Call to Action

HPV Vaccination as a Public Health Priority




National Foundation for Infectious Diseases®

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Experts gather to discuss importance of HPV vaccination

The recommendations in this document are based upon the proceedings of a May 2014 roundtable convened by the National Foundation for Infectious Diseases (NFID) and the Council of State and Territorial Epidemiologists (CSTE).

NFID and CSTE assembled subject matter experts, including representatives from relevant professional medical associations and organizations, consumer health organizations, and government agencies to discuss the long-term health impact of HPV and the important role of increased immunization.

Page 6 includes a complete list of individuals and organizations that participated in the roundtable, along with others that support the goal of improving HPV vaccination rates to protect individuals from infection with the cancer-causing HPV.

HPV vaccination prevents cancer

There are many ways to lower cancer risk,[1] but few interventions lower the risk more than vaccination against human papillomavirus (HPV). HPV vaccines protect against HPV types 16 and 18, which cause cancer of the cervix, penis, vulva, vagina, anus, and the back of the throat including the base of the tongue and the tonsils (oropharynx).[2]

HPV vaccination greatly reduces the likelihood of getting HPV 16- or HPV 18-related cancers.[3] This is important as virtually all cervical cancers (more than 11,000 invasive cases and 4,000 deaths each year in the US)[4] are caused by HPV, with about 70 percent caused by HPV types 16 and/or 18.[5,6] HPV also appears to cause about 91 percent of anal cancers, 75 percent of vaginal cancers, 69 percent of vulvar cancers, and 63 percent of penile cancers. The majority of cancers at these sites that are caused by HPV are due to HPV 16.

More recently, HPV 16 has also been identified as a major cause of oropharyngeal cancers,[7] including cancers in the throat, at the base of the tongue, and in the tonsils. The incidence of these cancers is increasing in the US, particularly among males. The number of HPV-related oropharyngeal cancers is expected to surpass HPV-related cervical cancers by 2020, just six years from now.[8] While data are available from HPV vaccine clinical trials showing protection against HPV-attributable pre-cancer at several sites, there are no data for the oropharynx. However, HPV vaccine has been shown to protect against oral HPV infection.

The Centers for Disease Control and Prevention (CDC) and the President's Cancer Panel have identified improving uptake of HPV vaccines as a public health priority to reduce cancer in the US population.[9,10]

In the US, almost everyone will be infected with HPV at some point in their lives

According to CDC, about 79 million Americans are currently infected with HPV.[11] About 14 million people become newly infected each year. HPV is so common that most sexually-active men and women will get at least one type of HPV at some point in their lives.

The highest rate of new HPV infections is among people 15 to 24 years of age.[12] A female between the ages of 15 and 24 has a 25 percent chance of becoming infected each year and a staggering 33 percent of females 15 to 19 years of age are infected with HPV at any point in time. Younger males also bear a disproportionate burden of infection.

The body clears most HPV infections on its own generally over 8 to 24 months without any negative or long-term health effects. But even individuals who will eventually clear the virus without getting cancer can still pass HPV on to others who may not be as fortunate. And with most sexually-active individuals infected at some point in their lives, the impact of HPV on cancer rates is substantial.

HPV vaccines are the most effective and safest way to protect against HPV-related cancers

The scientific evidence is clear: HPV causes many types of cancer. The evidence is also clear that HPV vaccines can safely and effectively prevent infection with HPV types that cause most of these cancers.

HPV vaccines are more than 98 percent effective in reducing the incidence of HPV 16- and HPV 18-related cervical pre-cancers compared with placebo.[3] High efficacy has also been found for prevention of vaginal and vulvar pre-cancers and genital warts. For example, in large pre-licensure trials of the first HPV vaccine to be approved for use in the US, which tracked incidence of cervical pre-cancers, there were no cases of cervical pre-cancers in more than 8,000 females between 16 and 23 years of age who received the HPV vaccine compared with 53 cases in the age-matched placebo controls.[3]

Evidence of the impact of HPV vaccination programs has been observed in the US and other countries. In the four years following introduction of HPV vaccine in the US,

A Call to Action for US Healthcare Professionals (HCPs)

The fact that HPV infection is extremely common and can cause a range of cancers, coupled with the ability to protect adolescents with safe and effective vaccines, makes it imperative that HCPs overcome their hesitancy and be active and strong advocates to motivate parents to protect their children from HPV infection by getting them vaccinated.

HCPs who have contact with adolescents and their parents should play a leadership role in helping to reduce the burden of HPV-related cancers in the US. Key steps they can take include:

1. Recommend HPV vaccine with the same strength and conviction used to recommend other adolescent vaccines.
2. Educate themselves about HPV and HPV vaccines.
3. Inform their colleagues and staff so that everyone throughout the practice is delivering the same HPV messages.
4. Communicate vaccination benefits to parents and adolescents at every opportunity.
5. Make vaccination procedures routine and focus on ways to reduce missed opportunities.

Recommendations from an expert panel convened in May 2014 by the National Foundation for Infectious Diseases (NFID) and the Council of State and Territorial Epidemiologists (CSTE).

Full report available at:
adolescentvaccination.org/hpv-resource-center

the prevalence of HPV vaccine types (6, 11, 16, and 18) in females 14 to 19 years of age decreased by 56 percent.[13] HPV prevalence in other age groups did not decrease during this period.

In Australia, the HPV vaccination rate in females is substantially higher than in the US and was achieved quickly (>70 percent).[14] Within four years of vaccine introduction, Australia saw "the near disappearance" of genital warts with the proportion of genital wart diagnoses dropping from 18.6 percent to 1.9 percent in women younger than 21 years and from 22.9 percent to 2.9 percent in heterosexual men younger than 21 years.[15]

Ongoing post-licensure data reconfirm the safety of HPV vaccine. As of March 2014, approximately 67 million HPV vaccine doses were distributed in the US with only 25,176 adverse events reported to the Vaccine Adverse Event Reporting System (VAERS).[16] Ninety-two percent of these reports were classified as "not serious." The most commonly reported serious events were headache, nausea, vomiting, fatigue, dizziness, syncope, and generalized weakness. CDC has also noted that adverse event reports peaked within two years of the vaccine recommendation, and decreased dramatically in each of the subsequent five years.[17]

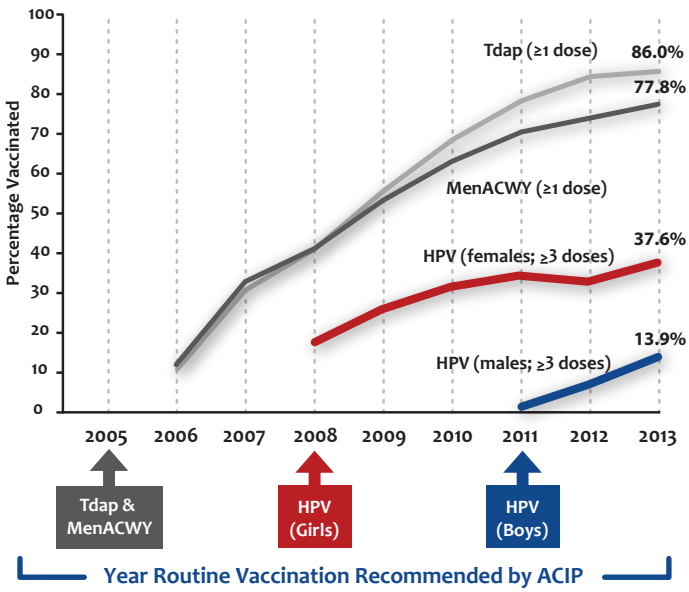
While HPV vaccines are safe and greatly reduce the risk of getting cervical cancer, they do not eliminate it completely. Women should continue to get routine cervical cancer screenings as recommended by CDC.[18]

Despite concrete scientific evidence, HPV vaccines are underused

Seven years after CDC recommended routine HPV vaccination of females at 11 to 12 years of age, three-dose vaccination coverage in adolescent females in the United States in 2013 reached only 38 percent (Figure 1).[19] Routine vaccination of males was recommended in 2011; completion of the three-dose vaccination series in this group is 14 percent.

These low rates translate to more than six out of every 10 adolescent females and more than eight out of every 10 adolescent males in the US still at risk for anogenital and oropharyngeal cancers while safe, effective vaccines go unused. Increasing vaccine coverage to 80 percent in females alone would result in 53,000 fewer cases of cervical cancer over the lifetimes of girls currently 12 years of age and younger.[17] An additional 4,400 future cancer cases are predicted for each year that vaccination coverage does not increase.

Figure 1: US Uptake of Adolescent Vaccines, 2006-13



HPV=human papillomavirus; MenACWY=quadrivalent meningococcal; Tdap=tetanus, diphtheria, and pertussis.

Source: CDC. *MMWR Wkly Rep*. 2014;63;29[19]

Responding to parental concerns about HPV vaccines:

1. *HPV vaccines do not increase promiscuity.* There are no data to support this idea, and few parents believe it.[21-25] However, when parents decide not to vaccinate their children, they frequently justify their decision with this belief.[25]
2. *HPV vaccines do not cause more pain than other vaccines.*[26] In a cross sectional survey of parents whose daughters received HPV, Tdap, and meningococcal vaccines, pain associated with HPV vaccination was reported as similar to, or less than, the pain from the other vaccines.
3. *HPV vaccines do not cure or treat existing HPV infections or cancers.* HPV vaccines are preventive only.[3] They are effective only when given before exposure to HPV.

Why vaccinate at age 11-12?

Not only will simultaneous administration of all recommended vaccines at age 11-12 increase the likelihood of adolescents receiving all vaccines on schedule,[3] but younger adolescents (through age 15) also have two- to three-fold higher HPV antibody levels after immunization compared to older adolescents and young adults (16-26 years of age). This may result in longer lasting immunity.[20] In addition vaccinating before a person becomes sexually active has been shown to provide the greatest effectiveness.[3]

While coverage rates for other adolescent vaccines are much higher than HPV vaccination rates and have continued a steady upward climb, HPV vaccination rates in females increased modestly, from 33 percent in 2012 to 38 percent in 2013, after remaining static the year prior.[19] This would appear to indicate that the factors driving parent and adolescent decisions about HPV vaccine are different than drivers of decisions for the meningococcal and Tdap (tetanus, diphtheria, and pertussis) vaccines. It also reveals the large number of missed opportunities for HPV vaccination.

All of the routinely recommended adolescent vaccines can and should be given at the same visit.[3] Eighty-four percent of girls 13 to 17 years of age who have not started the HPV vaccine series had at least one visit to a healthcare professional (HCP) on or after their 11th birthday at which time they received at least one other vaccine.[17] If these girls all received HPV vaccine, first-dose coverage could be 93 percent. Therefore, there are millions of missed HPV vaccination opportunities.

Vaccination at the recommended age provides protection before onset of sexual activity and will maximize immunity when the risk of contracting the virus is highest. Immunization of the population at age 11-12 years will also help reduce the reservoir of infection, further reducing the risk that adolescents and young adults will contract HPV. But for this to happen, HCPs must step up to lead parents to protect their children.

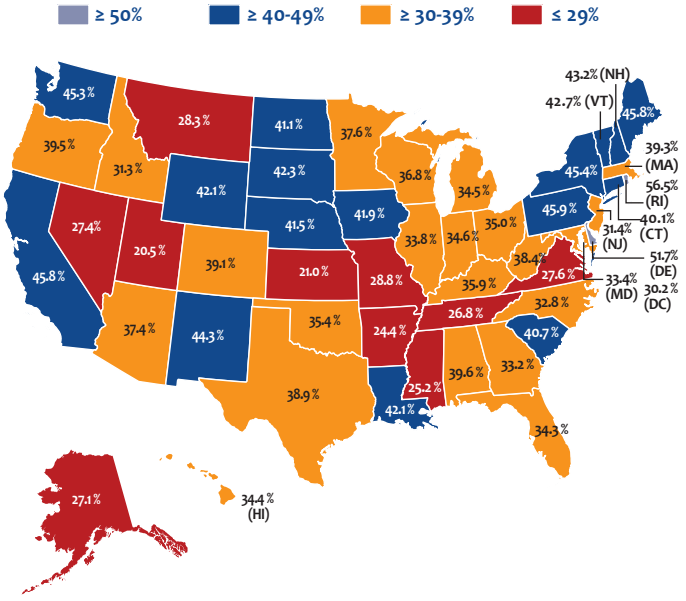
Insights from states with highest and lowest HPV vaccination rates

In the US, no state comes close to meeting the Healthy People 2020 HPV vaccination rate goal of 80 percent for females by 13 to 15 years of age (a goal for males is in development).[19,27] In fact, even with inclusion of data through age 17 years as shown in Figure 2, there is a wide range of rates across individual states, from 20.5 to 56 percent.[19]

CSTE conducted qualitative discussions with 19 state epidemiologists and immunization program staff in eight states regarding approaches to HPV vaccination.[28]

CSTE found some similarities across high and low HPV vaccination rate states. All report that the main focus of HPV messages is related to cancer prevention and vaccine safety. Representatives from all states expressed a need for easily available tools to help them deliver key messages to parents and overcome vaccine hesitancy. All responded that the lack of regular, preventive healthcare visits by adolescents is a barrier to higher HPV vaccination rates. However, data related to other adolescent vaccination rates show that in fact, adolescents are making healthcare visits and that higher HPV vaccination rates are achievable.

Figure 2: Completion of 3-dose HPV series in US females 13-17 years of age, 2013



Overall US coverage among female adolescents is 37.6%

Source: CDC. *MMWR Wkly Rep.* 2014;63;29[19]

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A Call to HCPs: Take an active role in preventing HPV-related cancers

In its comprehensive report, the President's Cancer Panel outlined factors contributing to the hesitancy of HCPs to actively encourage wider HPV vaccination (Table 1) and reasons why parents do not vaccinate their adolescents against HPV (Table 2).

Table 1. Factors contributing to healthcare professional HPV vaccine hesitancy

- Limited understanding of HPV-related disease, especially in males
- Vaccine safety concerns
- Concern about inadequate vaccine administration reimbursement
- Discomfort talking about sexual behavior
- Preference for vaccinating older adolescents (likely connected to discomfort with discussions about sexual behavior)
- Anticipating parental resistance
- Lack of time for vaccine discussions
- Lack of systems to remind them to offer vaccines to age-appropriate patients

Table 2. Reasons parents do not vaccinate their children against HPV

- Lack of a clear HPV recommendation from their child's healthcare professional
- Not aware the vaccine is recommended (particularly for males)
- Vaccine safety concerns
- Lack of knowledge about the number and types of cancer that HPV causes
- Son or daughter not sexually active/too young to be vaccinated
- Cost of vaccines

Source: Accelerating HPV Vaccine Uptake: Urgency for Action to Prevent Cancer. A report to the President of the United States from the President's Cancer Panel. Bethesda, MD: National Cancer Institute; 2014.[10]

The fact that HPV infection is extremely common and can cause a range of cancers, coupled with the ability to protect adolescents with safe and effective vaccines, make it imperative that HCPs overcome their hesitancy and be active and strong advocates to motivate parents to protect their children from HPV infection by getting them vaccinated. Simply put, HCPs must provide the same strong recommendation for HPV vaccination as they do for other adolescent vaccines.

Key steps that HCPs who have contact with adolescents and their parents can take to help reduce the burden of HPV-related cancers in the US include:

1. **Embrace their role as healthcare leaders and recommend HPV vaccine with the same strength and conviction used to recommend other adolescent vaccines.**

   a. Recommendations from healthcare professionals are the single most persuasive reason adolescents get vaccines, including HPV vaccine.[24,29,30] Altering the order in which vaccines are recommended may have a positive impact (e.g., mention HPV first in the list of vaccines recommended for adolescents).

   b. Parents want and respond better to decisive and direct communication from HCPs compared with participatory discussions. In a cross-sectional survey, Opel and colleagues found that parents were significantly more likely to accept vaccine recommendations if HCPs used a presumptive ("Well, we have to do some shots") versus a participatory ("What do you want to do about shots?") communications style (83 percent vs. 26 percent, $p<0.001$).[31]

2. **Educate themselves about HPV and HPV vaccines.** This includes understanding the latest research about what motivates parents and adolescents to get vaccinated.

3. **Inform their colleagues and staff so that everyone throughout the practice is delivering the same positive HPV messages.** It is essential that all staff deliver the same messages to ensure parents and adolescents hear consistent and positive information about the benefits of vaccination and the dangers of HPV.

4. **Communicate vaccination benefits to parents and adolescents.** Optimally, communication should begin even before the HCP-parent/adolescent interaction. For example, HCPs can add important information to their websites, display waiting room posters, make parent/patient fact sheets available in place of magazines, and support adding relevant messages to appropriate community events. Parents and patients must also be assured that simultaneous vaccinations are safe.[3]

5. **Make vaccination procedures routine and focus on ways to reduce missed opportunities.** Practices should implement systems to ensure that HCPs are alerted to patient vaccination status at each visit and prompted to offer **all** recommended vaccines.

A new online resource center from NFID provides easy access to a wide range of HPV information and tools for HCPs

Many well-respected medical organizations have a range of educational resources about HPV and HPV vaccines available for free use by HCPs. NFID and its program partners have teamed up to make these materials available through a comprehensive online resource center, available at: **adolescentvaccination.org/hpv-resource-center.**

The materials included have all been reviewed to ensure they reflect the most recent HPV recommendations and that their messages are consistent with best practices for increasing HPV vaccine uptake in adolescent and young adult males and females.

Supporting Organizations

The following organizations agree that it is a public health priority to improve HPV vaccination rates to protect more individuals from infection with this cancer-causing virus:

- American Academy of Family Physicians
- American Academy of Pediatrics
- American Cancer Society
- American College of Obstetricians and Gynecologists
- American Nurses Association
- Association of Immunization Managers
- Centers for Disease Control and Prevention
- Council of State and Territorial Epidemiologists
- Immunization Action Coalition
- National Association of School Nurses
- National Foundation for Infectious Diseases
- National Hispanic Medical Association
- President's Cancer Panel

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