American Academy of Pediatrics

2017 HPV Update

This webinar was supported by the Grant or Cooperative Agreement Number, 5H23IP000952, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.
Welcome!

- Sponsor: CDC
- Speaker bios on slide 85
- Slides in central window
- Ask questions using chat box window
- Slides, video, and Q&A will be available in ~2 weeks
- No CME credit for this webinar, but don’t forget about
  - **Pedialink:** *Adolescent Immunizations: Strongly Recommending the HPV Vaccine*
  - **CDC** [https://www.cdc.gov/hpv/hcp/continuing-ed.html](https://www.cdc.gov/hpv/hcp/continuing-ed.html)
- Almost 650 people have registered for this webinar!
Objectives

Review the latest information on...

- What is now known about HPV disease?
- How good is the available HPV vaccine?
- How can we translate the HPV vaccine science to protection for our patients?
- What are people asking about?
Objectives

• What is now known about HPV disease?
• How good is the available HPV vaccine?
• How can we translate the HPV vaccine science to protection for our patients?
• What are people asking about?
Every year in the US >30,000 people are diagnosed with a cancer caused by HPV

That’s 1 case every 20 minutes
Average annual number of new cancers probably caused by HPV

Women: n=19,200
- Oropharynx: 56%
- Vagina: 13%
- Vulva: 10%
- Cervix: 3%
- Penis: 16%
- Rectum: 3%

Men: n=11,600
- Oropharynx: 78%
- Vagina: 6%
- Vulva: 2%
- Cervix: 14%
- Penis: 1%
State variation in rates of **cervical cancer**

Cervical Cancer Incidence Rates by State, 2013

Data Source: [www.cdc.gov/cancer/cervical/statistics/state.htm](http://www.cdc.gov/cancer/cervical/statistics/state.htm)
State-based disparities in **HPV-associated oropharyngeal cancer**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Not Available</td>
<td>.80 to 1.52</td>
</tr>
<tr>
<td></td>
<td>4.53 to 7.02</td>
<td>1.53 to 1.82</td>
</tr>
<tr>
<td></td>
<td>7.03 to 8.19</td>
<td>1.83 to 2.33</td>
</tr>
<tr>
<td></td>
<td>8.20 to 9.73</td>
<td></td>
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</tbody>
</table>

Data Source: Adapted from [www.cdc.gov/cancer/hpv/statistics/state/oropharyngeal.htm](http://www.cdc.gov/cancer/hpv/statistics/state/oropharyngeal.htm)
Incidence of Diseases covered in Adolescent Vaccine Series

Annual Incidence (per 100,000)

- Meningococcal Disease (all serogroups): 0.14
- Meningococcal Disease Serogroup B: 0.04
- Pertussis: 6.5
- Oropharyngeal SCC (HPV associated): 4.5
- Cervical cancer (HPV associated): 7.4

Data Sources: CDC, 2016; CDC 2015; Viens 2016
Deaths from Diseases covered in Adolescent Vaccine Series

Estimated Annual Deaths

- Meningococcal Disease (all serogroups): 70
- Meningococcal Disease Serogroup B: 7.5
- Pertussis: 6
- Cervical cancer (HPV associated): 4210

Data Sources: CDC, 2016; CDC 2015; American Cancer Society
Average annual number of new cancers probably caused by HPV

Women: n=19,200
- Oropharynx: 56%
- Vagina: 13%
- Vulva: 16%
- Cervix: 3%
- Rectum: 10%

Men: n=11,600
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- Vulva: 2%
- Cervix: 14%
- Rectum: 10%
Oropharyngeal cancers

Incidence projected to surpass cervical cancer
Oropharyngeal cancers

Incidence is much lower in women...

Data Source: Adapted from Gillison et al. JCO 2015
Oropharyngeal cancers

...than the incidence in men

Data Source: Adapted from Gillison et al. JCO 2015
Oropharyngeal cancers

...than the incidence in men

Can’t we catch it earlier in the pre-cancerous stage?

Data Source: Adapted from Gillison et al. JCO 2015
Anatomy of the Oropharynx
Oropharyngeal Cancer: Management

Non surgical

• Radiation
• Chemotherapy
• Immunotherapy

Surgical

• Open
• Transoral
  o Standard
  o Robotic resection
  o Laser resection

Photo Credit: https://tse2.mm.bing.net/th?id=OIP.wtq3_tfCGgwznEHiUVuZ7AEsDe&pid=15.1
# Side effects of non-surgical therapy

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>Percent affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste Disturbance</td>
<td>88%</td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td>36%</td>
</tr>
<tr>
<td>Dry Mouth</td>
<td>29-38%</td>
</tr>
<tr>
<td>Esophageal Stricture</td>
<td>5%</td>
</tr>
<tr>
<td>Require G tube &gt; 1 year</td>
<td>9%</td>
</tr>
</tbody>
</table>

Photo credit: http://www.jpalliativecare.com/viewimage.asp?img=IndianJPalliatCare_2010_16_2_74_68408_f3.jpg
Cost of HPV-related oropharyngeal squamous cell carcinoma

- **Incidence:** 12,989 new cases annually\(^1\)

- **Cost:** 2004-2007 data \(^2\)
  - Mean lifetime cost/new case = $43,200
  - Societal cost = $306 million
  - Incidence has more than doubled since then!!

The Human Side of Oropharyngeal Cancer

Video Credit: www.youtube.com/watch?v=M7kkYgX7Oc&t=1s
HPV vaccination eliminates HPV infection and the downstream consequences

Genital HPV infection

Cervical Pre-cancer
330,000

Cervical Cancer
12,000

Source: Schiffman M et al., 2013
Treatment of cervical precancerous lesions can lead to increased risk of preterm delivery

- 333,000 women undergo cone/LEEP procedures annually
- LEEP/HPV infection is associated with obstetric morbidity
  - Preterm delivery
  - Preterm rupture of membranes
  - Low birth weight
  - Long term developmental outcomes
  - Neonatal intensive care costs
HPV Vaccine: Impact on cervical disease

HPV vaccine is cancer prevention.

Talk to the doctor about vaccinating your 11–12 year old sons and daughters against HPV.

#UCanStopHPV
Higher effectiveness with early vaccination

% Reduction in cervical dysplasia 5 years after vaccination, by age at vaccination

Data Source: Gertig, Dorota M., et al, 2013
Figure 1: Trends in prevalence rates of high grade histologically confirmed cervical abnormalities (C1N2+) diagnosed in Victorian women, Australia, by age group, 2000-2015

Source: Adopted from Brotheton et al. MJA 2016. Source VCCR
Without vaccination, annual burden of genital HPV-related disease in U.S. females:

- 4,000 cervical cancer deaths
- 10,846 new cases of cervical cancer
- 330,000 new cases of HSIL: CIN2/3 (high grade cervical dysplasia)
- 350,000 new cases of genital warts
- 1.4 million new cases (low grade cervical dysplasia) of LSIL: CIN1

3 million cases and $7 billion

Data Sources: American Cancer Society. 2008; Schiffman, Mark, and Philip E. Castle.; Koshiol Sex Transm Dis. 2004; Insinga, Ralph P., Erik J. Dasbach, and Elamin H. Elbasha, 2005
Extrapolating the prior pyramid with projections of vaccine efficacy based on Australian data

**Cervical cancer**

- 46% reduction in CIN2/3 requiring LEEP
  - *75% if vaccination by age 14*

- 92% reduction in genital warts

- 35% reduction in CIN1

Data Sources: Gertig, 2013; Read, 2011; Smith, 2015
Objectives

• What is now known about HPV disease?
• **How good is the available HPV vaccine?**
• How can we translate the HPV vaccine science to protection for our patients?
• What are people asking about?
9-valent HPV Vaccine (9vHPV)

- Recommended as of 2/2015
- Now it’s the only HPV vaccine available in U.S. (no further sale of 2vHPV or 4vHPV)
- What strains are covered?
  - 2 strains that cause warts
  - Strains 16 & 18 (cause 80% of all cancers caused by HPV)
  - Strains 31,33,45,52,58 (cause another ~12%, mostly in females)

Data Source: www.cdc.gov/cancer/hpv/statistics/cases.htm
9vHPV 2-Dose Immunogenicity Trial

Non-inferior GMT at 1 month post-last dose in 2-dose girls/boys vs. 3-dose women

<table>
<thead>
<tr>
<th>Fold difference (girls &amp; boys /women)</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>95% CI</td>
<td>(2.93, 4.11)</td>
<td>(4.32, 5.94)</td>
<td>(3.84, 5.37)</td>
<td>(3.06, 4.45)</td>
<td>(3.08, 4.45)</td>
<td>(5.36, 7.43)</td>
<td>(1.61, 2.37)</td>
<td>(2.64, 3.61)</td>
<td>(4.23, 5.86)</td>
</tr>
</tbody>
</table>
Does immunity last?

Follow-up through month 60

RESULTS: Antibody kinetics
- Similar in 2 groups
- Steady
- > Natural infection

2 doses (0, 6 mos)  (ages 9-14 y)
3 doses (0, 1, 6 mos) (ages 15-25 y)

Natural infection

Antibody measured by ELISA
Evidence of lasting immunity

• For 2 or 3-dose schedule?
  – No evidence of waning protection after a 3-dose schedule
  – So far, antibody persistence for 2-dose schedule appears similar to 3-dose schedules

• How long?
  – Data available through ~ 10 years for 2vHPV and 4vHPV
  – Longer follow-up, through 14 years, ongoing in some studies
Age at 1\textsuperscript{st} dose of HPV vaccine

- Before 15\textsuperscript{th} Bday: 2 doses
- On or after 15\textsuperscript{th} Bday: 3 doses
- Immunocompromised: 3 doses
### 2017 Immunization Schedule


**Age at 1\textsuperscript{st} dose of HPV vaccine**
- Before 15\textsuperscript{th} Bday: 2 doses
- On or after 15\textsuperscript{th} Bday: 3 doses
- Immunocompromised: 3 doses

**NOTE:** The above recommendations must be read along with the footnotes of this schedule.
What forms of “immunocompromise” necessitate a 3-dose HPV vaccine series?

**Needs 3 doses irrespective of age:**
Primary or secondary conditions that might reduce cell-mediated or humoral immunity

**Examples:**
- B lymphocyte Ab deficiencies
- T lymphocyte complete or partial defects
- HIV infections
- Malignant neoplasm
- Transplantation
- Autoimmune disease
- Immunosuppressive therapy

**Can use 2 dose series for those initiating before 15th birthday:**

- Asthma
- Asplenia
- Diabetes mellitus
- Sickle cell disease
- Chronic granulomatous disease
- Chronic disease of liver, lung, kidneys
- Heart disease
- CNS barrier defects (eg, cochlear implant)
- Complement deficiency, persistent complement component deficiency
### Recommended # of Doses & Dosing Schedule for HPV Vaccine

<table>
<thead>
<tr>
<th>Population</th>
<th>Rec. # of doses</th>
<th>Rec. dosing schedule</th>
<th>Minimum intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Started series at ages 9 through 14 years, except immunocompromised persons</td>
<td>2</td>
<td>0, 6–12 mos</td>
<td>5 mos between doses</td>
</tr>
</tbody>
</table>
| Started series at ages 15 through 26 years, and immunocompromised persons (any age) | 3              | 0, 1–2, 6 mos        | 4 weeks btwn doses 1-2
                                                                                                                 |                | 12 weeks btwn doses 2-3
                                                                                                                 |                | 5 mos btwn doses 1-3  |
Case example - 1

A boy is starting the HPV vaccine series on his 15th birthday. How many doses does he need in total?

A. 0
B. 2
C. 3

A boy is starting the HPV vaccine series on his 15th birthday. How many doses does he need in total?

A. 0
B. 2
C. 3

This adolescent needs 3 doses (0, 1-2, 6 months schedule) because he is starting the series on (or after) the 15th birthday.
Case example - 2

A 13 year old has a history of 2 doses of HPV vaccine: 4vHPV given at age 12 years and 9vHPV given 6 months later.

*How many more doses are needed?*

A. 0  
B. 1  
C. 2
A 13 year old has a history of 2 doses of HPV vaccine: 4vHPV given at age 12 years and 9vHPV given 6 months later.

*How many more doses are needed?*

A. 0  
B. 1  
C. 2

No further doses are recommended because she initiated vaccination before the 15\textsuperscript{th} birthday and received 2 doses of vaccine 6 months apart.
Case example - 3

A 13 year old has a history of 2 doses of HPV vaccine: 4vHPV given at age 11 years & 9vHPV given 2 months later. How many more doses are needed?

A. 0  
B. 1  
C. 2
Case example - 3

A 13 year old has a history of 2 doses of HPV vaccine:
4vHPV given at age 11 years &
9vHPV given 2 months later.

How many more doses are needed?

A. 0
B. 1
C. 2

1 more dose...
Although she initiated the vaccination series before her 15th birthday, she needs another dose because HPV vaccine doses #1 and #2 were administered <5 months apart.

Give a 3rd dose with a minimum of 12 weeks between doses 2-3 and a minimum of 5 months between doses 1-3.
NATIONWIDE
6 OUT OF 10 GIRLS HAVE STARTED THE HPV VACCINE SERIES

National coverage is 63%
Coverage by state:
- 59% or less
- 60-64%
- 65-69%
- 70% or greater

Data Source: CDC. NCIRDig604 2016.
NATIONWIDE
5 OUT OF 10
BOYS HAVE STARTED
THE HPV VACCINE SERIES

Percentage of adolescent boys who have received one or more doses of HPV vaccine*

National coverage is 50%
Coverage by state:
- 39% or less
- 40-49%
- 50-59%
- 60% or greater

Data Source: CDC. NCIRDig604 2016.
Objectives

• What is now known about HPV disease?
• How good is the available HPV vaccine?
• **How can we translate the HPV vaccine science to protection for our patients?**
• What are people asking about?
How should we introduce the vaccine?

The Architecture of Provider-Parent Vaccine Discussions at Health Supervision Visits
Douglas J. Opel, John Heritage, James A. Taylor, Rita Mangione-Smith, Halle Showalter Salas, Victoria DeVere, Chuan Zhou and Jeffrey D. Robinson
*Pediatrics* 2013;132;1037; originally published online November 4, 2013;

Announcements Versus Conversations to Improve HPV Vaccination Coverage: A Randomized Trial
Noel T. Brewer, PhD, Megan E. Hall, MPH, Teri L. Malo, PhD, Melissa B. Gilkey, PhD, Beth Quinn, BS, Christine Lathren, MD
How should we introduce the vaccine?

- Opel et al: ‘Presumptive recommendation’
  - “We have some shots to do today”
  - Observational study
- Brewer et al: ‘Announcements’
  - “Your child is due for 3 vaccines today…”
  - RCT
Putting Presumptive into Practice: Same Day, Same Way

“Your child needs 3 vaccines today- Tdap, HPV and meningococcal”

“Today, your child should have 3 vaccines. They’re designed to protect him from meningitis, cancers caused by HPV and tetanus, diphtheria, & pertussis.”
Reminder recall strategies can increase HPV vaccination rates

Text Messages\(^1\)

Letters & Telephone calls\(^2\)

Graph Sources: Left) Kharbanda. E et al., 2011; Right) Suh CA et al., 2012
Provider Prompts

- Tells providers that patient is due for specific vaccinations
- Methods:
  - Nurse prompts:
    - Stickies
    - Checklists
    - Preprinted notes in clients chart
  - EHR prompts:
    - Automatic pop-ups
    - ‘To do’ task list
    - Many EHRs have prompts pre-installed that can be customized
  - Immunization Registries

Evidence from 14 studies showed 6% vaccination rate increase
True story
Practice familiar with EHR prompts set BPA to prompt vaccination at age 10 y.

Goal was earlier start to improve HPV series completion rates by age 13 y.
Standing Orders

• Single physician order for *all* patients for recommended vaccines

• Stipulate that all patients meeting certain criteria should be vaccinated – age, underlying medical condition

• Components

  1. Nurse/MA tracks immunization history
  2. Nurse/MA identifies eligible patients
  3. Nurse/MA educates patients – alert provider if patient still has questions or wants to talk with the provider
  4. Nurse/MA administers vaccines
Benefits of Standing Orders

- Shown to be effective in both adults and children
  - For children, use of standing orders is associated with a median increase in vaccination coverage of 28%
  - Most effective evidence-based method

- Overcome administrative barriers and save time
- ‘Presumptive’ recommendation in action

Source: www.thecommunityguide.org/vaccines/RRstandingorders.html
The Denver Health Story

• Large vertically integrated community health system
  o Cares for about 1/3 of all children in Denver
  o 8 community health centers, 16 school-based health centers

• For many years, had ‘typical’ immunization process, with similar rates to national average

Photo Credit: https://commons.wikimedia.org/wiki/File:The_Childrens_Hospital_of_Denver_Front.JPG
What did Denver Health change?

1. Implemented a system of **standing orders** predicated on the idea of taking the provider out of the immunization equation from birth to adulthood

2. Tdap, HPV, MCV4 presented as a standard “bundle” of adolescent immunizations

3. Vaccines given **early in visit** when possible

4. Providers involved **only if refusal** or questions (rare)
Adolescent Vaccine Rates with Standing Orders

Achieving High Adolescent HPV Vaccination Coverage

Anna-Lisa M. Farmar, MD, MPH, a,b Kathryn Love-Osborne, MD, a,b Katherine Chichester, RN, a Kristin Breslin, MPH, a Kristi Bronkan, PharmD, a Simon J. Hambidge, MD, PhD, a,b

Graph Source: Farmar, Anna-Lisa M., et al., 2016
Adolescent Vaccine Rates with Standing Orders

Graph Source: Farmar, Anna-Lisa M., et al., 2016
Standing Orders: My Recommendation

- Consider implementing standing orders for vaccination, particularly for the adolescent immunization ‘bundle’
- Emphasize that using standing orders allows more time for focusing other important aspects of preventive and sick visits for those without significant vaccine concerns
- Remember that having standing orders is not a substitute for a provider conversation for families with questions
Objectives

- What is now known about HPV disease?
- How good is the available HPV vaccine?
- How can we translate the HPV vaccine science to protection for our patients?
- What are people asking about?
What are the key coding & billing issues?

- Purchase vaccines in a cost effective way
- Code correctly for the vaccine given
- Use the correct National Drug Code if required
- Receive appropriate payment per your vaccine contract (negotiate)
For the best purchase price, consider joining a Group Purchasing Organization

Resources for negotiating for adequate payment

- The Business Case For Pricing Vaccines

- The Business Case for Pricing Immunization Administration in a Federal or State Supplied Environment

- The Business Case for Pricing Immunization Administration Vaccine Addendum to Payer Contracts

https://www.aap.org/en-us/professional-resources/practice-support/financing-and-payment/Pages/Private-Payer-Advocacy.aspx
More AAP Resources
(May require member login)

• Vaccine Coding Table
  http://www.aap.org/en-us/professional-resources/practice-support/financing-and-payment/Pages/Vaccines-Coding-Table.aspx

• FAQ Immunization Administration (IA) Codes
  http://www.aap.org/en-us/professional-resources/practice-support/coding-resources/Pages/FAQ.aspx

• Reporting Evaluation & Management Services with IA Codes
  http://www.aap.org/en-us/professional-resources/practice-support/coding-resources/Pages/FAQ.aspx
HPV vaccine long-term safety data

*No increased risk of:*

- 2011 - allergic reactions, anaphylaxis, GBS, stroke, blood clots, appendicitis, or seizures (than unvaccinated or who received other vaccines)
- 2013 – (almost 1 million girls) blood clots or AEs related to the immune & CNS
- 2014 – (>1 million women) venous thromboembolism or blood clots
- 2012 and 2014 – (2 studies) autoimmune disorders
- 2015 – Multiple sclerosis or other demyelinating diseases
- 2016- over 60 conditions

2012 - vaccine may be associated with skin infections where the shot is given during the two weeks after vaccination and fainting on the day the shot is received
9vHPV Vaccine Safety

- 7 pre-licensure studies including 15,000 males and females

- Generally well tolerated
  - Adverse event profile similar to that of 4vHPV across age, gender, race, and ethnicity
  - More injection-site reactions expected among those who receive 9vHPV
Why vaccinate at ages 11-12?

1) Better immune response

Data Source: Dobson, Simon RM, et al., 2013
Why vaccinate at ages 11-12?
2) More chances to vaccinate

Early adolescents have 3 times more preventive care visits than late adolescents

Graph Source: Rand CM et al., 2007; reprinted with author’s permission

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Why vaccinate at ages 11-12?

3) Lack of exposure

U.S. Teen Sexual Activity
% of adolescents who have had sex

Data Source: Finer, Lawrence B., and Jesse M. Philbin, 2013
Why vaccinate at ages 11-12?

4) Long duration of immunity

• No evidence of waning protection up to 10 years after 3-dose schedule

• Antibody kinetics with 2-dose schedules are similar, suggesting there will be similar protection
Why vaccinate at ages 11-12?
5) Prevents twice as much pre-cancer

% Reduction in cervical dysplasia 5 years after vaccination, by age at vaccination

Graph Source: Gertig DM, 2013
Why vaccinate at ages 11-12?

What I say to patients:

“The HPV vaccine works better at younger ages. If Claire gets the vaccine today she will only need 2 doses, but if we wait until she’s older she may need 3 doses.”
Case example: The hesitant parent

- An 11 year old girl comes to your office for well-care.

- You offer a ‘presumptive’ recommendation for the vaccines, saying “Great, you’re here for your vaccines. We can go ahead and do her tetanus/diphtheria/whooping cough vaccine, her HPV vaccine, and her meningitis vaccine.”
Case example: The hesitant parent

- An 11 year old girl comes to your office for well-care.

- You offer a ‘presumptive’ recommendation for the vaccines, saying “Great, you’re here for your vaccines. We can go ahead and do her tetanus/diphtheria/whooping cough vaccine, her HPV vaccine, and her meningitis vaccine.”

Not so fast. The mother says:
“We’re okay doing that tetanus shot and the meningitis one, but we’re going to hold off on the HPV vaccine.”
How to Handle Resistance:
Step 1 – Ask the parent to share her/his concern(s)

Example:

“So you seem to have concerns about the HPV vaccine. Well, that’s perfectly understandable – I’ve had a number of questions about this one. Would you mind sharing what your particular concerns are?” (Note: non-threatening)

“Well, I’ve heard that it’s a vaccine to prevent a disease that’s transmitted by having sex, and she is a looooong way from having sex.”
How to Handle Resistance:
Step 2 – Reflect, summarize, ask, advise

The provider reflects back what the parent is saying to be sure he/she understands (empathy) and summarizes what has been heard before proceeding, again with permission, to make a recommendation.
How to Handle Resistance:
Step 2 – Reflect, summarize, ask, advise

The provider reflects back what the parent is saying to be sure he/she understands (empathy) and summarizes what has been heard before proceeding, again with permission, to make a recommendation.

**Example:**

“So I can hear that you’re concerned that she’s too young for the HPV vaccine because HPV is transmitted by sexual activity. Well, I completely get that – she is only 11 after all. I’ve thought a lot about this. Is it okay if I go over how I’ve come to think about this vaccine?”
How to Handle Resistance:
Step 3 – The crucial step

**Example:**

What **NOT** to say: “Well, data shows that many adolescents will be having sex by middle school, and if you’re worried about her having sex, studies have shown that it won’t increase the likelihood of her having sex.”
How to Handle Resistance:  
Step 3 – The crucial step

**Example:**

What NOT to say: “Well, data shows that many adolescents will be having sex by middle school, and if you’re worried about her having sex, studies have shown that it won’t increase the likelihood of her having sex.”

What TO say: “I used to think of this vaccine as something to prevent a sexually transmitted disease, but realized it’s really about preventing cancer. Almost everyone gets this virus, so I think it’s important for everyone.”
How to Handle Resistance:
Step 4 – Make a personalized recommendation

**Example:**

“If she were my daughter I would not hesitate to recommend this vaccine for her, and most of my patients now are getting the vaccine.

Having said that, this is a decision that only you and your daughter can make. What do you think?”
Summary: How to Handle Resistance

• Engage the patient respectfully and fully in the discussion
• Use empathy, collaboration, evocation and support for autonomy
• Use open-ended questions and reflections
• Use of behavior change principles like emphasizing social norms, pivoting from debunking the myth that she is too young, and focusing on the disease that is prevented rather than negatives (like side effects)
• Make a clear, strong, & personalized recommendation
Questions?
What about virgins marrying virgins? HPV can be transmitted before first intercourse

Detection of at least 1 HPV type occurred before first coitus for 45.2% of subjects
What I say to families adamant that their child "is not at risk":

Unfortunately you can get HPV without having intercourse.

We know Julia will make good decisions about sexual activity, but we can't control what her future husband might do before marriage. When Julia gets married, she could catch HPV from her husband.
Thank You

Dr. Moore is active clinically in both head and neck ablative and reconstructive surgery. He sees and manages all types of head and neck tumors, both benign and malignant, including those arising in the mouth, throat, skin, salivary glands, thyroid/parathyroids, nose/sinuses, and anterior skull base. Dr. Moore’s research interests center on the early detection and prevention of head and neck cancer. He is active nationally in efforts to improve vaccination rates in the US for the HPV virus, an infection that has been linked to the development of certain types of head and neck cancer. In addition, he has developed a head and neck tumor bank at UC Davis and is collaborating with external researchers to look at the use of Ambient Mass Spectrometry for the diagnosis of head and neck cancer.

Dr. Humiston is Professor of Pediatrics in the Division of Emergency and Urgent Care at Children’s Mercy Hospitals and Clinics in Kansas City, Missouri. She also serves as Associate Director for Research, for the Immunization Action Coalition. From 1997 to 2000 Dr Humiston worked in the Training Education Branch of CDC’s National Immunization Program. She has been a member of the National Vaccine Advisory Committee (NVAC), including service as Chair of NVAC’s Subcommittee on Communication and Public Engagement. She is a Scientific Advisory Board member for the Autism Science Foundation and the mother of an autistic son.

Kristin Oliver, MD, MHS is an Assistant Professor in the Departments of Pediatrics and Environmental Medicine and Public Health at the Icahn School of Medicine at Mount Sinai. Dr. Oliver has extensive experience working in public health and policy agencies. She served as a health care analyst for GAO in Washington DC, and has conducted research projects with the CDC, the New York City Department of Health, and UNICEF. Dr. Oliver’s research and scholarly interests include vaccine preventable diseases, school based health, and tobacco cessation. She is currently a member of the American Academy of Pediatrics’ HPV Expert Physician Panel. Dr. Oliver’s clinical practice in Pediatrics is at Mount Sinai’s School Based Health Centers.

Dr. Perkins is an Associate Professor of Obstetrics and Gynecology at Boston University School of Medicine, and a practicing gynecologist at Boston Medical Center. Her career is dedicated to reducing health disparities in cervical cancer. Her current research focuses on improving utilization of HPV vaccination and cervical cancer screening guidelines. Dr Perkins is currently working on national projects related to HPV vaccination and cervical cancer prevention with the American Cancer Society, American Academy of Pediatrics, and ASCCP.

Dr. O’Leary, MD, MPH, is an Associate Professor of Pediatrics at the University of Colorado School of Medicine and Children’s Hospital Colorado, a pediatric infectious diseases specialist, and an investigator at the Adult and Child Consortium for Health Outcomes Research and Delivery Science (ACCORDS). Dr. O’Leary’s research focuses on identifying barriers to vaccination and developing and testing interventions to address those barriers, with numerous publications in the areas of vaccine safety, vaccine hesitancy and refusal, immunization policy, vaccination in OB/GYN settings, and influenza vaccine. He is also the Director of Colorado’s pediatric practice-based research network, the Colorado Children’s Outcomes Network.
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