



Vaccination is Cancer Prevention

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National HPV Vaccination Roundtable

American Cancer Society

2024

Topics We Will Cover

- 1 Overview**
Who is the ACS National HPV Vaccination Roundtable?
- 2 HPV Vaccination is Cancer Prevention**
Discuss the evidence around why HPV vaccination is cancer prevention.
- 3 National Level Data**
Discuss coverage and disparities of HPV vaccination from a national perspective.
- 4 Current Recommendations**
Review current U.S. recommendations for HPV vaccination
- 5 Opportunities**
Identify opportunities for increasing HPV vaccination.

ACS HPVRT Snapshot



History: Established in 2014 by the ACS, in partnership with the CDC, to serve as an umbrella organization to engage all types of partners who are committed to reducing HPV –associated cancers in the US.



Mission: To reduce the incidence of and mortality from HPV-associated cancers through coordinated leadership, strategic planning, and advocacy. We believe that by working together over the long-term, the US can move towards ending vaccine-preventable HPV cancers as a public health problem.



Membership: Collaborative partnership of 90+ member organizations, including nationally known experts, thought leaders, and decision makers.



Intersection: Cancer Moonshot and Roundtables



HPV Vaccination for Cancer Prevention: Progress, Opportunities, and a Renewed Call to Action

President's Cancer Panel Annual Report 2012-2013

**ACCELERATING HPV VACCINE UPTAKE:
URGENCY FOR ACTION TO PREVENT CANCER**



ACS Team Leadership



Sarah Shafir, MPH
Vice President, National Roundtables & Coalitions



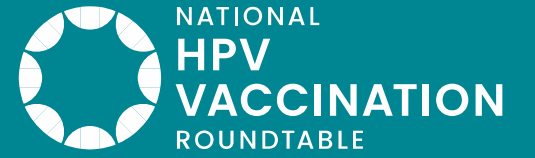
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HPV Vaccination is Cancer Prevention

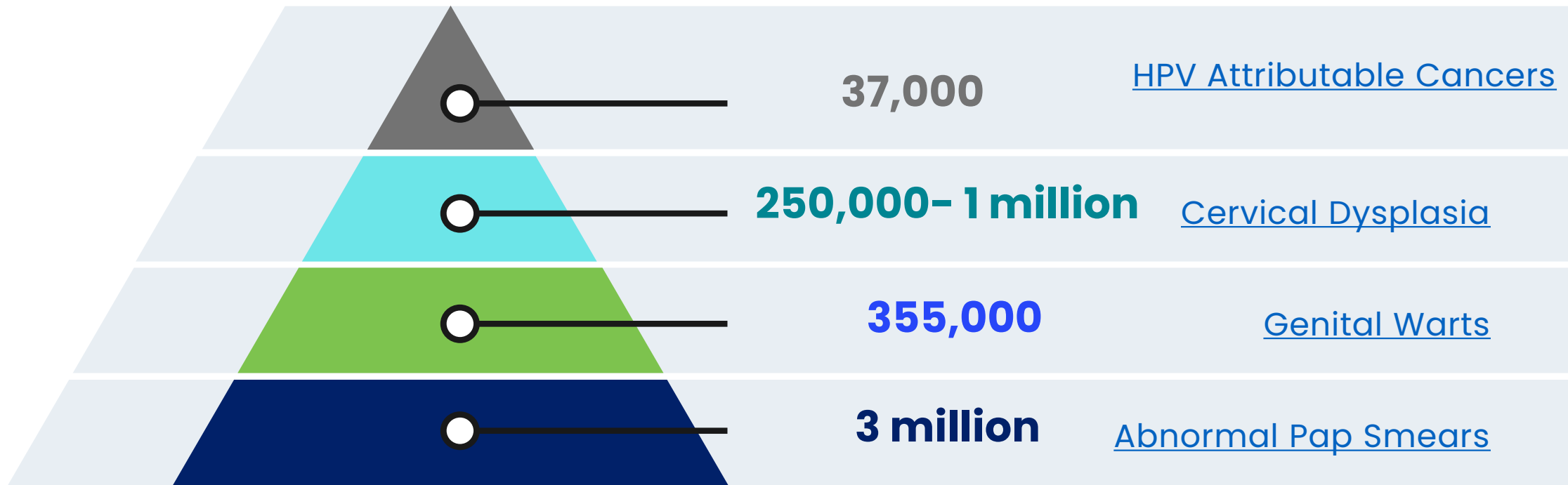
Human Papillomavirus (HPV)

- HPV stands for *human papillomavirus*. HPVs are a group of more than 150 related viruses.
- Most HPV types cause warts on the skin, such as on the arms, chest, hands, or feet. Other types are found mainly on the body's mucous membranes. The HPV types found on mucous membranes are sometimes called **genital HPV**. They generally do not live on the skin.
- Genital HPV is **not** the same as HIV or herpes. HPV is divided into 2 main groups:
 - **Low-risk HPV types**
 - **High-risk HPV types**

Human Papillomavirus (HPV)

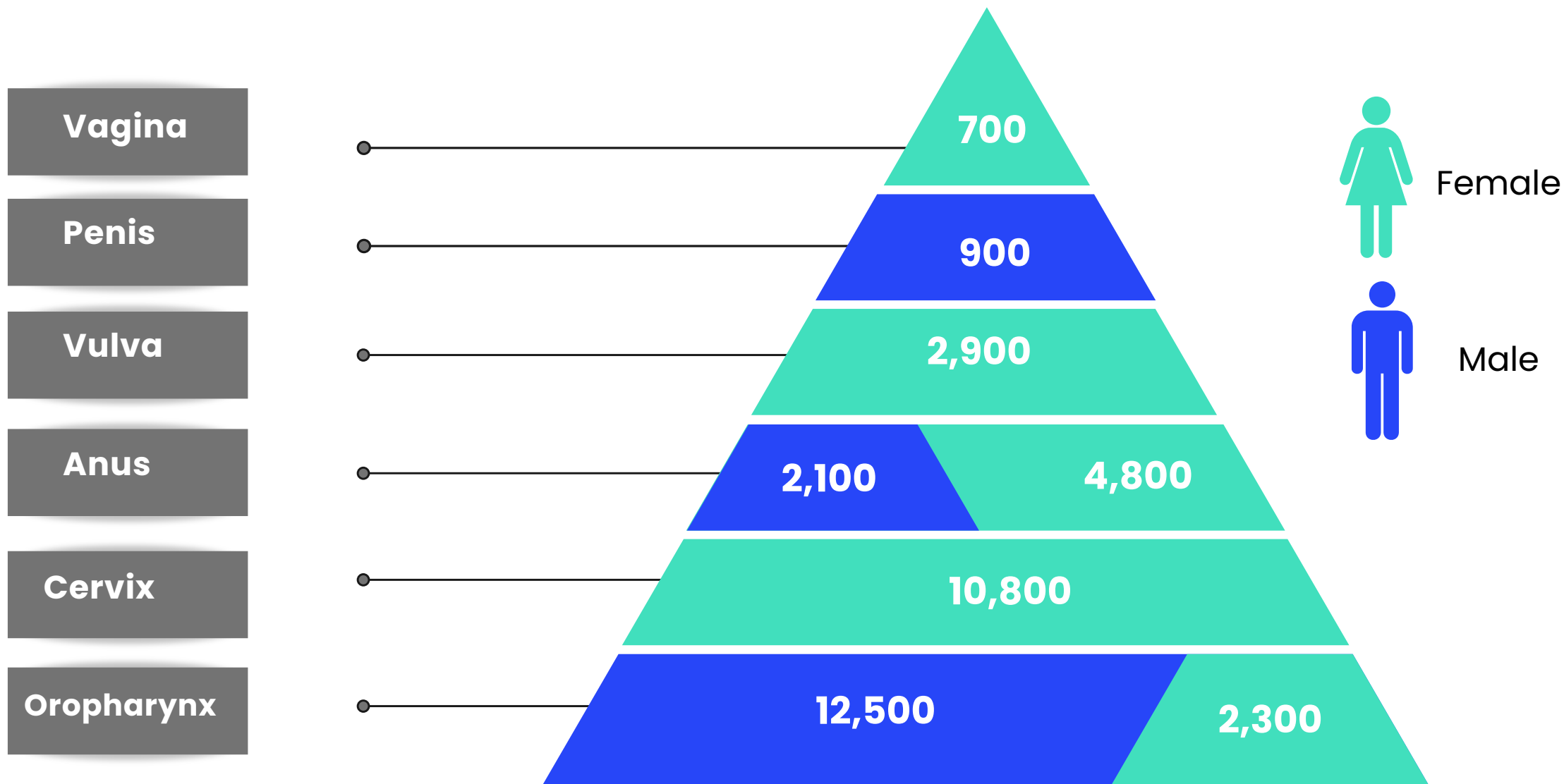
- Infection with HPV is very common.
 - There were about **43 million HPV infections in 2018**.
 - Approximately **14 million new HPV infections occur annually**, with nearly half occurring in persons age 15 through 24 years.
- In most people, the body clears the infection on its own (low risk)
- But sometimes, the infection doesn't go away. Chronic, or long-lasting infection, especially when it's caused by certain high-risk HPV types, can cause cancer over time.
- **Cancer usually takes years, even decades, to develop after a person gets HPV.** There is no way to know who will develop cancer or other health problems from HPV.

HPV Multiple Impacts on Population Health



\$9 Billion Annual Total Cost

U.S. HPV-Attributable Cancer Cases: 37,000



HPV Vaccination is Cancer Prevention

We need to focus on prevention.

CANCER	ROUTINE SCREENING
Cervical	Yes
Anal	No
Penile	No
Throat	No
Vaginal	No
Vulvar	No

HPV Vaccination

- **HPV vaccination can prevent over 90% of cancers caused by HPV, as well as anal, vaginal, cervical, and vulvar precancers** (abnormal cells that can lead to cancer).
- As of 2020, Gardasil 9 is the only HPV vaccine available in the United States and help prevent infection by HPV-16 and HPV-18.
 - these 2 types cause most [cervical cancers](#) and pre-cancers, as well as many cancers of the [anus](#), [penis](#), [vulva](#), [vagina](#), and [throat](#).
- Gardasil 9 helps also prevents infection by 4 types of HPV (16, 18, 6 and 11), plus 5 other high risk types: 31, 33, 45, 52 and 58. Together these types cause about 90% of cervical cancers.

Trends in cervical cancer incidence rate among women aged 20–24 years by race and ethnicity, United States, 1998–2019

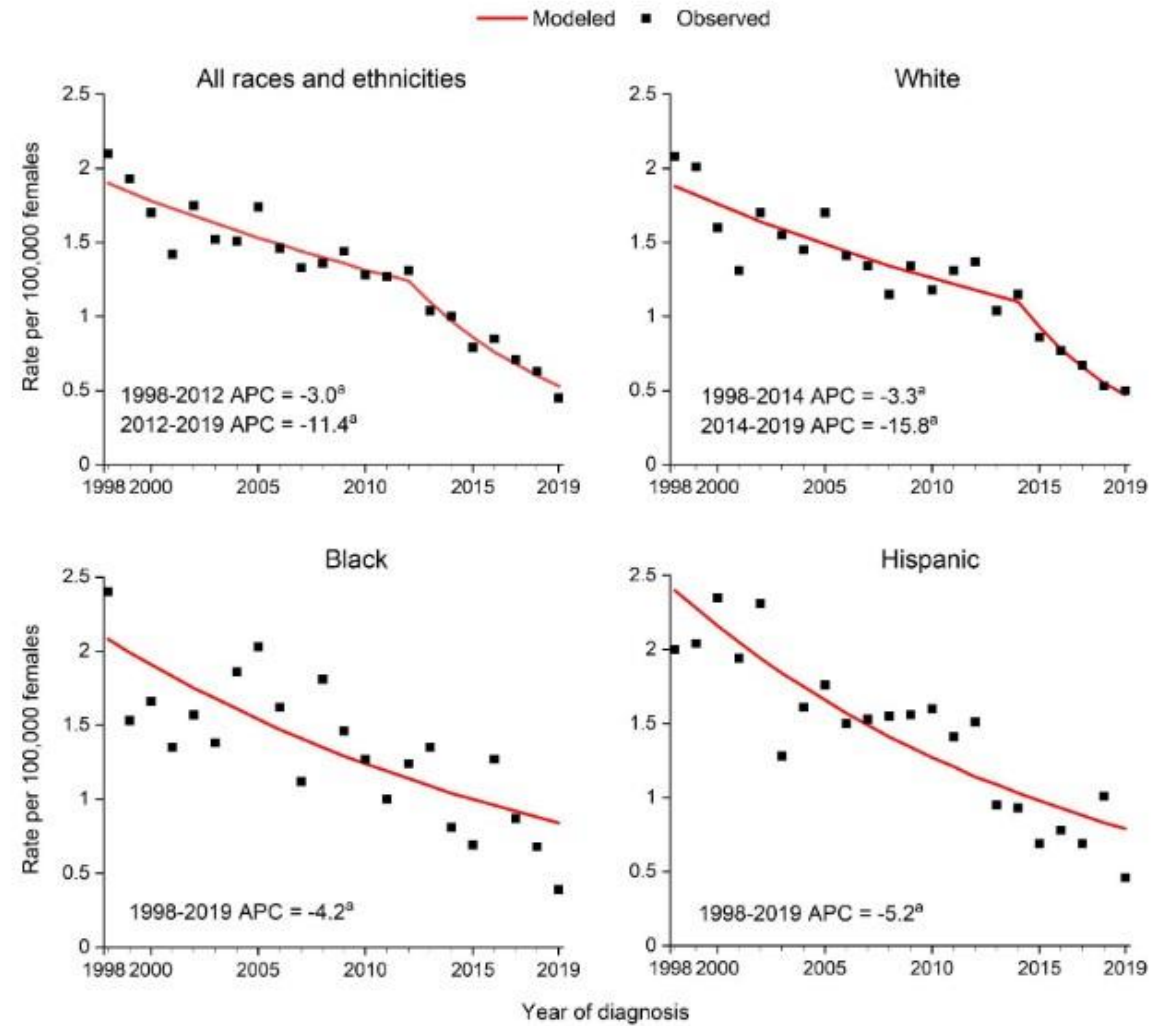


FIGURE 4 Trends in cervical cancer incidence rates among women aged 20–24 years by race and ethnicity, United States, 1998–2019. Rates are age adjusted to the 2000 US standard population and adjusted for reporting delays. White and Black race are exclusive of Hispanic ethnicity. ^aThe APC is statistically significant ($p < .05$). APC indicates annual percent change.

Proven to Work!

An exciting new study from Scotland (2024) shows that **no cervical cancer cases** have been detected in fully vaccinated women following the human papillomavirus (HPV) immunization at age 12-13 since the program started in Scotland in 2008.

The HPV immunization program has successfully almost eliminated cervical cancer in England among women born since September 1995.



Swedish study followed 1.7 million females between 10-30 years of age who were either vaccinated or not vaccinated and the effects of the HPV vaccine on cervical cancer cases. **The results found 538 new cancers in the unvaccinated group whereas there were only 19 new cases of cervical cancer found in those vaccinated. Of those vaccinated 2 cases were found in those under 16 years of age and 17 found in the older age range.** This reinforces the need to vaccinate early.

Source: [Falcaro, et al. Lancet 2021;398\(10316\):2084-2092](#)

Source: [No cervical cancer cases detected in vaccinated women following HPV immunisation - News - Public Health Scotland](#)

Source: [Lei et al, NEJM 2020](#)

Effectiveness AGAINST Oral HPV Infections

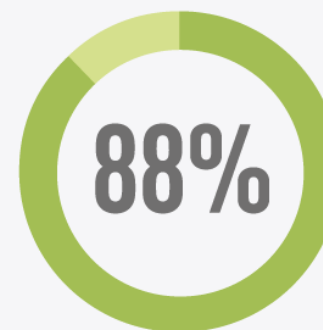
U.S. study of 2,627 men & women ages 18–33 from 2011–2014

Those who reported vaccination had 88% lower rate of oral HPV infection based on oral cell samples

2020: FDA approved adding oropharyngeal and other head/neck cancers to vaccine indications

More research to come on efficacy of preventing infections in men 20–45

ORAL HPV INFECTIONS WERE



LOWER



AMONG YOUNG ADULTS WHO RECEIVED AT LEAST ONE HPV VACCINE DOSE

Source: Gillison ML, et al. 2017 ASCO Annual Meeting, Abstract #6003.

cancer.gov

Immunity



Works best when series is completed before age 13

- Strong immune response at age 9-12
 - 12-month interval results in higher titers
 - Can pair HPV vaccine with annual well child visit at 9/10; avoids a “shot only” visit at 6 months
- Best protection from HPV cancers
- Vaccinate before exposure to HPV infection



Long-lasting

- Ongoing studies >12 years
- No sign that booster dose will be needed

Sources:

Meites, MMWR (2016) & (2019); Iversen, JAMA (2016): info on titers and 12-month interval; Collins-Fairclough, Human Vaccines & Immunotherapeutics (2021): extended dosing interval; Hoes, Human Vaccines & Immunotherapeutics (2022): Review of long-term immunogenicity

National Level Data



Healthy People 2030 Target

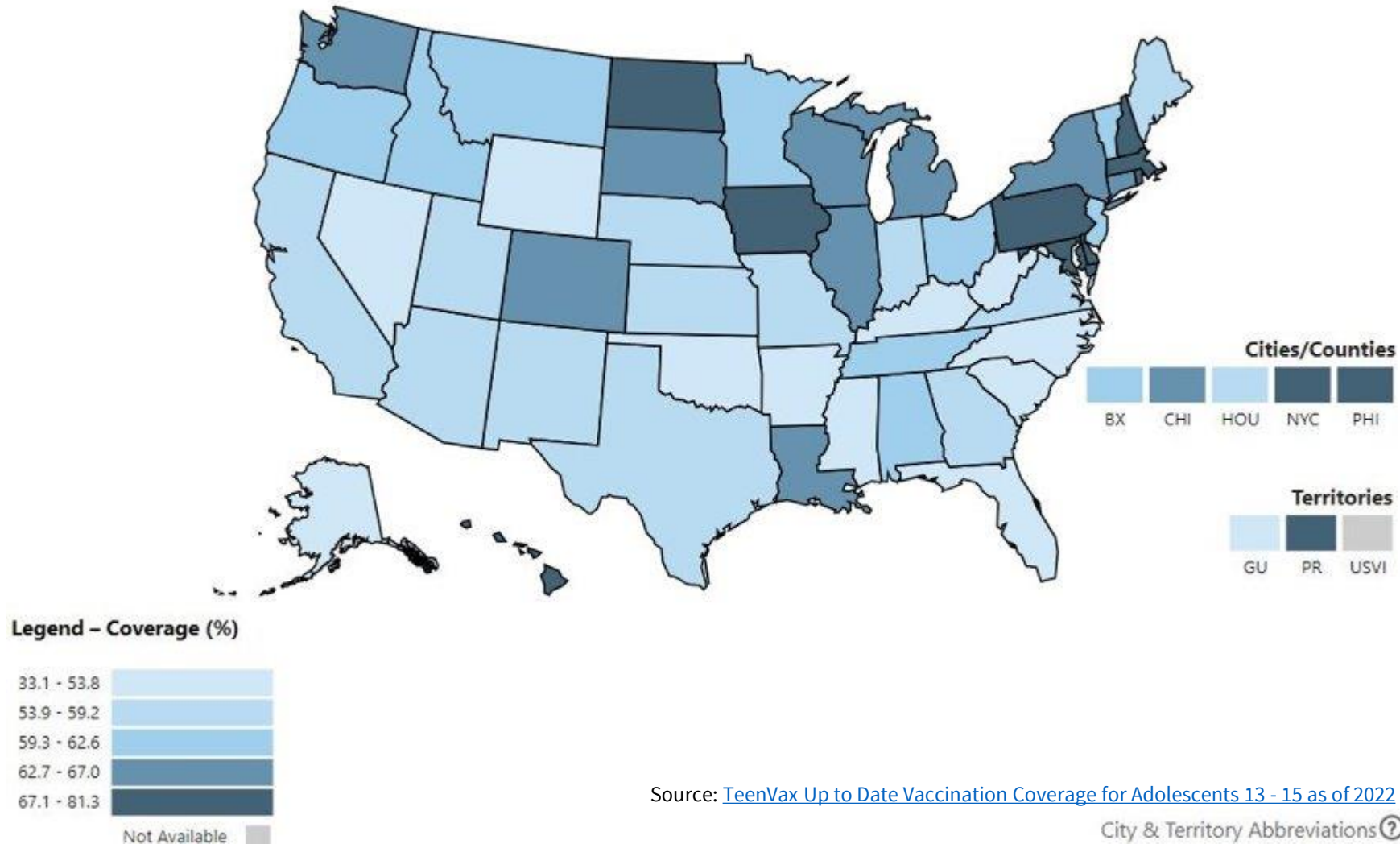
Increase to **80 percent** the proportion of adolescents who receive recommended doses of the human papillomavirus (HPV) vaccine.

Mission: HPV Cancer Free

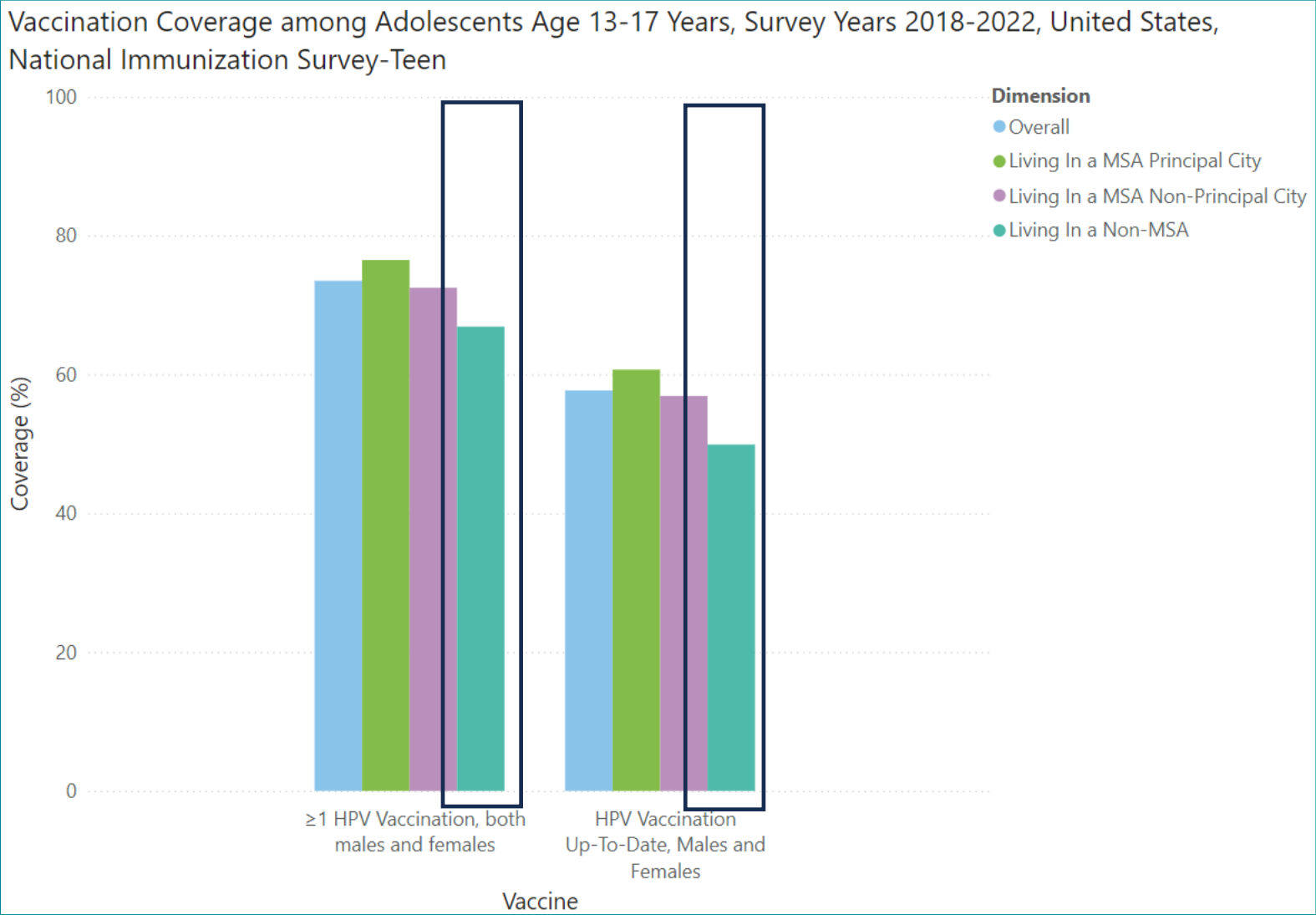
The American Cancer Society's Mission: HPV Cancer Free is a public health initiative to eliminate vaccine-preventable HPV cancers as a public health problem, starting with cervical cancer. Our goal is to reach an annual vaccination rate of **80% of 13-year-olds in the United States by 2026.**

HPV Vaccination Outlook (2022)

Up-to-Date HPV Vaccination Coverage among Adolescents Age 13-15 Years, 2022, National Immunization Survey-Teen



HPV Vaccination Coverage by Urbanicity



10% ↓

- HPV vaccination is lower in rural communities nationally
- **Higher HPV-related cancer incidence**
- These communities need unique and tailored resources

Barriers:

- Access to care issues
- Lack healthcare providers
- Facilities closing
- Health literacy
- Stigma

Source: [CDC TeenVaxView](#)

Cancers Associated with Human Papillomavirus (Race/Ethnicity)

Figure 2b. By sex and race/ethnic group

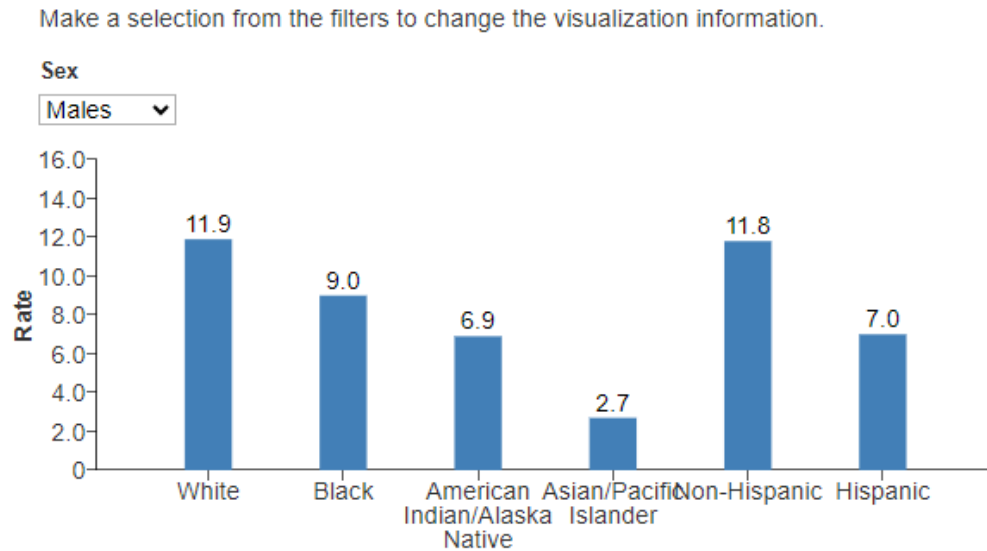
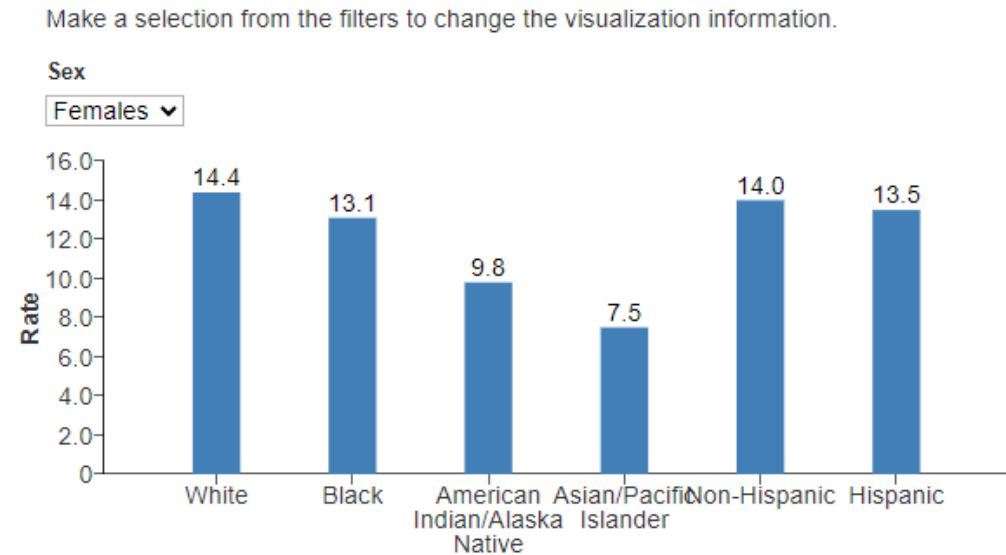


Figure 2b. By sex and race/ethnic group



Health Disparities: Racial & Ethnic Minorities



- Higher HPV vaccination initiation among racial and ethnic minority adolescents.
- However, black and Hispanic patients were less likely than whites to follow through with the full vaccine series after initiation.
- Minority adolescents are more likely to receive care from safety net providers and health departments.



There are
21,220,214
10–14-year-olds
in the United
States .



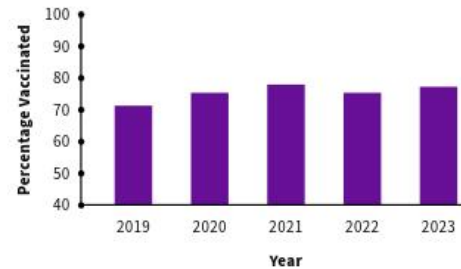
Between 2019–2022, only

41%

of all US adolescents
were fully vaccinated
by their 13th birthday.

HPV Vaccination Outlook (2023)

HPV vaccination coverage has **not** improved since the pandemic*



CDC.gov

*1 Dose HPV vaccine coverage, 2019-2023 National Immunization Survey-Teen data

bit.ly/mm7333a1

August 22, 2024

Clinicians:

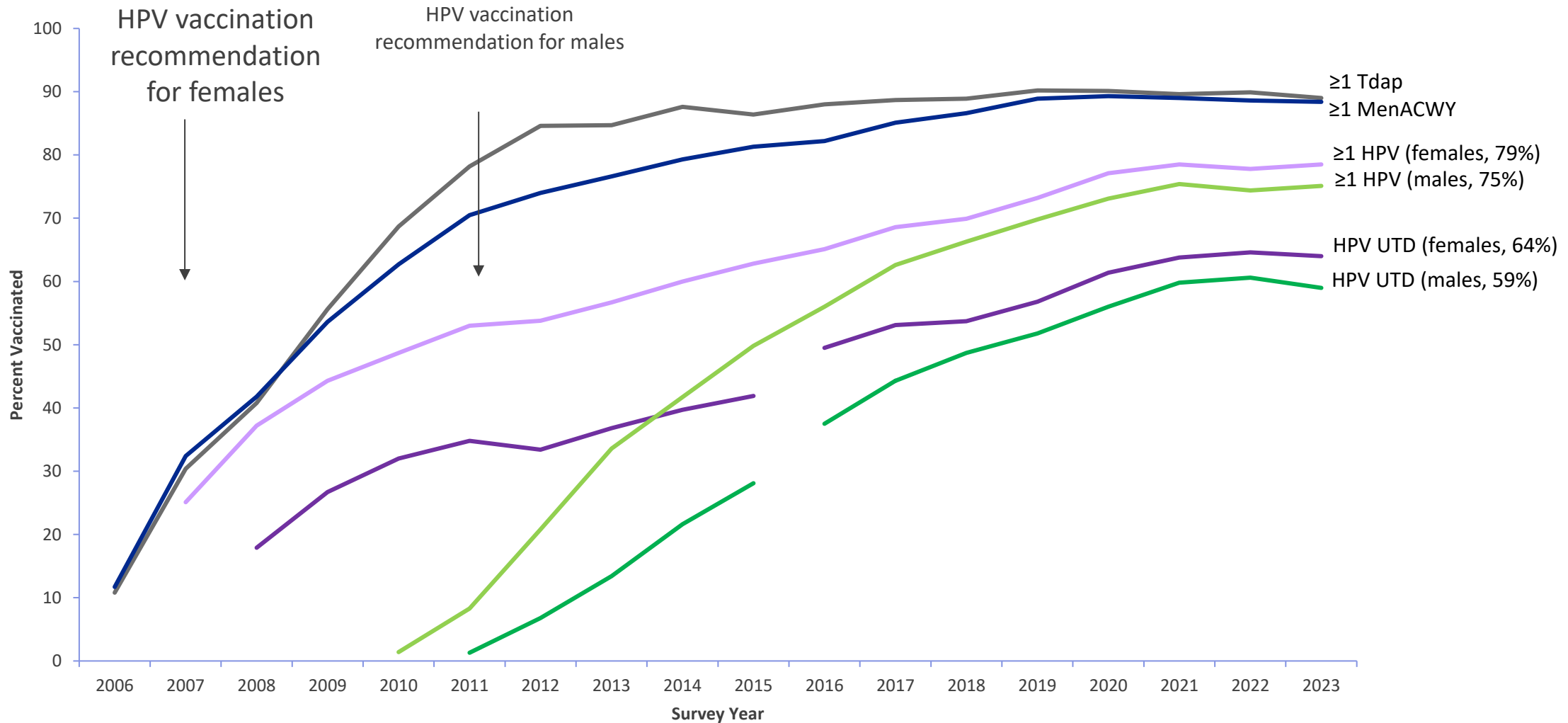
- **Review vaccination records**
- **Recommend routine HPV vaccination at age 11 or 12 years to prevent HPV-attributable cancers**[†]
- **Talk about no-cost vaccination through VFC**[‡]

† HPV vaccination can be started at age 9
‡ Vaccines For Children program

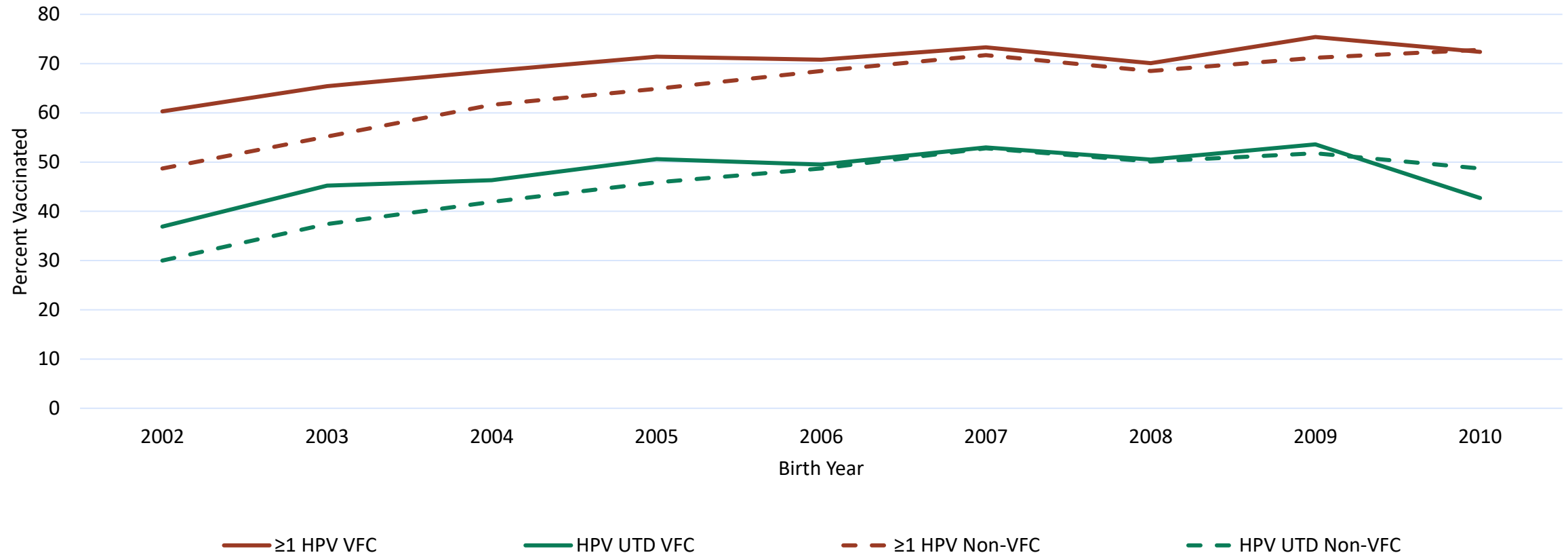
MMWR

- For the second consecutive year, HPV vaccination coverage has not increased among adolescents aged 13–17 years.
- HPV vaccination initiation (≥1 dose) among adolescents 13 – 17 years included in the 2023 survey was lower (76.8%) when compared to Tdap (89.0%) and MenACWY (88.4%). HPV UTD (up to date with HPV vaccination) was 61.4%.
- Following the pandemic, Vaccines for Children (VFC)-eligible adolescents no longer have higher human papillomavirus (HPV) vaccination coverage compared to non-VFC-eligible adolescents.
- The percentage of VFC-eligible adolescents who were up to date with HPV vaccination was 10.3 percentage points lower among adolescents born in 2010 compared with those born in 2007.

Estimated Vaccination Coverage Among Adolescents Aged 13–17 years — National Immunization Survey–Teen (NIS–Teen), United States, 2006–2023



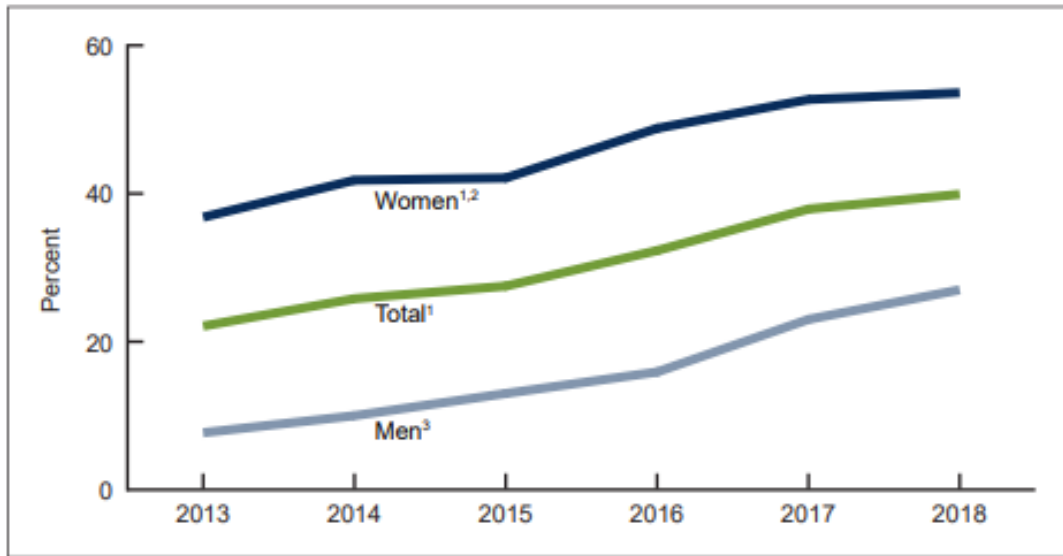
Receipt of HPV vaccine by age 13 years by birth year and by Vaccines for Children (VFC) Eligibility— National Immunization Survey-Teen (NIS-Teen), United States, 2015–2023



By age 13 years, coverage with ≥ 1 HPV and percentage HPV UTD among adolescents who were eligible for VFC was **higher** than coverage among those not eligible for VFC in the 2002–2005 birth years and had similar coverage from 2006–2010.

Catch up Vaccination Rates (Adults Aged 18–26); United States, 2020

Figure 1. Percentage of adults aged 18–26 who ever received one or more doses of human papillomavirus vaccine, by year and sex: United States, 2013–2018



¹Linear increase during 2013–2018 is statistically significant ($p < 0.05$).

²All percentage differences between men and women by year are statistically significant ($p < 0.05$).

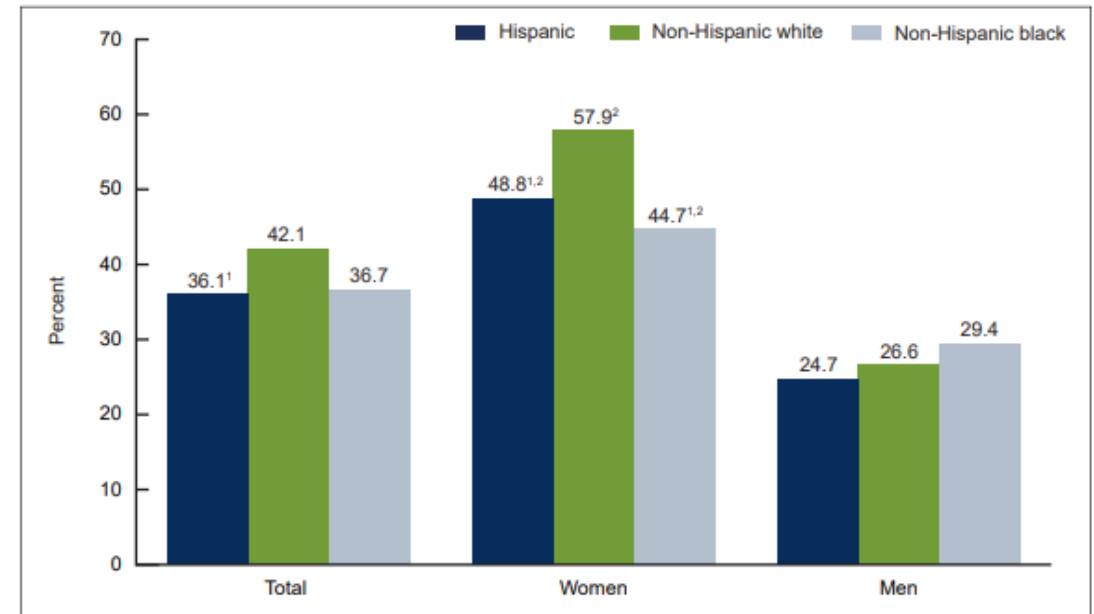
³Quadratic increase during 2013–2018 is statistically significant ($p < 0.05$).

NOTES: Respondents who refused to answer or who answered “Do not know” to the question asking if they had ever received one or more doses of human papillomavirus vaccine (6.5% for 2013–2018) were excluded from all analyses. Receipt of vaccination is based on self-report. Estimates are based on household interviews of a sample of the civilian noninstitutionalized population.

Access data table for Figure 1 at: https://www.cdc.gov/nchs/data/databriefs/db354_tables-508.pdf#1.

SOURCE: NCHS, National Health Interview Survey, 2013–2018.

Figure 3. Percentage of adults aged 18–26 who ever received one or more doses of human papillomavirus vaccine, by sex and race and ethnicity: United States, 2018



¹Significantly different from non-Hispanic white adults ($p < 0.05$).

²Significantly different from men ($p < 0.05$).

NOTES: Respondents who refused to answer or who answered “Do not know” to the question asking if they had ever received one or more doses of human papillomavirus vaccine (9.1% in 2018) were excluded from all analyses. Receipt of vaccination is based on self-report. Estimates are based on household interviews of a sample of the civilian noninstitutionalized population. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db354_tables-508.pdf#3.

SOURCE: NCHS, National Health Interview Survey, 2018.

Current Recommendations



ACS HPV Vaccination Guidelines

- Boys and girls
- **Age 9 – 12 = ON TIME**; Can vaccinate LATE at ages 13 to 26
- ACS: Individuals ages 22 to 26 who were not previously vaccinated should be informed that vaccination at older ages is less effective in lowering cancer risk
- 2 doses*



HPV AT 9 WORKS!

- **Providers have positive experiences recommending before age 11**

Biancarelli, *Journal of Pediatrics* (2020) – MA

Zorn, *Human Vaccines and Immunotherapeutics* (2023) – WA

- **Providers recommend HPV at age 9 (or are willing to recommend at 9)**

Lake, *Human Vaccines and Immunotherapeutics* (2023) – USA survey in FQHCs

Kong, *Academic Pediatrics* (2022) – USA survey

- **Higher rates of on-time completion**

Goodman, *Pediatrics* (2023) – NIS-Teen analysis

Saxena, *Human Vaccines and Immunotherapeutics* (2023) – MarketScan claims analysis

Zorn, *Human Vaccines and Immunotherapeutics* (2023) – WA

O’Leary Sonja, *Human Vaccines and Immunotherapeutics* (2023) – CO

Cox, *Pediatrics* (2022) – MA

Casey, *Journal of Lower Genital Tract Disease* (2021) – MA

Perkins, *Pediatrics* (2020) – MA

St Sauver, *Preventive Medicine* (2016) – MN

- **EMR prompts/alerts help promote HPV at age 9**

O’Leary Sonja, *Human Vaccines and Immunotherapeutics* (2023) – CO

Goleman, *Acad Pediatrics* (2018) – OH

HPV AT 9 WORKS!



Increases of up to 30 percentage points in on-time completion rates









Larger increases in those with public vs. private insurance and those with access barriers



68-86% acceptance by providers and clinics

Recommended Immunizations for Children 7–18 Years Old

-  ALL children in age group **should** get the vaccine
-  SOME children in age group should get the vaccine
-  ALL children in age group **can** get the vaccine
-  Parents/caregivers should talk to their health care provider to decide if this vaccine is right for their child

Recommended Vaccines	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years
HPV												

What about Adults?

The American Cancer Society does not recommend HPV vaccination for adults older than 26 years.



ACIP References: Meites, et al. MMWR Morb Mortal Wkly Rep. 2019;68:698-702; Laprise, et al. Ann Intern Med. 2020;172:22-29; and Centers for Disease Control and Prevention. 2019

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Models used for illustrative purposes only.

CDC - Current HPV Vaccination Recommendations

Routine vaccination	Age 11–12 years; can be started at age 9 years
Catch-up Vaccination	Age 13–26 years, if not adequately vaccinated
Shared clinical decision-making	Some adults age 27–45 years, if not adequately vaccinated

ACS Opportunities & Priorities



Released
January 2024

**2024
Impact Report
and Action Plan**

American Cancer Society

NATIONAL HPV VACCINATION ROUNDTABLE

2024 ACS HPVRT Impact Report and Action Plan

2024 Priorities

Disseminate Best and Promising Practices


- Facilitate discussions concerning HPV vaccination data sources
- Collaborate with the Evidence – Based Cancer Control Programs (EBCCP, formerly RTIPs) and Community Guide concerning updates
- HPV Vaccination Starting at Age 9
 - Continue to promote and expand the evidence around the impact of vaccinating starting at age 9 using research included in the HVI Special Issue Collection
 - Develop Age 9 resources for key audiences (i.e. Health Plan, Health Systems and Health Departments)
 - Highlight success stories of Age 9 HPV Vaccination Champions
 - Develop social media content on Age 9 evidence
 - Evaluate the impact of the Age 9 Campaign
- Update the *Advancing Human Papillomavirus Vaccine Delivery: 12 Priority Research Gaps* publication.
- Utilize communication channels to share resources, emphasize best practices and increase collaboration among member organizations.

Educate and Catalyze Key Audiences (Health systems, providers, parents, public health partners)


- Host public educational seminars/forums virtually
- Host in person summits and symposiums on priority HPV vaccination topics
- Update and promote Clinician and Health Systems Action Guides
- Develop a Health Plan Action Guide
- Create curated co-brandable content for use by members and partners
- Present and disseminate ACS HPVRT findings at International, National or Regional conferences

12

ACS HPVRT Priority Areas




**Disseminate
Best &
Promising
Practices**



**Educate &
Catalyze
Key
Audiences**



**Leverage
Member
Expertise &
Increase
Engagement**



**Integrate Health
Equity into HPV
Vaccination
Activities**



**Catalyze State HPV
Vaccination
Coalitions &
Roundtables**

Call to Action

Join

Our extended network by signing up for our Monthly Newsletter and following us on our social media channels.

Promote

HPV Vaccination Roundtable Resources such as our clinical action guides, evidence summaries and best practices resources.

Educate

On the core message that HPV Vaccination is Cancer Prevention.

Advocate

Policy changes that can ensure sustained efforts around HPV vaccination such as "Starting HPV Vaccination at Age 9."

Thank You

hpv.vaccination.roundtable@cancer.org

