You are the Key to HPV Cancer Prevention

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April 14, 2019

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March 31, 2019

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Objectives

1. Describe the burden of HPV disease.
2. Define the importance of HPV vaccination for cancer prevention.
3. Explain the rationale for vaccinating youth at ages 11 or 12.
4. List the recommendations for HPV vaccine for girls and for boys.
5. Provide useful and compelling information about HPV vaccine to parents in making the decision to vaccinate.
6. Locate resources relevant to current immunization practice.
7. Provide appropriate care and counsel for patients and their families.
8. Provide accurate and appropriate counsel as part of the treatment team.

HPV INFECTION & DISEASE

Objective 1: Understanding the Burden

HPV INFECTION & DISEASE

HPV is a common virus that infects teens and adults. **80%** of people will get an HPV infection in their lifetime.

Most females and males will be infected with at least one type of mucosal HPV at some point in their lives

- Estimated 79 million Americans currently infected
- 14 million new infections/year in the US
- HPV infection is most common in people in their teens and early 20s

Most people will never know that they have been infected.

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**Number of HPV-Associated Cancer Cases: Idaho, 2016**

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Number of Cancers</th>
<th>Percentage Probably Caused by HPV</th>
<th>Number of Cancers Probably Caused by HPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervix</td>
<td>336</td>
<td>91%</td>
<td>306</td>
</tr>
<tr>
<td>Vagina</td>
<td>5</td>
<td>75%</td>
<td>4</td>
</tr>
<tr>
<td>Vulva</td>
<td>17</td>
<td>69%</td>
<td>12</td>
</tr>
<tr>
<td>Penis</td>
<td>6</td>
<td>63%</td>
<td>4</td>
</tr>
<tr>
<td>Anus/Rectum</td>
<td>213</td>
<td>91%</td>
<td>194</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>265</td>
<td>70%</td>
<td>186</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>842</strong></td>
<td></td>
<td><strong>704</strong></td>
</tr>
</tbody>
</table>

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**Average number of new cancers probably caused by HPV, United States 2006-2010**

<table>
<thead>
<tr>
<th>Site</th>
<th>Average number of new cancers probably caused by HPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women (n = 17,600)</td>
<td></td>
</tr>
<tr>
<td>Vagina</td>
<td>11,400</td>
</tr>
<tr>
<td>Vulva</td>
<td>2,210</td>
</tr>
<tr>
<td>Anus</td>
<td>4,600</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>1,800</td>
</tr>
<tr>
<td>Cervix</td>
<td>10,400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Men (n = 9,300)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Penis</td>
<td>700</td>
</tr>
<tr>
<td>Anus</td>
<td>1,400</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>7,200</td>
</tr>
</tbody>
</table>

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**HPV-Associated Cancers per Year, United States, 2009–2013**

Based on Viens et al. MMWR 2016. [https://www.cdc.gov/cancer/hpv/statistics](https://www.cdc.gov/cancer/hpv/statistics)

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**HPV-Associated Cancer Incidence - IDAHO (2013)**

[Graph showing incidence rates of HPV-related cancers in Idaho]

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**HPV Infection**

- Most females and males will be infected with at least one type of mucosal HPV at some point in their lives
  - Estimated 79 million Americans currently infected
  - 14 million new infections/year in the US
  - HPV infection is most common in people in their teens and early 20s
- Most people will never know that they have been infected

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**HPV‐FREE ID**

**HPV‐Associated Cancer Incidence‐IDAHO (2013)**

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**Satterwhite et al. Sex Transm Dis. 2013**

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**CDC, United States Cancer Statistics (USCS), 2006‐2010**

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**Satterwhite et al. Sex Transm Dis. 2013**

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HPV Types Differ in their Disease Associations

- ~40 Types
  - Mucosal sites of infection
  - Cutaneous sites of infection
- ~80 Types
  - High risk (oncogenic)
    - HPV 16, 18 most common
  - Low risk (non-oncogenic)
    - HPV 6, 11 most common

Cervical Cancer
Anogenital Cancers
Oropharyngeal Cancer
Cancer Precursors
Low Grade Cervical Disease

Genital Warts
Laryngeal Papillomas
Low Grade Cervical Disease
“Common”
Hand and Foot Warts

There is no reliable way to determine who will have complications from HPV infection, such as genital warts or cancers.

HPV-Associated Cancer Rates by Sex, Race and Ethnicity, United States, 2009–2013

HPV-Associated Cervical Cancer Rates by Race and Ethnicity, United States, 2009–2013

HPV-Associated Oropharyngeal Cancer Rates by Sex, Race and Ethnicity, United States, 2009–2013

HPV-Associated Anal Cancer Rates by Sex, Race and Ethnicity, United States, 2009–2013
Cervical Cancer

- Cervical cancer is the most common HPV-associated cancer among women
  - 528,000 new cases and 266,000 deaths worldwide in 2012
  - 12,000 new cases and 4,000 deaths in the U.S. in 2013

- Half of cervical cancers occur in women <50 years
- A quarter of cervical cancers occur in women 25-39 years

Cervical pre-cancer in U.S. females

- 1.4 million new cases of low grade cervical dysplasia
- 330,000 new cases of high grade cervical dysplasia

HPV-Associated Penile Cancer Rates by Race and Ethnicity, United States, 2009–2013

HPV-Associated Vaginal Cancer Rates by Race and Ethnicity, United States, 2009–2013


The incidence of oropharyngeal cancers has increased over the past 20 years.

During this time:
- Smoking and alcohol-related cancers decreased 50%.
- HPV-related cancers increased by 225%.

Oropharyngeal Cancer

- Oropharyngeal cancer is the most common HPV-associated cancer among men.
  - HPV can infect the mouth and throat and cause cancers of the oropharynx (throat, back of tongue, near/in folds of tonsils).
  - Four to five-fold increase in oropharynx cancers over the last decade.
  - ~10% of men and 3.6% of women have active oral HPV infection.
  - HPV is thought to cause 70% of oropharyngeal cancers.

HPV VACCINE

Objective 2: Evidence-Based HPV Disease Prevention


HPV Prophylactic Vaccines

- Recombinant L1 capsid proteins that form “virus-like” particles (VLP)
- Non-infectious and non-oncogenic
- Produce higher levels of neutralizing antibody than natural infection

HPV Virus-Like Particle

HPV Vaccine Comparison

<table>
<thead>
<tr>
<th>HPV Types Included in Vaccine</th>
<th>6</th>
<th>11</th>
<th>16</th>
<th>18</th>
<th>31</th>
<th>33</th>
<th>45</th>
<th>52</th>
<th>58</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Quadrivalent</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-valent</td>
<td></td>
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</tr>
</tbody>
</table>

Genital warts
63% of cancers in body parts where HPV DNA is often found
10% of cancers in body parts where HPV DNA is often found

Adapted from Petrosky et al. MMWR. 2015.

HPV Vaccination is Recommended at Age 11 or 12 Years

Girls & Boys can start HPV vaccination at age 9
Preteens should finish the HPV vaccine series before their 13th birthday

Plus girls 13-26 years old who haven’t started or finished HPV vaccine series
Plus boys 13-21 years old who haven’t started or finished HPV vaccine series

Dosing Schedules

Starting the vaccine series before the 15th birthday
Recommended schedule is 2 doses of HPV vaccine
- Second dose should be administered 6–12 months after the first dose (0, 6–12 month schedule)
- Minimum interval between dose one and dose two in a 2-dose schedule is 5 months

Starting the vaccine series on or after the 15th birthday*
Recommended schedule is 3 doses of HPV vaccine
- Second dose should be administered 1–2 months after the first dose, and the third dose should be administered 6 months after the first dose (0, 1–2, 6 month schedule)
- Minimum interval between dose one and dose three in a 3-dose schedule is 5 months

*and immunocompromised persons 9-26 years

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HPV Vaccine Recommendations: Catch Up/Late

- Vaccination for females through age 26 years and for males through age 21 years who were not previously adequately vaccinated. Males aged 22 through 26 years may be vaccinated.
- Vaccination is also recommended through age 26 for gay, bisexual, and other men who have sex with men (MSM), transgender people, and people with certain immunocompromising conditions (including HIV infection).

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HPV VACCINE SAFETY

The Journey of Your Child's Vaccine

United States Vaccine Safety System

Evaluating and Monitoring 9-valent HPV Vaccine Safety in the United States

Over 10 Years of HPV Vaccine Safety Data
HPV Vaccination is Safe

HPV vaccine safety studies have been very reassuring: HPV vaccine has a good safety profile. To date, we have not observed any signal that shows that HPV vaccination causes death, neurologic conditions, autoimmune conditions, or venous thromboembolism (VTE).

Clinicians can reassure parents who may have concerns, that HPV vaccination is safe.

https://www.cdc.gov/vaccinesafety/vaccines/hpv/hpv‐safety‐faqs.html

HPV vaccine impact monitoring

Post licensure evaluations are important to evaluate real world effectiveness of vaccines.

Population impact against early and mid outcomes have been reported:

- **HPV prevalence**
  - Australia, Norway, Denmark, Sweden, UK, US

- **Genital warts**
  - Australia, New Zealand, Denmark, Sweden, Germany, Quebec, US

- **Cervical lesions**
  - Australia, British Columbia, Denmark, Sweden, US

Prevalence of HPV before & after introduction of HPV vaccination in the United States

- **2003‐2006**
  - Females: 64% decline
  - Males: 34% decline


Proportion of Australian born females and males diagnosed as having genital warts at first visit, by age group. 2004‐11

Impact of HPV vaccination in Australia

Systematic Review and Meta‐Analysis: Population‐Level Impact of HPV Vaccination

- Review of 20 studies in 9 high income countries
- In countries with >50% coverage, among 13‐19 year olds
  - HPV 16/18 prevalence decreased at least 68%
  - Anogenital warts decreased by ~61%
- Evidence of herd effects
- Some evidence of cross protection against other types
HPV Vaccine
Duration of Protection

- Studies suggest that vaccine protection is long-lasting
- No evidence of waning protection
  - Available evidence indicates protection for at least 10 years
  - Multiple studies are in progress to monitor

HPV Vaccination Is Safe, Effective, and Provides Lasting Protection

HPV Vaccine is SAFE
- Benefits far outweigh any potential risks
- Safety studies findings for HPV vaccination are reassuring and similar to MenACWY and Tdap vaccine safety reviews

HPV Vaccine WORKS
- Population impact against early and mid outcomes have been reported in multiple countries

HPV Vaccine Protection LASTS
- Studies suggest that vaccine protection is long-lasting
- No evidence of waning protection

Adolescent Vaccination Coverage
United States, 2006-2015

Impact of Eliminating Missed Opportunities by Age 13 Years in Girls Born in 2000

Objective 5, 7, and 8: Talking about HPV vaccine
FRAMING THE CONVERSATION
“The perceived and real concerns of parents influence how the clinician recommends and administers HPV vaccine.”

Give an Effective Recommendation to Receive HPV Vaccine at Ages 11 or 12

- An effective recommendation from you is the main reason parents decide to vaccinate
- Many moms in focus groups stated that they trust their child’s doctor and would get the vaccine for their child as long as they received a recommendation from the doctor
What is an **EFFECTIVE recommendation** for HPV vaccination?

**Same Way**

**Same Day**

Make an Effective Recommendation

- **Same way:** Effective recommendations group all of the adolescent vaccines
  - Recommend HPV vaccination the same way you recommend Tdap & meningococcal vaccines.

- **Same day:** Recommend HPV vaccine **today**
  - Recommend HPV vaccination the same day you recommend Tdap & meningococcal vaccines.


"Now that Sophia is 11, she is due for three vaccines today. These will help protect her from the infections that can cause meningitis, HPV cancers, and pertussis. We’ll give those shots at the end of the visit."


Your preteen needs three vaccines today to protect against meningitis, HPV cancers, and pertussis.
Now that Sophia is 11, she is due today for three important vaccines. The first is to help prevent an infection that can cause meningitis, which is very rare, but potentially deadly. The second is to prevent a very common infection, HPV, that can cause several kinds of cancer. The third is the “tetanus booster” which also protects against pertussis, so your child doesn’t get whooping cough, but also to protect babies too young to be vaccinated. We’ll give those shots at the end of the visit. Do you have any questions for me?

Some Parents Need Reassurance

- Many parents simply accept this bundled recommendation
- Some parents may be interested in vaccinating, yet still have questions. Interpret a question as they need additional reassurance from YOU, the clinician they trust with their child’s health care
- Ask parents about their main concern (be sure you are addressing their real concern)

Why does my child need HPV vaccine?

HPV vaccination is important because it prevents cancer. That’s why I’m recommending that your child start the HPV vaccine series today.

What cancers are caused by HPV infection?

Certain HPV types can cause cancer of the cervix, vagina, and vulva in females, cancer of the penis in men, and in both females and males, cancers of the anus and the throat. We can help prevent infection with the HPV types that cause these cancers by starting the HPV vaccine series today.
Is my child really at risk for HPV?

HPV is a very common and widespread virus that infects both females and males. We can help protect your child from the cancers and diseases caused by the virus by starting HPV vaccination today.

Why at 11 or 12 years old?

When should the bike helmet go on?
A. Before they get on their bike
B. When they are riding their bike in the street
C. When they see the car heading directly at them
D. After the car hits them

When do we put our seat belts on?
A. Before turning on car
B. When leaving driveway
C. After a near accident

As with all vaccine-preventable diseases, we want to protect your child early. If we start now, it’s one less thing for you to worry about. Also, your child will only need two shots of HPV vaccine at this age. If you wait until 15, your child will need three shots. We’ll give the first shot today and then you’ll need to bring your child back in 6 to 12 months from now for the second shot.
I’m just worried that my child will perceive this as a green light to have S-E-X.

Numerous research studies have shown that getting the HPV vaccine does not make kids more likely to be sexually active or start having sex at a younger age. Starting the HPV vaccine series today will give your child the best protection possible for the future.

“How long can we wait and still give just two doses?”

The two-dose schedule is recommended if the series is started before the 15th birthday. However, I don’t recommend waiting to give this cancer-preventing vaccine. As children get older and have busier schedules, it becomes more difficult to get them back in. I’d feel best if we started the series today to get your child protected as soon as possible.

I have some concerns about the safety of the vaccine—I keep reading things online that says HPV vaccination isn’t safe. Do you really know if it’s safe?

It sounds like you are generally in support of vaccines, but you have concerns about the safety of HPV. Is that right? So if you had information that convinced you the HPV vaccine was safe you might consider letting your daughter get it? I’d like to share with you what I know about the safety of HPV vaccine...
I know there are stories in the media and online about vaccines, and I can see how that could concern you. However, I want you to know that HPV vaccine has been carefully studied for many years by medical and scientific experts. Based on all of the data, I believe HPV vaccine is very safe.

Vaccines, like any medication, can cause side effects. With HPV vaccination this could include pain, swelling, and/or redness where the shot is given, or possibly headache. Sometimes kids faint when they get shots and they could be injured if they fall from fainting. We’ll protect your child by having them stay seated after the shot.

Could HPV vaccine cause my child to have problems with...?

There is no data available to suggest that HPV vaccine will affect future fertility. However, women who develop cervical cancer could require treatment that would limit their ability to have children. Starting the HPV vaccine series today could prevent that from happening and protect your daughter’s ability to bear children.

More than a decade of HPV vaccine safety studies have been very reassuring. To date, we have not observed any signal that shows that HPV vaccination causes death/ neurologic conditions/ autoimmune conditions/ venous thromboembolism/ postural orthostatic tachycardia syndrome/ complex regional pain syndrome.

How do you know if the vaccine works?
Ongoing studies continue to show that HPV vaccination works very well. HPV infections, genital warts, and cervical precancers in young people have all decreased in the years since the vaccine has been available. Starting the vaccine series today will help ensure your child gets the best protection possible.

Why do boys need HPV vaccine?

HPV infection can cause cancers of the penis, anus, and throat in men. HPV infection can also cause genital warts. Getting HPV vaccine today for your son can help prevent the infection that can lead to these diseases.

We only want the vaccines needed for school.

All three vaccines are strongly and equally recommended by the CDC. All three are also recommended by Pediatric, Adolescent, and Family Medicine doctors and groups. School-entry requirements don’t always reflect the current recommendations for your child’s health.

Would you get HPV vaccine for your kids?
Yes, I have given HPV vaccine to my child. I believe strongly in the importance of this cancer-preventing vaccine. The American Academy of Pediatrics, the American Academy of Family Physicians, NIH cancer centers, and the CDC, also agree that getting the HPV vaccine is very important for your child.

I heard there is a new HPV vaccine that works better. Should I be getting that for my child who already was vaccinated?

Currently there is no recommendation for additional vaccination for someone who has already completed an HPV vaccine series. All HPV vaccines protect against the infections that cause most of the cancers.

When do we need to come back?

Since your child is younger than 15, she will need a second shot in 6 months to a year. When you check out, please make sure to make an appointment for the second shot and put that appointment on your calendar before you leave today!

Since your child is already 15, she will need a second shot in 1-2 months. The third shot is due 6 months from today. When you check out, please make sure to make an appointment for about 1-2 months from now and 6 months from now, and put those appointments on your calendar before you leave today!
My child is less than 15 years old, so why does she need a third shot?

The recommended schedule is 2 shots given 6 to 12 months apart. The minimum amount of time between those shots is five months. Because your child received two shots less than five months apart, we'll need to give your child a third shot.

Will my child be protected with just two shots?

Yes! Studies have shown that just two shots given at least six months apart when kids are between 9 and 14 years worked as well or better than three shots given to older adolescents and young adults.

If a parent doesn’t say yes today...

<table>
<thead>
<tr>
<th>Ask</th>
<th>Acknowledge</th>
<th>Advise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarify &amp; restate their concerns to make sure you understand</td>
<td>Emphasize it is the parents’ decision</td>
<td>Allow time to discuss the pros &amp; cons of the vaccine</td>
</tr>
<tr>
<td>Emphasize it is the parents’ decision</td>
<td>Acknowledge risks &amp; conflicting info sources</td>
<td>Be willing to discuss parents’ ideas</td>
</tr>
<tr>
<td>Acknowledge risks &amp; conflicting info sources</td>
<td>Applaud them for wanting what is best for their child</td>
<td>Offer written resources for parents</td>
</tr>
<tr>
<td>Applaud them for wanting what is best for their child</td>
<td>Be clear that you are concerned for the health of their child, not just public health safety</td>
<td>Tailor your advice using this presentation</td>
</tr>
</tbody>
</table>

If a parent declines today...

- Declination is not final. The conversation can be revisited.
- End the conversation with at least 1 action you both agree on.
- Because waiting to vaccinate is the risky choice, many pediatricians ask the parent to sign a Declination Form.
The Opener by the Nurse/MA

- Encourage convenient same-day vaccination
  “Today, Pat should have 3 vaccines. They’re designed to protect him from the infections that cause meningitis, HPV cancers, and pertussis. Do you have any questions for me?”

- If a parents hesitates, the MA/nurse should say
  “Our practice is so dedicated to cancer prevention that I’m sure the doctor will want to talk with you about your concerns.”

How to increase the number of target patients who come in & leave vaccinated

2. Align office/clinic policy with mission

- Immunize at every opportunity
- Implement and utilize standing orders
- Prompt the person ordering the vaccine in multiple ways
- Reminders & Recalls

3. Align communication with mission

- Give staff a cancer-prevention mission
- All staff need to be saying the same thing
- Share talking points
- Use the Tip Sheet
- Hold an in-service

HPV Vaccination Month
February 2019

Your organization can participate in a variety of ways, examples include:
- Promoting HPV vaccine month and referring patients to walk-in clinics
- Providing HPV vaccination education

...and many more!

Visit hpvfreeid.org