

# HPV Vaccination Coverage among U.S. Adolescents: Results from the National Immunization Survey-Teen (NIS-Teen), 2014

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## Presentation Outline

- NIS-Teen overview
- Revised definition of adequate provider data
- HPV vaccination coverage estimates among adolescents, 2014 NIS-Teen

## NIS-Teen Overview

- **Annual survey implemented in 2006**
- **Uses National Immunization Survey (NIS) methodology**
  - Random digit dial telephone survey (landline and cell phones)
  - National sample of parents of adolescents aged 13-17 years
  - Questionnaire mailed to providers to obtain vaccination history
  - Data weighted to adjust for non-response and phoneless households
- **Estimates based on provider-reported vaccination histories**
- **Definition of adequate provider data (APD) revised in 2014**
  - Retrospectively applied to 2013 NIS-Teen data to assess potential impact on estimates

# NIS-Teen Adequate Provider Data Definition

2006-2013

Comparison of household (HH) and provider-reported vaccination history

Criteria:

- 1) Completely unvaccinated by HH report  
OR
- 2) UTD by provider report with  $\geq 1$  Td/Tdap,  $\geq 3$  HepB,  $\geq 2$  MMR and  $\geq 1$  Var (or history of varicella)  
OR
- 3) a) If shot card used: no more doses of measles, Var, HepA, HepB and Td/Tdap vaccines by HH vs. provider report  
  
b) If recall only: by HH report received "all" measles, Var, HepA or HepB doses, and  $\geq 2$  vaccination dates by provider report

2014\*

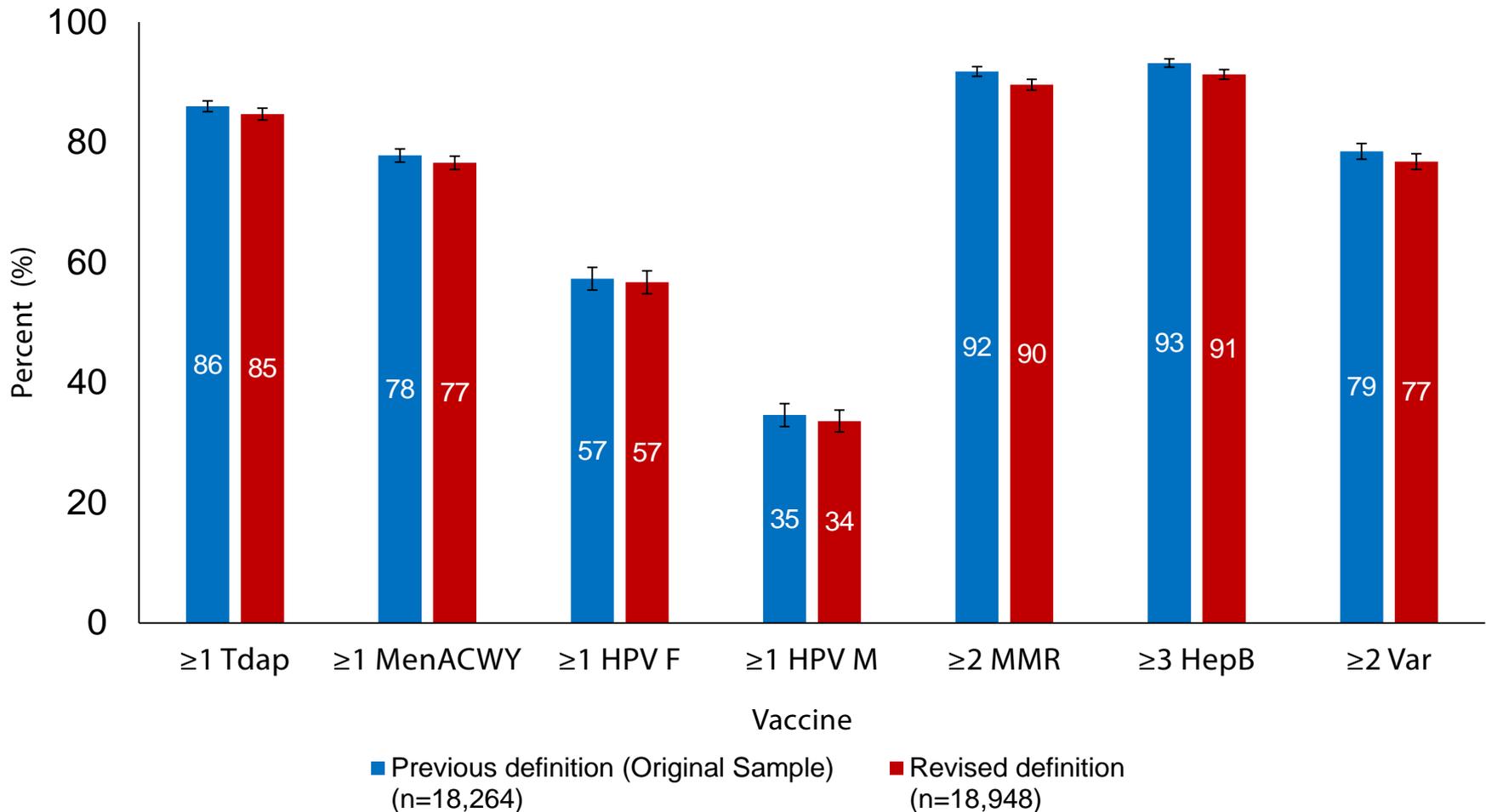
Comparison of HH and provider-reported vaccination history no longer possible. Most vaccination history questions removed from HH questionnaire.

Criteria:

- 1) Completely unvaccinated by HH report  
OR
- 2)  $\geq 1$  vaccine dose by provider report

\*Same definition as used by NIS (coverage among children aged 19-35 months)

# Estimated Vaccination Coverage among Adolescents Aged 13-17 Years, Previous vs. Revised APD\* Definition, NIS-Teen, United States, 2013



\* Adequate provider data

<http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/apd-report.html>

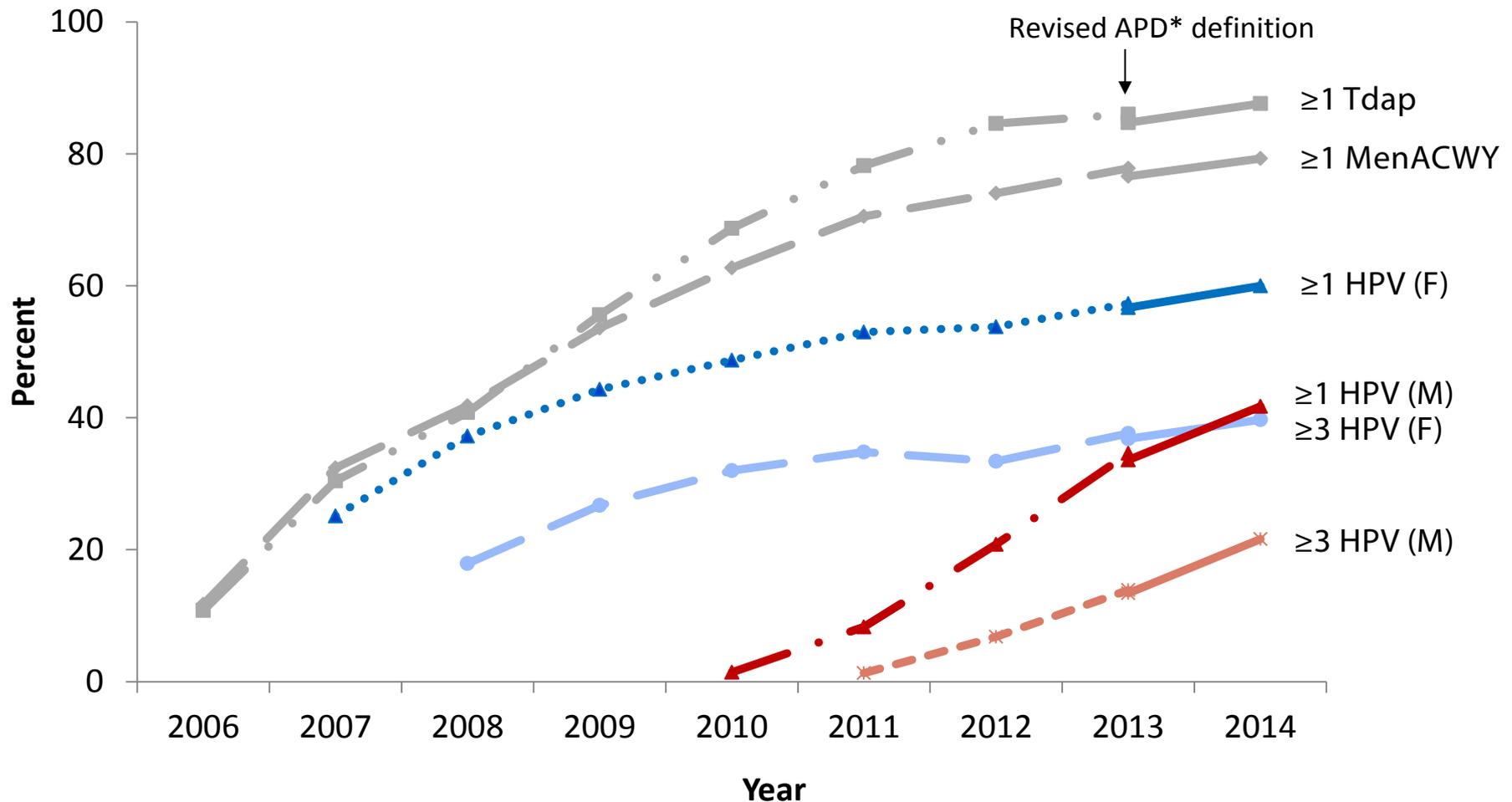
## Key APD Assessment Findings

- 2014 NIS-Teen estimates using revised APD definition not comparable to those previously published
- Changes in coverage between 2013 and 2014 NIS-Teen best measured by comparing estimates that used revised APD definition

# 2014 NIS-Teen Results

- Sample size:
  - National sample: 20,827 adolescents from 50 states and DC
    - 54% (11,243) from landline, 46% (9,584) from cell phone sampling frames
  - Puerto Rico: 230 adolescents (not included in national estimates)
- CASRO response rates\* increased vs. 2013:
  - Landline: 60.3% (+9.2 percentage points)
  - Cell phone: 31.2% (+7.9 percentage points)
- Adequate provider data:
  - Landline: 57.1%
  - Cell phone: 52.3%

# Estimated HPV Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen, United States, 2006-2014



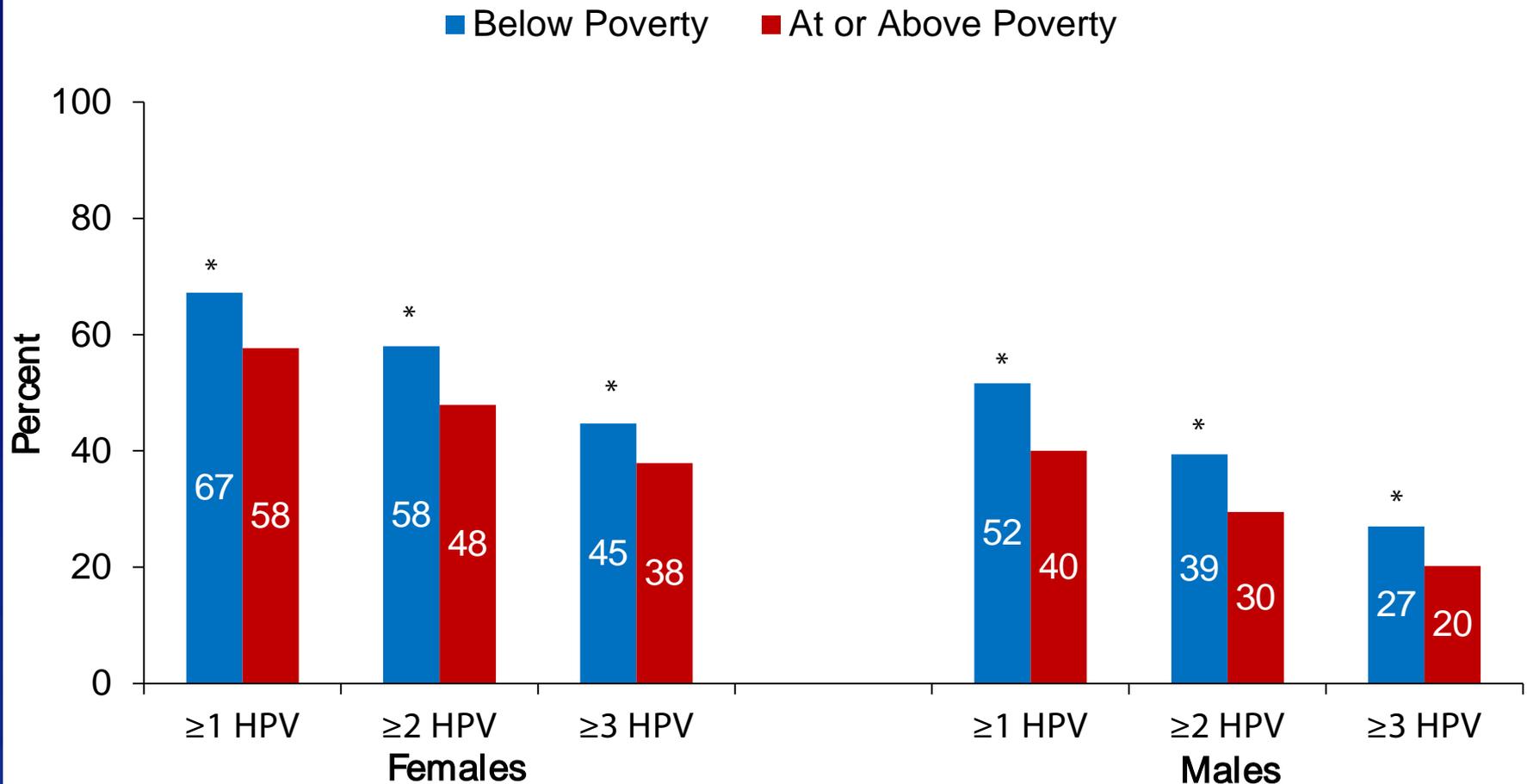
# HPV Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen, United States, 2013 (Revised) vs. 2014

	2013 (Revised)	2014
	(n=18,948)	(n=20,827)
	% (95% CI)	% (95% CI)
<b>Females</b>		
≥1 dose	56.7(±1.9)	60.0(±1.9)*
≥2 doses	46.9(±1.9)	50.3(±1.9)*
≥3 doses	36.8(±1.9)	39.7(±1.9)*
<b>Males</b>		
≥1 dose	33.6(±1.8)	41.7(±1.8)*
≥2 doses	22.6(±1.6)	31.4(±1.7)*
≥3 doses	13.4(±1.3)	21.6(±1.6)*

\*Statistically significant difference compared with 2013 (Revised) estimates (p<0.05).

CI: Confidence interval

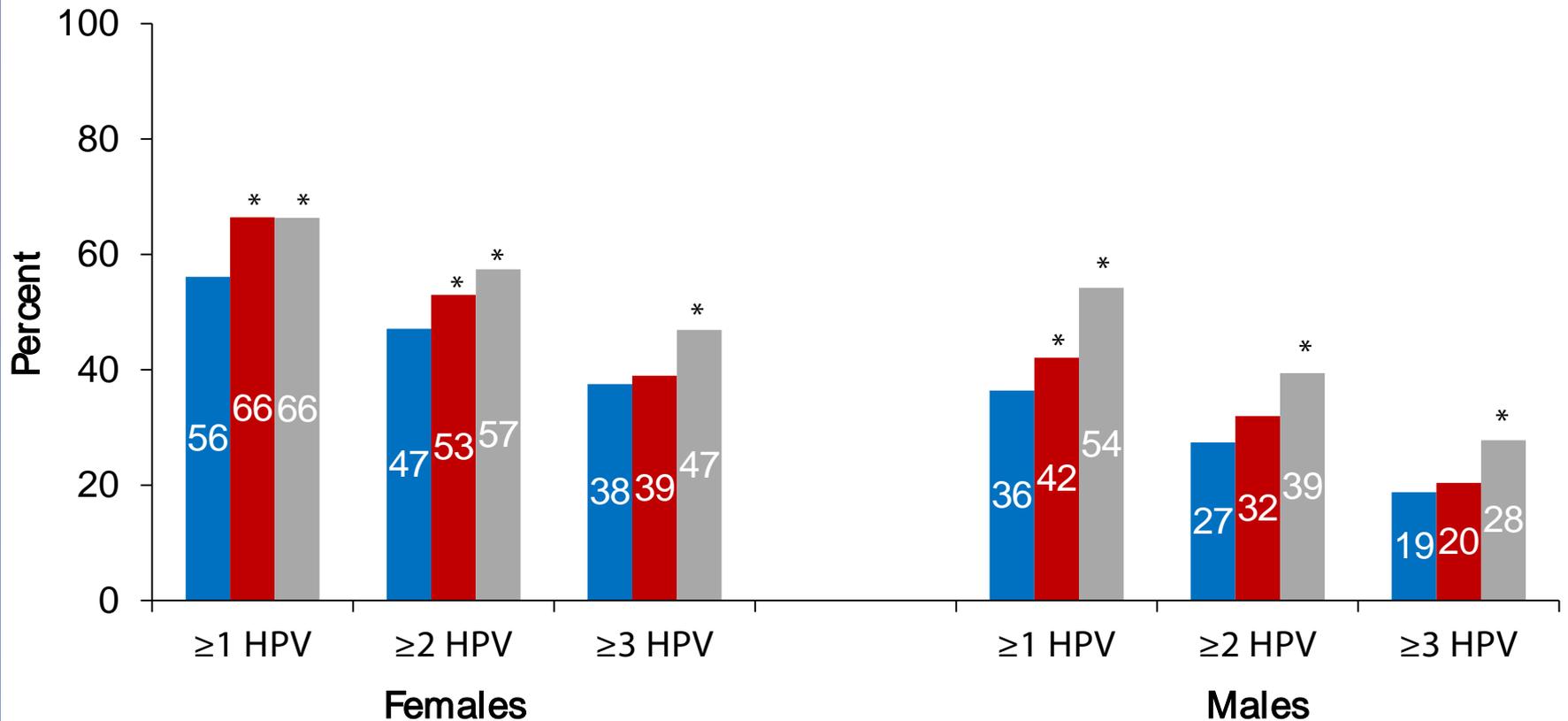
# HPV Vaccination Coverage among Adolescents Aged 13-17 Years by Poverty Status, NIS-Teen, United States, 2014



\* Statistically significant difference compared with adolescents at or above the poverty level (p<0.05).

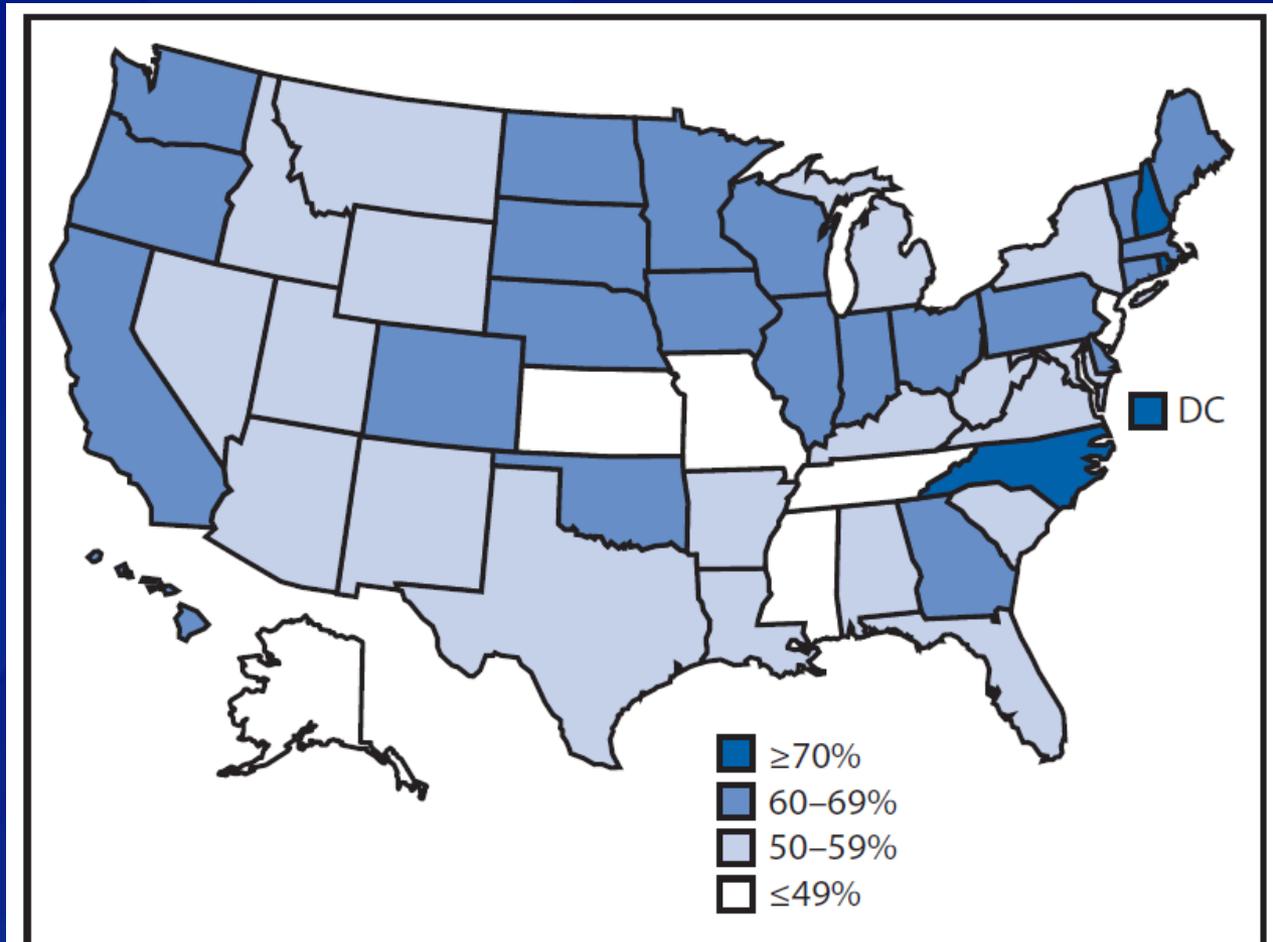
# HPV Vaccination Coverage among Adolescents Aged 13-17 Years by Race/Ethnicity, NIS-Teen, United States, 2014

■ White-NH ■ Black-NH ■ Hispanic

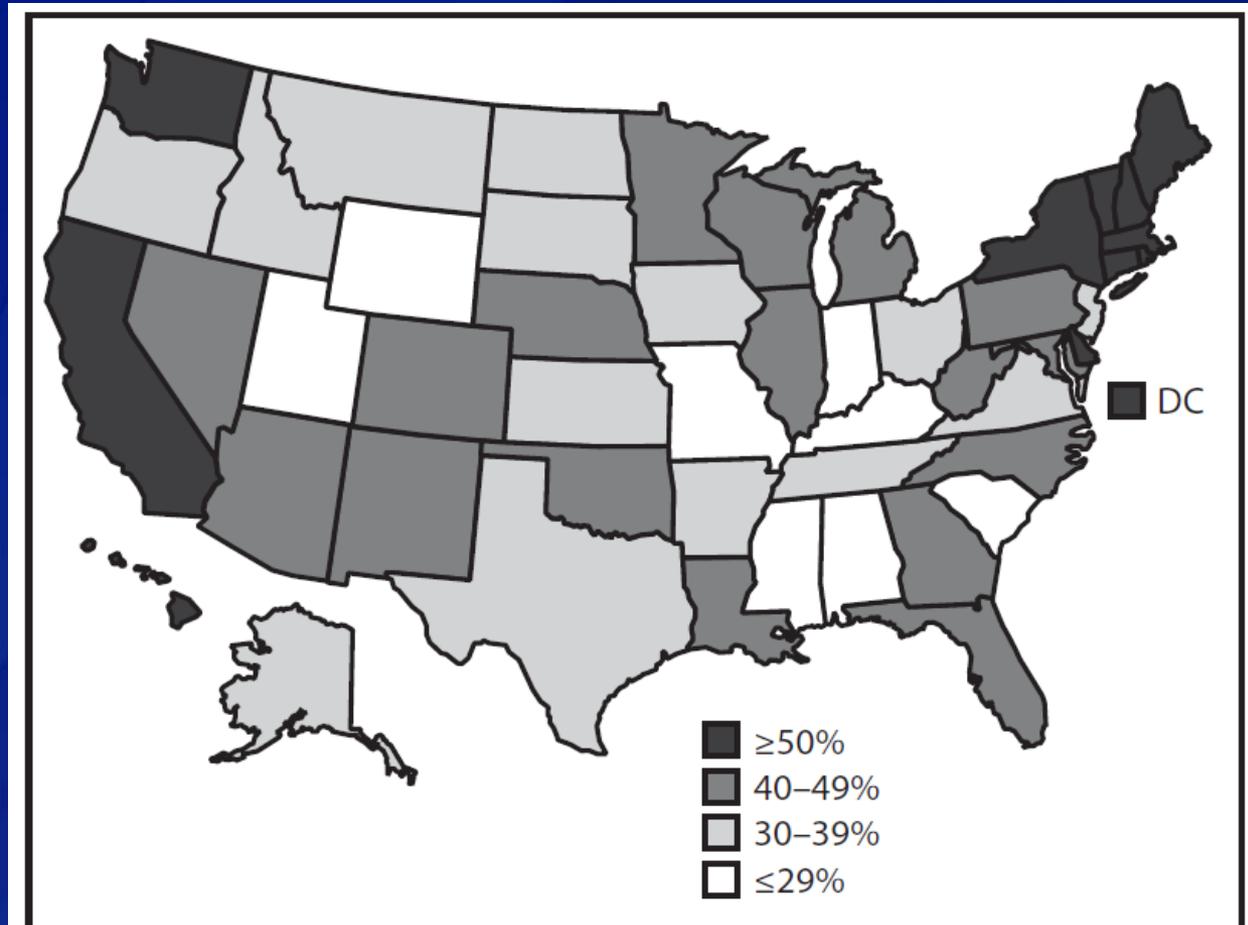


\* Statistically significant difference compared with White-NH adolescents (p < 0.05).

# Estimated Vaccination Coverage with $\geq 1$ HPV Dose among Females Aged 13-17 Years, NIS-Teen, United States, 2014



# Estimated Vaccination Coverage with $\geq 1$ HPV Dose among Males Aged 13-17 Years, NIS-Teen, United States, 2014



## States and Local Areas with Increases\* in HPV Vaccination Coverage among Females Aged 13–17 Years, NIS-Teen, 2014

	≥1 HPV Dose		≥3 HPV Doses	
	Estimate (95% CI)	Percentage point increase	Estimate (95% CI)	Percentage point increase
Dist. of Columbia**	75.2(±9.4)	22.8	56.9(±10.9)†	28.6
Georgia**	--	--	47.1(±9.7)	14.5
Illinois††	64.4(±6.5)	13.2	47.7(±6.9)	15.4
Illinois-Chicago**	78.1(±8.1)	20.5	52.6(±10.7)†	16.1
Montana	57.2(±9.2)	13.8	42.9(±9.1)	16.0
North Carolina	71.1(±8.1)	13.9	54.0(±9.2)	22.3
Utah**	59.2(±8.3)	17.7	--	--

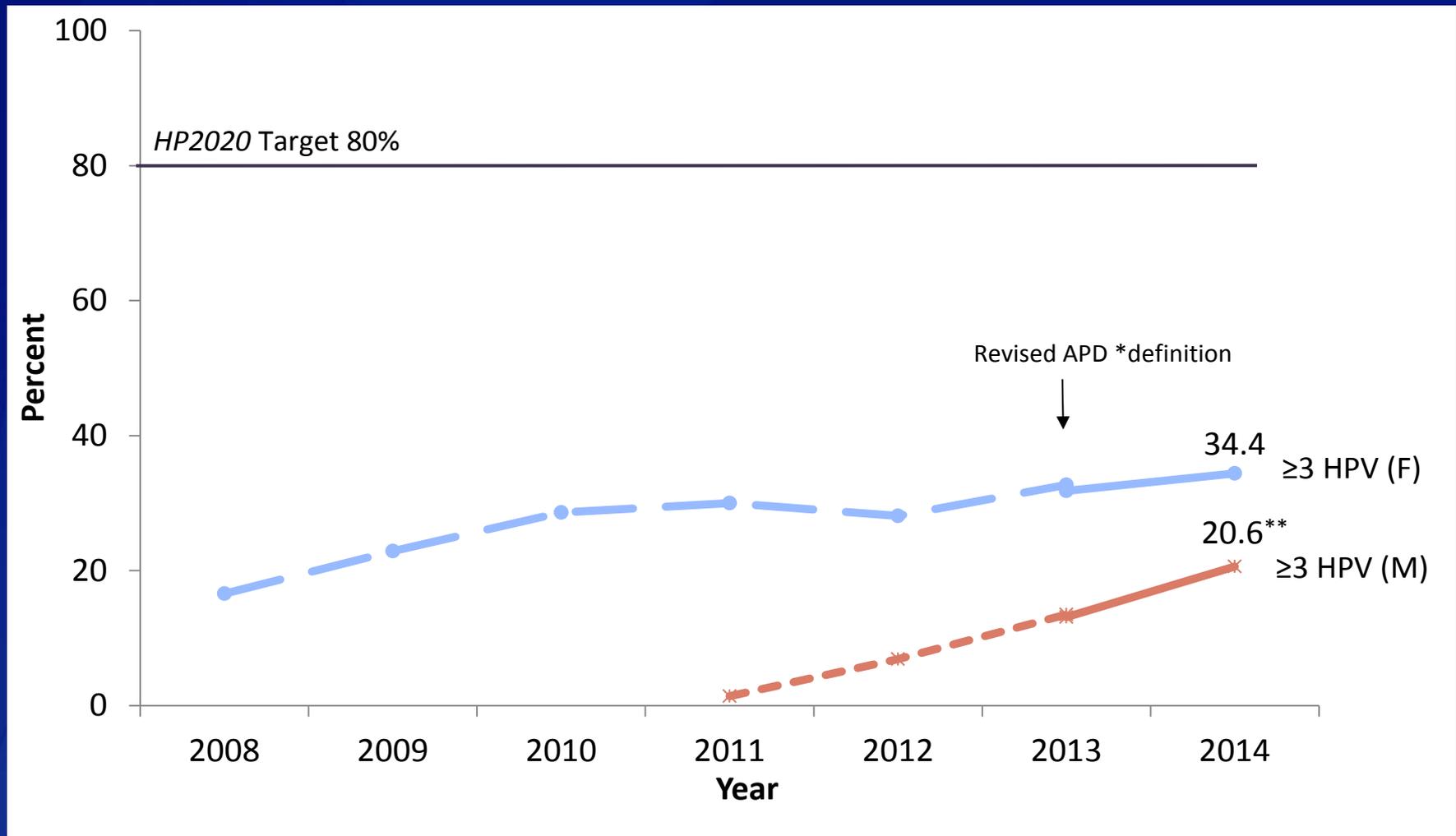
\* Statistically significant difference from 2013 (Revised) estimates ( $p < 0.05$ ).

\*\* Received 2013 Prevention and Public Health Fund (PPHF) awards to increase HPV vaccination coverage.

† Estimates with confidence interval (CI) half-widths  $> 10$  may not be reliable.

†† Received 2014 PPHF award to increase HPV vaccination coverage.

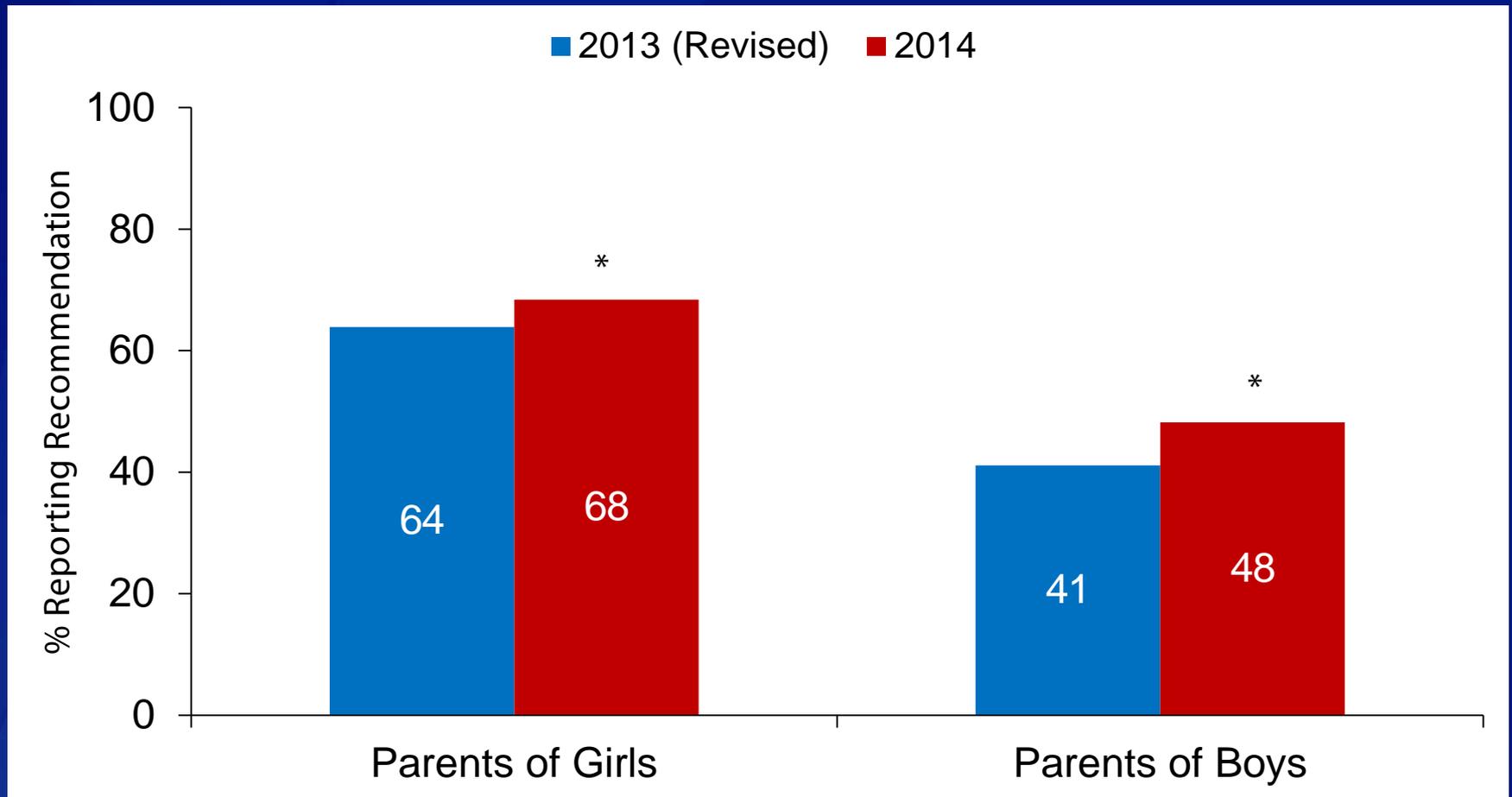
# Estimated Vaccination Coverage with $\geq 3$ HPV Doses, Adolescents Aged-13-15 Years, NIS Teen, United States, 2008-2014



\* APD = Adequate provider data; \*\* Statistically significant difference compared with 2013 (Revised) estimates ( $p < 0.05$ ).

Source: NIS-Teen 2008-2014

# Percent of Parents Reporting Receipt of HPV Vaccination Recommendation from Clinician, NIS-Teen, United States, 2013 (Revised) vs. 2014



\*Statistically significant difference compared with 2013 (Revised) estimates ( $p < 0.05$ ).

Unpublished NIS-Teen 2013 (Revised) and 2014 data.

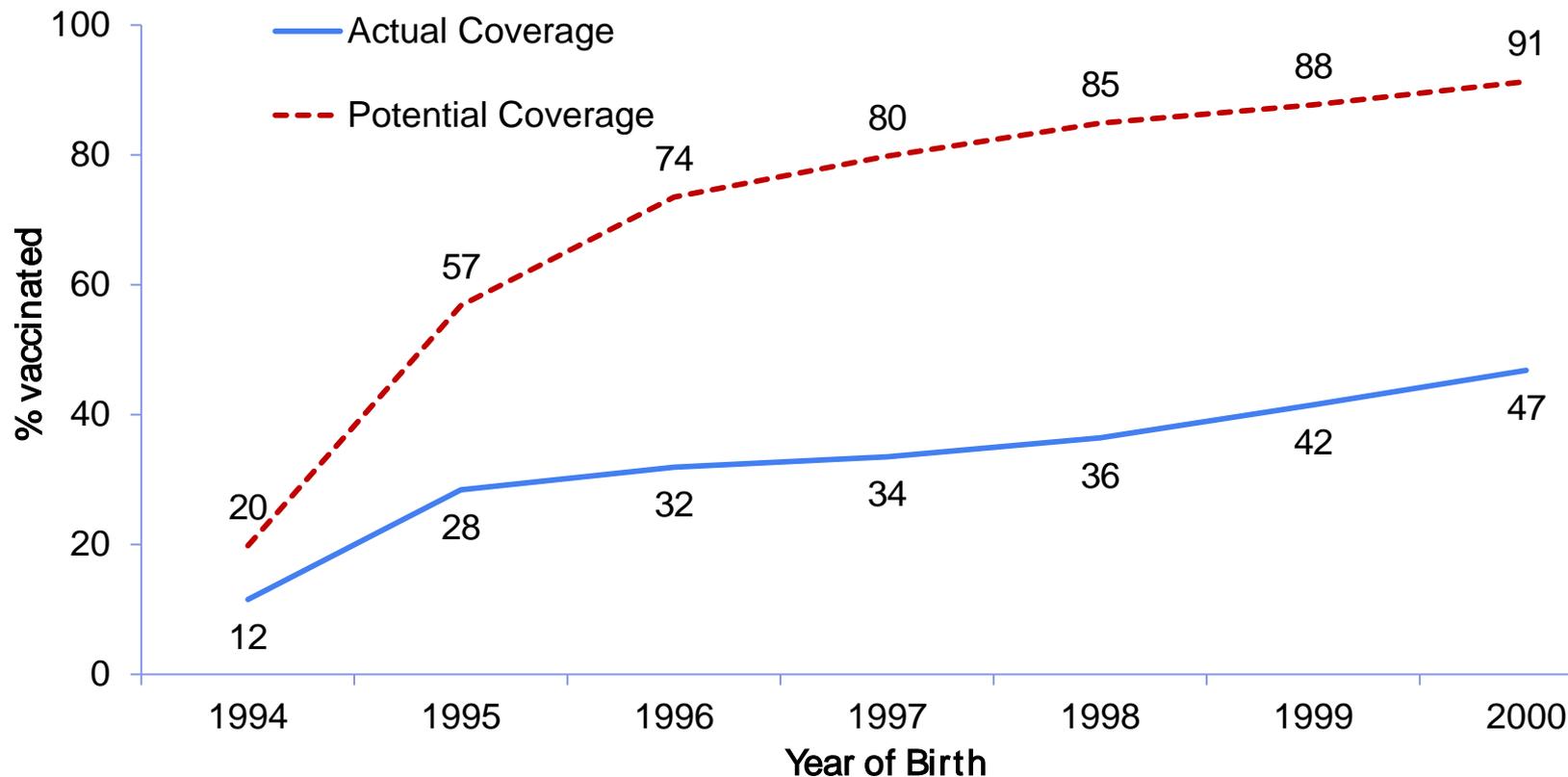
# Reasons for Not Vaccinating Adolescents with HPV Vaccine, Unvaccinated Adolescents\* Aged 13-17 Years, NIS-Teen, United States, 2014

Parents of Girls		Parents of Boys	
	% (95% CI)		% (95% CI)
<b>Not needed/necessary</b>	18.3 (15.8-21.1)	<b>Not needed/necessary</b>	18.9 (16.8-21.1)
<b>Safety concerns/ side effects</b>	16.2 (13.6-19.2)	<b>Not recommended</b>	18.0 (16.0-20.3)
<b>Lack of knowledge</b>	12.9 (9.9-16.7)	<b>Lack of knowledge</b>	13.7 (11.8-15.8)
<b>Not recommended</b>	9.8 (7.9-12.0)	<b>Not sexually active</b>	9.9 (8.2-12.0)
<b>Not sexually active</b>	8.8 (7.0-11.0)	<b>Safety concerns/ side effects</b>	7.3 (5.6-9.4)

\* Analysis limited to adolescents with zero HPV vaccine doses, whose parents reported that they were not likely to seek HPV vaccination for their adolescent in the next 12 months

Unpublished NIS-Teen 2014 data

## Actual and Potentially Achievable Vaccination Coverage of $\geq 1$ HPV Vaccine Doses by Age 13 Years among Adolescent Girls if Missed Opportunities\* Were Eliminated, NIS-Teen 2007-2013 Combined



\*Missed opportunity defined as having a healthcare encounter where at least one vaccine was administered but HPV vaccine was not  
MMWR. 2014; 63:620-4

## Summary (1)

- **National HPV vaccination coverage increased in 2014**
  - Modest increases among females, larger increases among males
  - Remains lower than Tdap and MenACWY vaccination coverage, suggesting persistent missed opportunities for HPV vaccination
  - Impact of recent interventions aimed at improving HPV vaccination at 11-12 years was not yet measurable in 2014 NIS-Teen
- **HPV vaccination coverage is higher among:**
  - Adolescents living below the poverty level
  - Hispanic and Non-Hispanic Black adolescents
- **Considerable variation in HPV vaccination coverage by state and local area**

## Summary (2)

- **Continue to face challenges in improving HPV vaccination delivery to younger adolescents**
  - In 2013, only 47% of females in most recent birth cohort initiated HPV vaccine series by 13<sup>th</sup> birthday
  - In 2014, coverage with ≥3 HPV vaccine doses was low among adolescents aged 13-15 years
- **Seven public health jurisdictions achieved improvement in HPV vaccination coverage among females**
  - Five jurisdictions benefited from activities implemented using 2013 federal funding
  - Strategies used can inform activities in other jurisdictions

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**Thank You**  
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