Human Papillomavirus (HPV) Disease and the Status of HPV Vaccination in Wisconsin

Jeffrey P. Davis, MD
Chief Medical Officer and State Epidemiologist for Communicable Diseases and Emergency Response

Division of Public Health
Wisconsin Department of Health Services

Wisconsin HPV Vaccine Summit
May 11 and May 12, 2016
Disclosure

I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.

I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.
Objectives

- Describe the occurrence of HPV infections and their associated burden of disease nationwide and among Wisconsin residents.
- Describe the ACIP recommendations for HPV vaccination among males and females and how well we are doing with HPV vaccination in Wisconsin.
- Describe what is needed to improve HPV vaccination rates and reduce the burden of HPV related disease among Wisconsin residents.
Human papillomavirus (HPV) infections
Human papillomavirus (HPV)

- HPV infections are the most common sexually transmitted infections in the United States.
- Relationship of cervical cancer and sexual behavior suspected for >100 yrs.
  - 1960s: relationship established by epidemiologic studies.
  - 1980s: cervical cancer cells demonstrated to contain HPV DNA.
  - 1990s: results of numerous published studies consistently demonstrating association between HPV and cervical cancer.
- HPVs are small, double stranded DNA viruses.
  - Over 120 types identified: high risk (oncogenic) and low risk (non-oncogenic).
  - Differentiated by the genetic sequence of the outer capsid protein L1.
  - Most HPV types infect mucosal epithelium or skin: infection begins at the basal epithelium.
HPV types and disease association

- **Mucosal sites of infection (~40 Types)**
  - High risk (oncogenic): HPV 16, 18
    - Cervical Cancer
    - Anogenital Cancers
    - Oropharyngeal Cancer
    - Cancer Precursors
    - Low Grade Cervical Disease
  - Low risk (non-oncogenic): HPV 6, 11
    - Genital Warts
    - Laryngeal Papillomas
    - Low Grade Cervical Disease

- **Cutaneous sites of infection (~80 Types)**
  - “Common”
    - Hand and Foot Warts

CDC. You Are the Key to HPV Cancer Prevention. PowerPoint Presentation. June 25th, 2015
HPV transmission

HPV: readily transmissible, infections are common

– 1 in 4 people in the United States (nearly 80 million) are currently infected with ≥1 HPV types

• 14 million new infections annually

• Almost all sexually active men and women will be infected with HPV at some point in their lives, even those with only one sexual partner

References:


HPV transmission

• HPV: modes of transmission
  – Direct contact (usually sexual) with an infected person
  – Can occur during any type of intimate sexual contact (including non-penetrative sexual activity)
    • Small longitudinal study of adolescent females without prior vaginal intercourse: prevalence of vaginal HPV infection was 46% (10/22)
  – Non-sexual transmission of genital HPV rare: woman to newborn infant at birth

• HPV infection
  – Acquired shortly after becoming sexually active
  – Most common among persons in their early 20’s
Rapid acquisition of HPV following sexual debut

- Partridge et al. Male university students aged 18-23 years (N=240)
- Winer et al. Female university students aged 18-20 years (N=603)

Cumulative Incidence of HPV Infection vs. Months Since First Intercourse

Prevalence of HPV infection prior to vaccine availability among women aged 14-59 years, United States, NHANES*, 2003-2006

*National Health and Nutrition Examination Survey (NHANES)

Mona Saraiya, MD, MPH. Public Health Importance of HPV Infection and Disease. PowerPoint Presentation.
HPV infections

• Most HPV infections are asymptomatic and cleared within two years with no resultant disease.
• If not cleared, clinical manifestations can include: anogenital warts, recurrent respiratory papillomatosis (RRP), cervical cancer precursors (cervical intraepithelial neoplasia = CIN), and cancer (cervical, anal, vaginal, vulvar, penile and oropharyngeal).
The burden of HPV infection and related diseases: United States
Distribution of cancers attributable to HPV, by anatomic site and HPV type, United States, 2005-2008

- Oropharyngeal: 62% HPV 16/18, 72% Other HPV, 99% Non-HPV
- Cervical: 66% HPV 16/18, 99% Non-HPV
- Anal: 79% HPV 16/18, 91% Other HPV
- Vulvar: 49% HPV 16/18, 69% Other HPV
- Penile: 62% HPV 16/18
- Vaginal: 63% HPV 16/18

New cancers caused by HPV per year, United States, 2006-2010

Women (n = 17,600)
- Cervix: 10,400 (59%)
- Oropharynx: 1,800 (10%)
- Anus: 2,600 (15%)
- Vulva: 2,200 (13%)
- Vagina: 600 (3%)

Men (n = 9,300)
- Oropharynx: 7,200 (77%)
- Anus: 1,400 (15%)

CDC, United States Cancer Statistics (USCS), 2006-2010
Burden of disease caused by low-risk or non-oncogenic HPV types: anogenital warts

- 300,000-450,000 genital warts-related initial visits annually since 2006 in the United States
- Peak incidence among persons aged 20-29 years
  - Over 90% associated with HPV type 6 and 11
Characteristics of episodes of genital warts involving physician management: private health care plans, United States, 2000

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male patients (n = 237)</th>
<th>Female patients (n = 299)</th>
<th>All (n = 536)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of episode, mean days (95% CI)</td>
<td>102.6 (77.8–127.4)</td>
<td>84.8 (67.5-102.1)</td>
<td>92.7 (85.3–100.2)</td>
</tr>
<tr>
<td>Mean no. of physician visits (95% CI)</td>
<td>3.1 (2.8–3.5)</td>
<td>3.1 (2.8–3.4)</td>
<td>3.1 (2.9–3.3)</td>
</tr>
<tr>
<td>Cost, mean US$ (95% CI)</td>
<td>477 (365–590)</td>
<td>404 (316–492)</td>
<td>436 (365–508)</td>
</tr>
<tr>
<td>Therapy, % of patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient applied^a</td>
<td>37</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>Physician applied</td>
<td>62</td>
<td>58</td>
<td>60</td>
</tr>
<tr>
<td>Patient and physician applied</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

^a Includes imiquimod and podofolox and reflects use of patient-applied therapy alone or in combination with physician-applied therapy.

- Median durations of episodes are long
- >40% recurrence, resulting in repeat clinical visits, treatments, and psychological stigma

Mona Saraiya, MD, MPH. Public Health Importance of HPV Infection and Disease. PowerPoint Presentation.
HPV significantly increases risk of head and neck cancers

- 96,650 cancer-free participants at baseline with available mouthwash samples for next generation DNA sequencing assay
- Participants in 2 prospective cohort studies:
  - American Cancer Society Cancer Prevention Study II Nutrition Cohort
  - Prostate, Lung, and Colorectal and Ovarian Cancer Screening Trial
- Nested case-control study: 132 participants (103 men and 29 women) with incident cases of head and neck (oropharyngeal, oral cavity and laryngeal) squamous cell carcinoma (SCC) detected during an average 3.9 year follow-up period were matched 3:1 to controls on age, sex, race/ethnicity, and time since mouthwash collection
- Participants infected with HPV16 were 22 times more likely to develop oropharyngeal cancer.
- HPV16 not significantly associated with oral cavity and laryngeal SCCs, but other non-vaccine HPVs were which suggests a broader role for HPVs in HNSCC etiology.

Burden of disease caused by low-risk or non-oncogenic HPV types – Recurrent respiratory papillomatosis (RRP)

- Recurrent respiratory papillomatosis (RRP) or laryngeal papillomatosis
  - Caused by HPV types 6 and 11
  - Occur in children (juvenile-onset) and adults
  - Most common benign neoplasm of the larynx in children
    - Estimated 820 new cases of J-O RRP annually in US
- Can result in airway obstruction requiring multiple surgeries
  - 1%-3% of children with RRP die as a result of papilloma spread to lung parenchyma
  - Challenge to anesthesia administration

Economic impact (direct medical costs) of HPV-associated disease, United States, 2010

<table>
<thead>
<tr>
<th>Event</th>
<th>Cost ($ billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical cancer screening*</td>
<td>6.6</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>0.4</td>
</tr>
<tr>
<td>Other anogenital cancers</td>
<td>0.2</td>
</tr>
<tr>
<td>Oropharyngeal cancer</td>
<td>0.3</td>
</tr>
<tr>
<td>Anogenital warts</td>
<td>0.3</td>
</tr>
<tr>
<td>RRP**</td>
<td>0.2</td>
</tr>
<tr>
<td>**TOTAL</td>
<td>**8.0</td>
</tr>
</tbody>
</table>

*Cervical cancer screening costs: ~80% routine screening and ~20% follow-up

**RRP costs: ~70% juvenile-onset, ~30% adult-onset

The burden of HPV infection and related diseases: Wisconsin

Surveillance Epidemiology and End-results (SEER) program national cancer registry data


Number of cervical cancer cases and age-adjusted incidence, Wisconsin, 2005-2011

Incidence rate is age-adjusted to the 2000 U.S. standard population

Number of oropharyngeal cancer cases and age-adjusted incidence by gender, Wisconsin, 2005-2011

Incidence rate is age-adjusted to the 2000 U.S. standard population.

Data source: Wisconsin Interactive Statistics on Health (WISH) [https://www.dhs.wisconsin.gov/WISH/cancer/]
Age-adjusted mortality rate: cervical, oropharyngeal, and anal cancers, United States and Wisconsin, 2004-2010

Incidence rate is age-adjusted to the 2000 U.S. standard population.

HPV vaccines
HPV vaccines licensed in the United States

- **Quadrivalent HPV (4vHPV) vaccine (Gardasil®)**
  - Contains HPV types 16 and 18 (high risk) and types 6 and 11 (low risk)
  - June 2006: FDA approved for females and males aged 9 through 26 years

- **Bivalent HPV (2vHPV) vaccine (Cervarix®)**
  - Contains HPV types 16 and 18 (high risk)
  - October 2009: FDA approved for females aged 10 through 25 years

- **9-valent (9vHPV) vaccine (Gardasil9®)**
  - Contains HPV types 16 and 18 (high risk) and types 6, 11, 31, 33, 45, 52, 58 (low risk)
  - December 2014: FDA approved for females and males aged 9 through 26 years


CDC Pink Book 2015.
9-valent (9vHPV) vaccine (Gardasil9®)

- Licensed for use in the United States December 2014
- Recommended for males and females ages 9-26
- Protects against five additional HPV strains that cause:
  - 14% of HPV-associated cancers in females (approx. 2800 cases annually)
  - 4% of HPV-associated cancers in males (approx. 550 cases annually)
- 9vHPV may be used to continue or complete a series started with either 4vHPV or 2vHPV
- No ACIP recommendation for 9vHPV vaccination of persons who previously completed the 4vHPV or 2vHPV series.
  - However, available data show no serious safety concerns in persons vaccinated with 9vHPV following 4vHPV or 2vHPV series completion

Centers for Disease Control and Prevention. Supplemental information and guidance for vaccination providers regarding use of 9-valent HPV vaccine. 2015 July. From CDC website.
2-valent (2vHPV) vaccine (Cervarix®)

• No longer available from DPH
• No longer on CDC contract
• GSK will no longer be offering it on the private market
• Current supply estimated to last through November 2016
HPV vaccines:
ACIP recommendations
ACIP recommendations for routine and permissive HPV vaccination

• Three-dose series: routinely recommended for females and males aged 11-12 years
  – Series schedule: 0, 1-2, and 6 months
  – Permissive recommendation: males and females aged 9-10 years

• Catch-up vaccination: females aged 13-26 years and males aged 13-21 years who have not completed the vaccine series
  – Permissive recommendation: males aged 22-26 years

• Routinely recommended for men who have sex with men (MSM) and immunocompromised persons aged 22 through 26 years

ACIP recommendations for HPV vaccine: [http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html](http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html)
HPV vaccine contraindications and precautions

Contraindication (vaccine should not be given)

• Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or following a prior dose of the HPV vaccine

Precautions (assess benefits and risks)

• Moderate or severe acute illness with or without fever
• Pregnancy

ACIP recommendations for HPV vaccine: [http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html](http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html)
HPV vaccination:
Measures of HPV vaccine uptake, Wisconsin
Estimated Tdap, MCV4, and HPV vaccine coverage among adolescents 13-17 years, NIS-Teen, 2008-2014, Wisconsin

Because of inadequate sample sizes, the ≥3 dose HPV coverage during 2011-2012 and the ≥1 dose rate during 2011 are not available for male adolescents in Wisconsin.
Estimated Tdap, MCV4, and HPV vaccine coverage among adolescents aged 13-17 years, Wisconsin Immunization Registry (WIR), 2010-2015

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the Wisconsin Interactive Statistics on Health (WISH) population estimates.
Estimated Tdap, MCV4, and HPV vaccine coverage among adolescents aged 11-12 years, Wisconsin Immunization Registry (WIR), 2010-2015

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the Wisconsin Interactive Statistics on Health (WISH) population estimates.
Wisconsin Public Health Regions
Estimated HPV vaccine coverage among adolescent females aged 11-17 years, by public health region, Wisconsin Immunization Registry (WIR), 2015

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the Wisconsin Interactive Statistics on Health (WISH) population estimates.
Estimated HPV vaccine coverage among adolescent males aged 11-17 years, by public health region, Wisconsin Immunization Registry (WIR), 2015

<table>
<thead>
<tr>
<th>Region</th>
<th>HPV (≥1 dose, 11-12)</th>
<th>HPV (≥3 dose, 11-12)</th>
<th>HPV (≥1 dose, 13-17)</th>
<th>HPV (≥3 dose, 13-17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeastern</td>
<td>28%</td>
<td>6%</td>
<td>34%</td>
<td>7%</td>
</tr>
<tr>
<td>Northern</td>
<td>30%</td>
<td>7%</td>
<td>27%</td>
<td>6%</td>
</tr>
<tr>
<td>Southern</td>
<td>42%</td>
<td>7%</td>
<td>51%</td>
<td>7%</td>
</tr>
<tr>
<td>Southeastern</td>
<td>45%</td>
<td>6%</td>
<td>22%</td>
<td>6%</td>
</tr>
<tr>
<td>Western</td>
<td>41%</td>
<td>6%</td>
<td>19%</td>
<td>6%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>45%</td>
<td>6%</td>
<td>23%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the Wisconsin Interactive Statistics on Health (WISH) population estimates.
Estimated HPV, MCV4, and Tdap vaccine coverage among 10 year olds, by public health region, Wisconsin Immunization Registry (WIR), 2015

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the Wisconsin Interactive Statistics on Health (WISH) population estimates.
3+ dose HPV vaccine coverage among adolescents aged 13-17 years, Wisconsin Immunization Registry (WIR), 2015
Healthy People 2020 Goal: 80% of adolescents aged 13-15 years vaccinated with 3 doses of HPV vaccine
1+ dose HPV vaccine coverage among adolescents aged 11-12 years, by county, Wisconsin: Wisconsin Immunization Registry (WIR), 2015

Healthy People 2020 Goal: 80% of adolescents aged 13-15 years vaccinated with 3 doses of HPV vaccine
1+ dose HPV vaccine coverage among adolescents aged 13-17 years, by county, Wisconsin Immunization Registry (WIR), 2015

Healthy People 2020 Goal: 80% of adolescents aged 13-15 years vaccinated with 3 doses of HPV vaccine
3+ dose HPV vaccine coverage among adolescents aged 11-12 years, by county, Wisconsin Immunization Registry (WIR), 2015

Healthy People 2020 Goal: 80% of adolescents aged 13-15 years vaccinated with 3 doses of HPV vaccine
3+ dose HPV vaccine coverage among adolescents aged 13-17 years, by county, Wisconsin Immunization Registry (WIR), 2015

Healthy People 2020 Goal: 80% of adolescents aged 13-15 years vaccinated with 3 doses of HPV vaccine
Reduction of HPV DNA prevalence following vaccine introduction in the United States

• NHANES: Comparison of prevalence of 4vHPV types (6,11,16,18) among females aged 14-34 years during 2003-2006 (pre-vaccine) and 2009-2012 (post-vaccine).

• Findings:
  – HPV prevalence decreased 64% within 6 years of vaccine introduction among females aged 14-19 years and 34% among women aged 20-24 years.
  – Within the vaccine era, among sexually active females aged 14 to 24 years, 4vHPV type prevalence was lower in vaccinated (≥1 dose) compared with unvaccinated females: 2.1% vs 16.9% (aPR: 0.11 [95% CI: 0.05–0.24]).
HPV DNA prevalence before and after HPV vaccine introduction among females aged 14-19 years, United States

4vHPV DNA prevalence declined from 11.5% to 4.3%. Adjusted prevalence ratio (aPR) 0.36 [95% CI 0.21-0.61]
HPV DNA prevalence before and after HPV vaccine introduction among females aged 20-24 years, United States

4vHPV DNA prevalence declined from 18.5% to 12.1%. (aPR: 0.66 [95% CI: 0.47–0.93])

HPV vaccination:
Public funding for HPV vaccines
Public funding of HPV vaccines, Wisconsin

• Vaccines for Children (VFC) Program eligibility criteria:
  – Medicaid eligible
  – American Indian or Alaska Native
  – Uninsured or underinsured

• Males:
  – aged 9 through 18 years: 9vHPV only through VFC program
  – aged 19 through 26 years: 4vHPV or 9vHPV through Medicaid

• Females:
  – aged 9 through 18 years: 9vHPV only through VFC program
  – aged 19 through 26 years: 2vHPV, 4vHPV or 9vHPV through Medicaid

VFC-ACIP vaccine resolution for HPV vaccine: http://www.cdc.gov/vaccines/programs/vfc/providers/resolutions.html
Estimated Tdap, MCV4, and HPV vaccine coverage among adolescents aged 13-17 years, by Medicaid ID status, Wisconsin Immunization Registry (WIR), 2010-2013

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the number of persons in the WIR in the selected age category.
Estimated Tdap, MCV4, and HPV vaccine coverage among adolescents aged 11-12 years, by ever having Medicaid status, Wisconsin Immunization Registry (WIR), 2010-2013

Estimated immunization rates are based on the number of persons recorded in the WIR as having received a valid dose(s) of vaccine by antigen and the number of persons in the WIR in the selected age category.
HPV vaccination:
Missed opportunities to vaccinate and the impact of eliminating missed opportunities to vaccinate
Percentage of HPV-unvaccinated females aged 13-17 years with ≥1 missed opportunity for HPV vaccination and the potential HPV vaccine coverage if all missed opportunities for HPV vaccination had been eliminated, NIS-Teen, United States, 2007-2012

*Missed opportunity: health-care encounter occurring on or after 11th birthday and on or after March 23, 2007 (ACIP HPV4 recommendation publication date), during which at least one vaccine was given, but not HPV vaccine. CDC. MMWR 2013: 62(29);591-595.
Impact of eliminating missed opportunities by age 13 years among girls born during 2000

Missed opportunity: Healthcare encounter when some, but not all ACIP-recommended vaccines are given. HPV-1: Receipt of at least one dose of HPV. MMWR. 63(29);620-624.

Eliminate missed opportunities to vaccinate

Centers for Disease Control and Prevention (CDC) estimates that increasing HPV vaccination rates from current levels to 80% would prevent:

- An additional 53,000 future cervical cancer cases in the United States among girls who now are aged <12 years during the course of their lifetimes.

- Thousands of other HPV-associated cancers in the United States would likely be prevented during the same timeframe.

- A growing proportion of these cancers—most notably, oropharyngeal cancers—will occur among males, who currently are vaccinated at very low rates.
HPV infection prevention:
Where to go from here
PART 3: ACCELERATING HPV VACCINE UPTAKE IN THE UNITED STATES ........................................... 13

Goal 1: Reduce Missed Clinical Opportunities to Recommend and Administer HPV Vaccines ............... 14

Objective 1.1: CDC should develop, test, disseminate, and evaluate the impact of integrated, comprehensive communication strategies for physicians and other relevant health professionals................................................................. 15

Objective 1.2: Providers should strongly encourage HPV vaccination of age-eligible males and females whenever other vaccines are administered.................................................................................. 15

Objective 1.3: Healthcare organizations and practices should use electronic office systems, including electronic health records (EHRs) and immunization information systems (IIS), to avoid missed opportunities for HPV vaccination.......................... 16

Objective 1.4: Healthcare payers should reimburse providers adequately for HPV vaccines and for vaccine administration and services........................................................................................................... 16

Objective 1.5: The current Healthcare Effectiveness Data and Information Set (HEDIS) quality measure for HPV vaccination of adolescent females should be expanded to include males .......................................................... 18

Objective 1.6: Create a Healthy People 2020 HPV vaccination goal for males................................................................................................................................. 18

Goal 2: Increase Parents’, Caregivers’, and Adolescents’ Acceptance of HPV Vaccines ...................... 18

Objective 2.1: CDC should develop, test, and collaborate with partner organizations to deploy integrated, comprehensive communication strategies directed at parents and other caregivers, and also at adolescents......................................................... 19

Goal 3: Maximize Access to HPV Vaccination Services ..................................................................... 20

Objective 3.1: Promote and facilitate HPV vaccination in venues outside the medical home................................................................. 20

Objective 3.2: States should enact laws and implement policies that allow pharmacists to administer vaccines to adolescents, including younger adolescents .................................................................. 21

Objective 3.3: Overcome remaining barriers to paying for HPV vaccines, including payment for vaccines provided outside the medical home and by out-of-network or nonphysician providers........................................................................... 21

PART 4: INCREASING GLOBAL HPV VACCINATION ....................................................................... 25

http://deainfo.nci.nih.gov/advisory/pcp/annualReports/HPV/index.htm
Current CDC activities to increase HPV vaccine coverage

- Communication and media campaign to the public
- American Academy of Pediatrics (AAP) funded activity to focus on provider outreach
- Prevention and Public Health Fund (PPHF) awards to state/local awardees to increase HPV vaccination
- State and local health department “Call to Action” with follow-up with health departments to discuss developing a plan
- Partnership building activities between immunization and cancer prevention programs and coalitions
What can be done and what can you do to improve HPV vaccination coverage?

- Emphasize HPV vaccination as a standard and routine part of adolescent health care.
- Eliminate missed opportunities to vaccinate.
  - Take advantage of the adolescent immunization visit and every other potential visit.
- Do not delay vaccination.
  - Start the conversation regarding HPV vaccination and begin vaccination during the first adolescent visit.
- Share a personal story and welcome questions from parents, especially regarding HPV vaccine safety.
What can be done and what can you do to improve HPV vaccination coverage?

• Measure adolescent HPV immunization coverage rates on a regular basis (e.g., quarterly).
  – Use the Wisconsin Immunization Registry (WIR) adolescent assessment and benchmark reports.
  – Simple to run: measure HPV coverage rates in a few minutes.
  – Refer questions to the WIR Help Desk, 608-266-9691.

• Use the WIR reminder/recall functionality to generate lists of persons due or overdue for HPV vaccination: for mailings or telephone reminders.

• These are important evidence-based tools that can help improve HPV vaccination coverage.
Additional resources for health care professionals

• CDC HPV Vaccine Resources for Healthcare Professionals – You Are the Key to HPV Cancer Prevention campaign: [http://www.cdc.gov/vaccines/who/teens/for-hcp/hpv-resources.html](http://www.cdc.gov/vaccines/who/teens/for-hcp/hpv-resources.html)


Additional resources for patients and parents

http://www.cdc.gov/vaccines/who/teens/index.html

- CDC print materials (fact sheets, flyers, posters) for preteens and teens – available in English, Hmong, Spanish, Vietnamese, Korean, and for American Indian/Alaska Native populations: http://www.cdc.gov/vaccines/who/teens/products/print-materials.html

Jacquelyn’s story: “I was healthy—and

When I was in my late 20s and early 30s, in the years following my daughter’s birth, I had some worrisome Pap

screenings and had to have further testing. I was told I had the

one of HPV that can cause cancer and mild warts.

For three years, I had normal tests. But when I got my

I think that was after my second son was born, and that was when

a couple. The results came back as cancer, and my doctor

sent me to an oncologist. Fortunately, the cancer was an

early stage. My gynecologist said it was very small, and it didn’t

need radiation. But I was told it’s a true transformation.

My husband and I have been together for 15 years, and we

were planning to have more children. We had so many goals for

our two wonderful children, but now we’re hoping for someone

who is not going to help people now.

Help paying for vaccines

HPV and Cancer

HPV is a short for Human Papillomavirus, a common virus. In the United States, it affects about 12,000 women and 9,000 men. It is the leading cause of some cancers that can be prevented with vaccination. In both women and men, HPV can cause certain cancers and sexual-transmission (stigmatising) causes. It can also cause cancer of the cervix, mouth, tongue, and throat, and cancer of the penis in men.

For women, receiving is available to detect one cause of cervical cancer with a Pap smear. Unfortunately, there is no routine testing for other HPV-related cancers for women or men, and there currently is no cure for HPV. The only available treatment for a vaccine that prevents most of these types of cancer is important.

More about HPV

HPV is a virus passed from one person to another during skin-to-skin sexual contact, including vaginal, oral, and anal sex. HPV is the most common virus in people in their late teens and early 20s. Almost all sexually active people will get HPV at some time in their lives, through whom and how they become infected.

Most of the time, the body naturally fights off HPV, but HPV causes any health problems. But in some cases, the body doesn’t fight off HPV, and it can cause health problems like cancer and genital warts. Genital warts are not a life-threatening disease, but they can cause emotional stress, and their treatment can be very uncomfortable. About 51, or 15% of sexually active adults in the United States alone get genital warts at some point in their life.

Why does my child need this vaccine?

HPV vaccines offer the best protection to girls at these vaccine doses and have time to develop an immune response with another person. It is possible to catch HPV before you are protected, and some vaccines could mean better protection for your child.
Your efforts to prevent HPV-associated cancers and other diseases are important and greatly appreciated.
Thank you

You're not opening the door to sex.

You're closing the door to cancer.

HPV vaccine is cancer prevention.
Talk to your child's doctor about vaccinating your 11-12 year old against HPV.
www.cdc.gov/vaccines/teens