IMPROVING HPV VACCINATION –
WHY WE MUST AND HOW WE CAN DO BETTER

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Estimated numbers of HPV-associated cancers attributable to HPV 16/18 and 5 additional types in 9-valent vaccine, United States

Viens et al, http://www.cdc.gov/mmwr/volumes/65/wr/mm6526a1.htm
HPV-Associated Cervical Carcinoma Rates by State, United States, 2008–2012

Rate are per 100,000 persons and age-adjusted to the 2000 US standard population. Data are from population-based registries participating in CDC's National Program of Cancer Registries or NCI's Surveillance, Epidemiology, and End Results Program, meeting USCS publication criteria for all years 2008–2012, and cover about 99% of the US population. Rates were suppressed if the data did not meet USCS publication criteria or if there were fewer than 16 cases.

HPV-associated cancers were defined as cancers at specific anatomic sites with specific cellular types in which HPV DNA frequently is found. All cancers were confirmed histologically. Cervical cancers (ICD-O-3 site codes C53.0–C53.9) were limited to carcinomas (ICD-O-3 histology codes 8010–8671, 8940–8941).

HPV vaccine is cancer prevention.

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

#UCanStopHPV
Estimated Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen, United States, 2006-2016

* APD = Adequate provider data
†≥2 doses MenACWY among adolescents aged 17 years
Estimated HPV vaccination coverage among adolescents 13-17 years of age
National Immunization Survey-Teen, United States, 2016

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
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</thead>
<tbody>
<tr>
<td><strong>Females</strong></td>
<td></td>
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<tr>
<td>≥1 HPV</td>
<td>65.1% (63.3-66.8%)</td>
</tr>
<tr>
<td>HPV UTD</td>
<td>49.5% (47.6-51.4%)</td>
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<tr>
<td><strong>Males</strong></td>
<td></td>
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<tr>
<td>≥1 HPV</td>
<td>56.0% (54.3-57.7%)</td>
</tr>
<tr>
<td>HPV UTD</td>
<td>37.5% (35.8-39.2%)</td>
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<tr>
<td><strong>All adolescents</strong></td>
<td></td>
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<tr>
<td>≥1 HPV</td>
<td>60.4% (59.2-61.6%)</td>
</tr>
<tr>
<td>HPV UTD</td>
<td>43.4% (42.1-44.7%)</td>
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UTD: up to date. HPV UTD includes those with ≥3 doses, and those with 2 doses when the first HPV vaccine dose was initiated before age 15 years and time between the first and second dose was at least 5 months minus 4 days.
The Healthy People 2020 target for coverage is 90% for all vaccines with the exception of rotavirus (80%) and HepA (85%).

† DTP (3+) is not a Healthy People 2020 objective. DTaP (4+) is used to assess Healthy People 2020 objectives.

§ Reflects 3+ doses through 2008, and Full Series (3 or 4 doses depending on type of vaccine received) 2009 and later.
Provider motivation and skill

Parental acceptance

Systems support
Estimated Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen, United States, 2006-2016

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Lack of provider motivation and skill

Lack of parental acceptance

Barriers
Why Is HPV Vaccine Coverage So Low?

Parents
- Parents are not offered vaccination
- Parents perceive vaccine as optional or unnecessary at that time
- Parents perceive that their providers discouraged vaccination
- Parents want information about vaccine safety
- Parents do not understand the reason to vaccinate at 11 to 12 years of age

Both providers and parents know they are often unaware of the timing of sexual debut.

Perkins RB et al. Pediatrics 2014;134:e666-e674

Providers
- Providers are reluctant to give multiple shots at one visit
- Providers introduce HPV vaccination at age 11 years but do not recommend it strongly
- Providers recommend vaccination based on their estimation of sexual activity
- Providers have limited experience with HPV and underestimate risk
- Providers perceive HPV as more emotionally charged than other vaccines
- Delaying vaccination leads to nonvaccination
### Reasons for Not Vaccinating Adolescents with HPV Vaccine, Unvaccinated Adolescents* Aged 13-17 Years, NIS-Teen, United States, 2015

<table>
<thead>
<tr>
<th>Reason</th>
<th>Parents of Girls % (95% CI)</th>
<th>Parents of Boys % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not needed/necessary</td>
<td>19.6 (16.8-22.8)</td>
<td>20.6 (18.2-23.3)</td>
</tr>
<tr>
<td>Not sexually active</td>
<td>13.9 (10.7-17.8)</td>
<td>17.7 (15.3-20.3)</td>
</tr>
<tr>
<td>Safety concerns/side effects</td>
<td>13.4 (11.3-15.8)</td>
<td>12.9 (11.2-15.0)</td>
</tr>
<tr>
<td>Lack of knowledge</td>
<td>11.7 (9.2-14.8)</td>
<td>9.3 (7.7-11.1)</td>
</tr>
<tr>
<td>Not recommended</td>
<td>9.5 (7.7-11.6)</td>
<td>8.3 (7.0-9.9)</td>
</tr>
</tbody>
</table>

* Analysis limited to adolescents with zero HPV vaccine doses, whose parents reported that they were not likely to seek HPV vaccination for their adolescent in the next 12 months
Physicians’ Perceptions of Adolescent Vaccine Endorsement for Patients Ages 11-12, 2014

Proportion endorsing highly (physicians) and physicians’ estimate of parents

- **Tdap**: 90% (Physicians) vs. 70% (Parents)
- **Meningococcal**: 80% (Physicians) vs. 60% (Parents)
- **HPV**: 70% (Physicians) vs. 10% (Parents)

Gilkey MB et al, Preventive Medicine 2015;77:181-185
Parent opinions on the importance of vaccines and provider estimates of parental responses

Why don’t adolescents finish the HPV vaccine series?

Perkins RB et al. Human Vaccines and Immunotherapeutics, 2016
What can we do about it?
HPV Vaccination: What Works

Parents
• Parents want to prevent cancer
• Parents trust their provider’s recommendation
• Parents think benefits outweigh risks
• Parents want a strong recommendation

Providers
• Providers emphasize cancer prevention
• Providers normalize the HPV vaccine and coadminister with other vaccines
• Providers give a strong recommendation

Perkins RB et al. Pediatrics 2014;134:e666-e674
What can healthcare providers do?

- Make an effective recommendation for HPV vaccination as cancer prevention for every 11- or 12-year-old patient
- Assess HPV vaccine coverage for each provider in your practice and develop an office-wide strategy to improve it
- Engage the entire practice – not just the healthcare providers – in committing to improve HPV vaccine coverage
- Implement systems strategies to improve HPV vaccine coverage
Now that Sophia is 11, she is due for vaccinations today to help protect her from meningitis, HPV cancers, and pertussis.
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Vaccination Series Started and Completed Rates By Provider
Active Pediatric Providers, Patients Ages 13 - 17
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Systems Strategies to Improve HPV Vaccine Coverage

- Establish standing orders for HPV vaccination beginning at age 11-12 years in your practice.
- Conduct reminder/recall beginning at 11-12 years of age.
- Assess HPV vaccine coverage at every visit and prompt clinical staff to give HPV vaccine at that visit.
- Schedule return visit for next dose before the patient leaves the office.
- Document each dose in the child’s medical record and the state’s immunization information system.
Tactics for Successful HPV Vaccine Delivery, Denver Health

- Routine use of a robust immunization registry for multiple functions, including recording vaccine history and recommended needed vaccines at every visit
- Medical assistants check vaccine registry for recommended vaccines at every visit
- Standing order for routine immunizations
- Vaccines are given early in the visit when possible
- Education for providers to present Tdap, MCV, and HPV as a standard “bundle” of adolescent immunizations
- Provider-level “report cards” with adolescent vaccination coverage rates
- Vaccination drives at school-based health centers

Farmer et al, Pediatrics 2016
Immunization Rates for Adolescents
Denver Health, 2004-2014

Farmer et al, Pediatrics 2016
National, State, and Denver Health Immunization Rates, 2013

Farmer et al, Pediatrics 2016
What Can Community- and State-Level Organizations Do?

- Convene and commit to implementing effective strategies
- Immunization programs: AFIX focused on adolescent immunization
- Provider organizations: help members develop the motivation and skills to make an effective recommendation for HPV vaccination
- Cancer programs: motivate immunization providers to prevent cancers caused by HPV in their patients
- Health care payers: use HPV vaccine coverage as a quality measure
- All organizations: increase public awareness and support for HPV vaccination as cancer prevention
- All organizations: promote or implement systems strategies to improve HPV vaccine coverage