recall bias
  - ❑ Tdap estimates: potential bias due to exclusions
  - ❑ Age of vaccination not known for vaccines reported as “ever” received – unclear if vaccination occurred as an adult or as part of child or adolescent programs
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- ❑ Coverage Highlights
  - ❑ Non – influenza adult vaccination coverage by age, race/ethnicity, and target group status
  - ❑ Conclusions

## Conclusions

### ☐ Overall coverage remains low

#### – Far below HP2020 targets of

- 90% for 65+ years for pneumococcal vaccine
- 60% for high risk 19-64 years for pneumococcal vaccine
- 30% for 60+ years for Zoster vaccine
- 90% for hepatitis B vaccine for healthcare personnel

### ☐ Some improvement from 2010

- Modest increases for HPV (women, 19-26) and Tdap (19-64 year olds) vaccines
- Limited increases for other vaccines

### ☐ Racial and ethnic disparities remain

### ☐ Much remains to be done to increase vaccine utilization among adults and to eliminate disparities