

# Adult Vaccination Update

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Immunization Services Division



## Overview of Presentation

- ❑ **Non – influenza adult vaccination coverage**
  - Data source
  - Coverage by age group, race/ethnicity, vaccination indication
  - Limitations
  - Conclusions
- ❑ **Information Sources**

## Data Source National Health Interview Survey, 2013

- ❑ **Annual in-home survey of U.S. non-institutionalized civilian population**
- ❑ **Detailed health survey of one adult per family in each household sampled**
- ❑ **Provides national coverage estimates**
- ❑ **Final sample of adult component:**
  - **Response rate: 61%**
  - **N = 34,227**

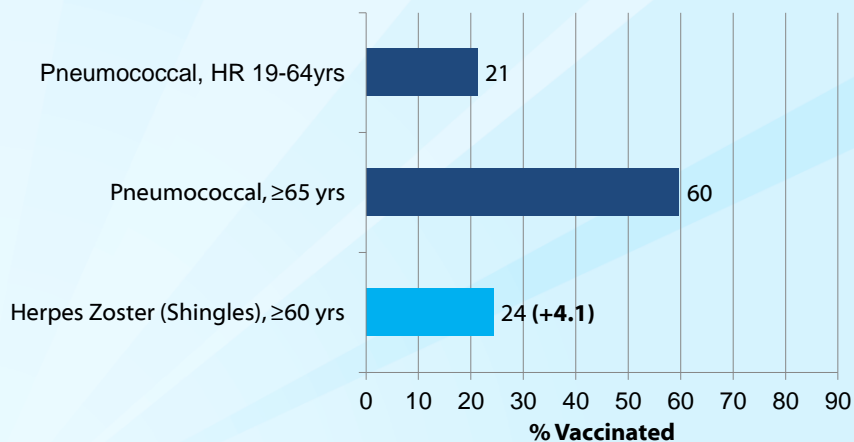
## National Health Interview Survey, 2013 Vaccination Questions

- ❑ **Influenza (not reported here)**
- ❑ **PPSV or PCV13, Td/Tdap, HepA, HepB, Zoster, HPV**
  - Proportion of pneumococcal vaccination by type not measured
- ❑ **High-risk status**
  - Limited information collected for Hep A and Hep B
    - Hep A (travel status & chronic liver disease)
    - Hep B (travel status, chronic liver disease, & diabetes mellitus)
  - PPSV or PCV13
- ❑ **Health Care Personnel (HCP)**

## Definition of High-Risk for Pneumococcal Disease

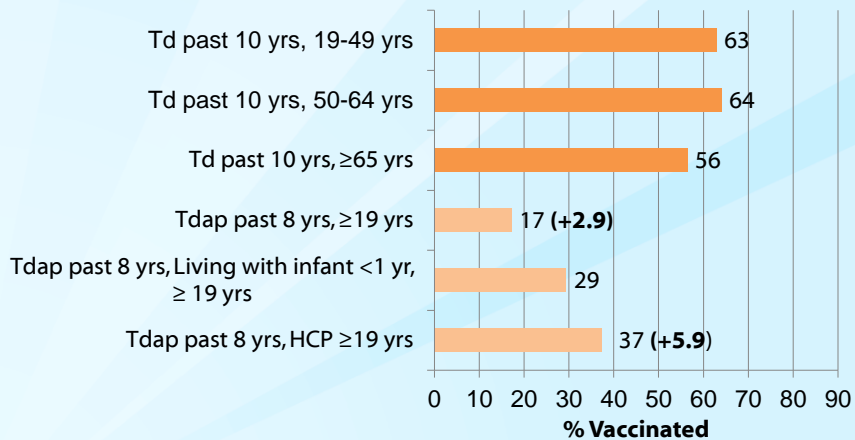
- ❑ **Adults were considered at high risk for pneumococcal disease if they had been told by a doctor or other health care professional that they:**
  - Ever had:
    - Diabetes Mellitus
    - Emphysema
    - Coronary Heart Disease, Angina, Heart Attack, or other Heart Condition
    - Lymphoma, Leukemia, or Blood Cancer
  - Had during the preceding 12 months:
    - Cancer Diagnosis (excluding non-melanoma skin cancer)
    - Asthma Episode or Attack
    - Chronic Bronchitis
    - Weak or Failing Kidneys
- ❑ **Or were Current Smokers**

## Adult Vaccination Coverage, Selected Vaccines by Age and High-risk Status, United States



HP2020 Targets: 60% PPV HR 19-64 years, 90% PPV ≥65 years, 30% Shingles  
Data Source: 2013 NHIS

## Adult Tetanus-containing Vaccination Coverage by Age and High-risk Status, United States



Data Source: 2013 NHIS

## Potential for Bias in Tdap Estimates

### □ **34% of respondents were excluded**

#### **Those:**

- without a “yes” or “no” response for tetanus vaccination, past 10 years (5%)
- without a response to tetanus vaccination during 2005-2013 (4%)
- who reported tetanus vaccination but not told (21%) or did not know the vaccine type (4%)

### □ **Sensitivity analysis to assess magnitude of bias -- Tdap coverage could range from: 13% -42% (adults 19-64 years); 9%-35% (adults ≥65 years)**

Data Source: 2013 NHIS

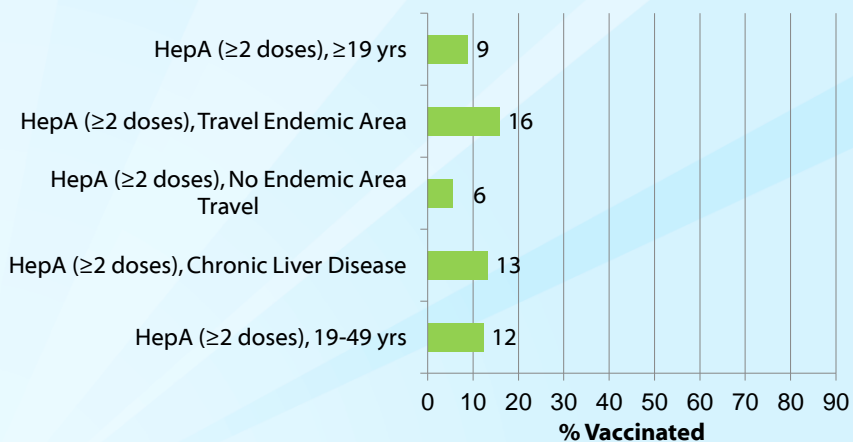
## Proportion of adults $\geq 19$ years of age who received Tdap vaccine

Group	Not Told (%)	Not Recall (%)	Tdap/Td+Tdap
Adults, $\geq 19$ years, Overall	51	11	68
HCP, $\geq 19$ years	31	8	<b>77*</b>
Non-HCP, $\geq 19$ years	54	11	67

\* $p < 0.05$  by T test for comparisons between HCP and non-HCP  $\geq 19$  years.

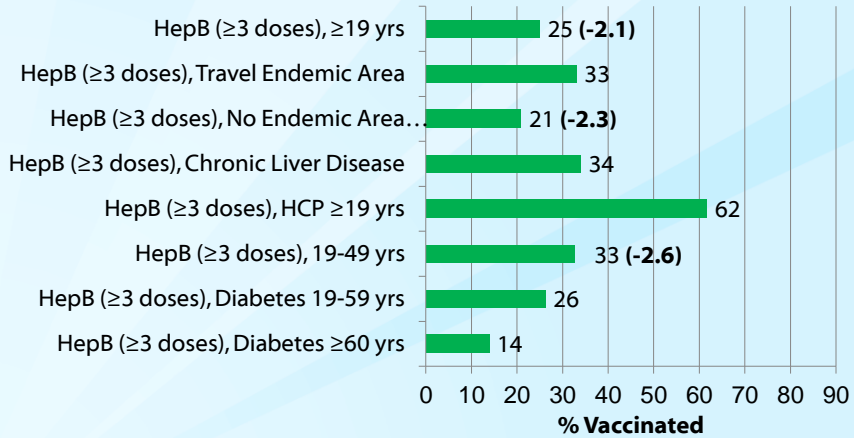
Data Source: 2013 NHIS

## Hepatitis A Vaccination Coverage by Age and High-risk Status, United States



Data Source: 2013 NHIS

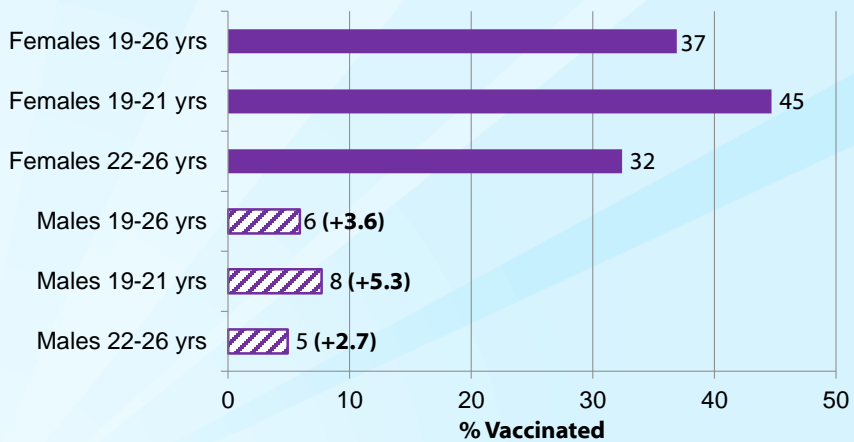
### Hepatitis B Vaccination Coverage by Age and High-risk Status, United States



HP2020 Target: 90% HepB Healthcare Personnel (HCP)

Data Source: 2013 NHIS

### HPV Vaccination Coverage (≥1 dose ever), Adults 19-26 years of age by Sex, United States

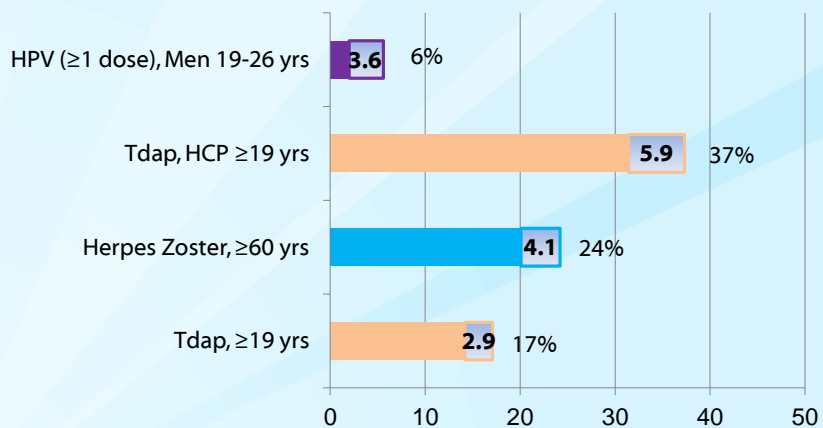


Data Source: 2013 NHIS

### Age at First Dose of HPV Vaccination, Among Adults 19-26 years, NHIS 2013 – United States

Age at First Dose	Women (%)	Men (%)
8-10	1	10
11-12	2	9
13-17	53	37
18	16	18
19-26	28	26

### Non-Influenza Adult Vaccination Coverage Rate Increases from 2012 to 2013



Data Source: NHIS 2012-2013

## Racial/Ethnic Vaccination Disparities

Vaccination Group	% Vaccinated Whites	Disparity, Blacks	Disparity, Hispanics	Disparity, Asians
Pneumo., HR 19-64 yrs	22	-1	-4	-11
<b>Pneumo., ≥65 yrs</b>	64	-15	-24	-18
Tetanus, 19-49 yrs	69	-15	-17	-16
Tetanus, 50-64 yrs	67	-13	-12	-14
Tetanus, ≥65 yrs	60	-19	-14	-17
Tdap, ≥19 yrs	20	-7	-10	-4
Tdap, 19-64 yrs	22	-8	-11	-5
Tdap, ≥65 yrs	13	-7	-6	-2
<b>HepA, 19-49 yrs</b>	13	-2	-2	+3
<b>HepB, 19-49 yrs</b>	35	-5	-12	+4
Herpes Zoster, ≥60 yrs	27	-17	-18	-5
HPV, Females 19-26 yrs	42	-11	-11	-22
Tdap, HCP ≥19 yrs	40	-8	-10	-7
HepB, HCP ≥19 yrs	63	-4	-9	+6

## Racial/Ethnic Vaccination Disparities -- NHIS 2013 Compared with 2012, racial/ethnic differences persisted for all six and widened for Tdap and herpes zoster:

- ❑ **Non-Hispanic blacks, Hispanics, and Non-Hispanic Asians had lower vaccination coverage than that of non-Hispanic whites for all of the vaccines routinely recommended for adults, except for:**
  - PPSV/PCV13 19-64-HR -- Blacks had coverage similar to whites
  - Tdap 65+ -- Asians had coverage similar to whites
  - Hep A 19-49 – Blacks had coverage similar to and Asians had coverage higher than whites
  - Hep B 19-49 – Asians had coverage higher than whites
  - Herpes zoster 60+ – Asians had coverage similar to whites
- ❑ **Health Care Personnel (HCP) – Non-Hispanic black and Hispanic HCP had lower coverage than white HCP for Tdap, and Hispanic HCP had lower coverage than white HCP for Hep B.**



## Limitations of Findings

- ❑ **NHIS excludes persons in the military and those residing in institutions – results apply to the civilian, non-institutionalized population**
- ❑ **Response rate 61.2% -- low response rate can result in sampling bias if the nonresponse is unequal among participants regarding vaccination**
- ❑ **Reported vaccination status and high-risk conditions not validated by medical records**
- ❑ **Self-report of vaccination subject to recall bias**
- ❑ **Tdap estimates: potential bias due to exclusions**

## Conclusions

- ❑ **Overall coverage remains below HP2020 targets**
  - 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 2012**
  - Modest increases for HPV (men, 19-26), Tdap ( $\geq 19$  year olds), and herpes zoster ( $\geq 60$  year olds) vaccines
  - No improvements for other vaccines
- ❑ **Racial and ethnic disparities remain**
- ❑ **Much remains to be done to increase vaccine utilization among adults and to eliminate disparities**

## Collaborators

- ❑ Peng-Jun Lu, MD, PhD
- ❑ Alissa O'Halloran, MSPH
- ❑ Carolyn B. Bridges, MD
- ❑ David K. Kim, MD
- ❑ Tamara Pilishvili, MPH
- ❑ Craig M. Hales, MD
- ❑ Lauri E. Markowitz, MD
- ❑ Walter W. Williams, MD

## For Additional Information:

### ACIP Recommendations for Specific Vaccines

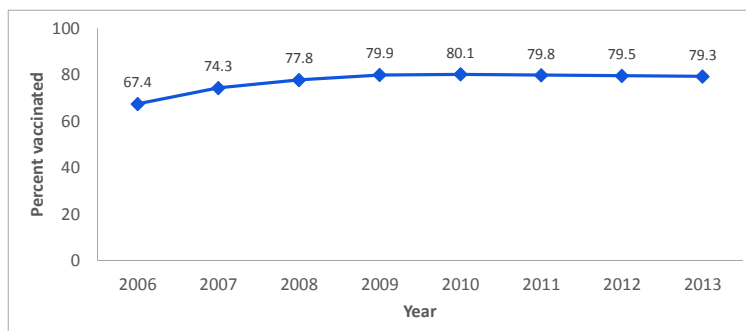
- ❑ <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>

### Non-influenza Adult Vaccination Coverage

- ❑ [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6404a6.htm?s\\_cid=mm6404a6\\_e](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6404a6.htm?s_cid=mm6404a6_e)

## Preview of Nursing Home Coverage Data

### Pneumococcal vaccination coverage among US nursing home residents, 2006-2013



- Source: Minimum Data Set, Centers for Medicare & Medicaid Services



<http://www.cdc.gov/>