



Human Papillomavirus Vaccination

Background

Human papillomavirus – the most common sexually transmitted disease in the United States – may be acquired shortly after initiating sexual activity.¹ This virus is a known cause of cervical cancer in women as well as some vulvar, vaginal, penile, anal and oropharyngeal cancers.² An association between HPV and squamous cell carcinoma of the oral cavity has also been reported.² In fact, studies^{2,3} have determined that HPV DNA has been identified in 91 percent of both cervical and anal cancers in addition to vaginal (75 percent), oropharyngeal (70 percent), vulvar (69 percent), penile (63 percent) and oral (10 percent) cancers. In 2015, 43,371 new cases of HPV-associated cancers were reported by the Centers for Disease Control and Prevention compared to 30,115 cases in 1999.² From 2012-16, an average of 43,999 HPV-associated cancers were reported annually to the CDC, with 34,800 (79 percent) attributable to HPV.⁴

Increases in Oropharyngeal Cancers

In 1999, cervical cancer (13,125 cases) was the most common HPV-associated cancer, with 3,750 more cases of cervical cancer diagnosed than oropharyngeal cancer.² In 2015, oropharyngeal cancer (18,917 cases) was the most common HPV-associated cancer, including 15,479 cases in men and 3,438 cases in women.² From 1999 through 2015, decreases were seen in the annual rates of cervical cancer (1.6 percent) and vaginal squamous cell carcinoma (0.6 percent) while oropharyngeal squamous cell carcinoma rates increased 2.7 percent in men and 0.8 percent in women. Anal and vulvar cancer rates increased, and penile cancer rates remained stable during this time period. Several factors might account for the increase in oropharyngeal and anal cancers, including changes in sexual behaviors. Also, lack of routine tonsillectomy in the current generation might account for the increased prevalence of oropharyngeal cancer during this time period.²

HPV Vaccinations

Clearly, HPV vaccination strategies will reduce the prevalence of all these HPV-associated cancers.

Vaccines for the prevention of human papillomavirus were introduced in 2006 when the Food and Drug Administration licensed quadrivalent Gardasil to protect against HPV types 6, 11, 16 and 18. Thereafter, the FDA licensed bivalent Cervarix (HPV types 16 and 18) in 2009 and 9-valent Gardasil (HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58) in 2018. Although the CDC established an 80 percent U.S. HPV vaccination rate as part of its Healthy People 2020 initiative, the HPV vaccination rate has lagged behind the vaccination rate for Tdap (tetanus, diphtheria, acellular pertussis) and MCV4 (meningococcal conjugate vaccine, quadrivalent).⁵ The 2016 National Immunization Survey-Teen (NIS-Teen) identified coverage rates among adolescents ages 13 to 17 of 88 percent for Tdap (≥ 1 dose) and 82.2 percent for MCV4 (≥ 1 dose) compared to lower rates for HPV vaccination rates. In 2018, 51.1 percent of adolescents ages 13 to 17 were current with the HPV vaccine series, and 68.1 percent had received one or more doses.⁶

The American Association of Oral and Maxillofacial Surgeons (AAOMS) supports the following HPV vaccination positions of the CDC and the American Cancer Society:

- HPV vaccination is safe. As of 2017, more than 270 million doses had been distributed internationally, and no serious safety concerns emerged.⁷
- HPV vaccination is for males and females. These vaccines prevent infections associated with the most common types of HPV that are associated with many oral and oropharyngeal cancers. It has been estimated that between 80-90 percent of people will be infected with at least one type of HPV in their lifetime.⁸
- HPV vaccines are recommended for boys and girls ages 11 or 12 before HPV exposure occurs. The vaccine can be started as early as age 9 and should be completed by the child's 13th birthday. The vaccine is given in two shots with six to 12 months between shots. Three shots of the HPV vaccine are required for children who start the vaccine at age 15 or older (up to age 26 for both women and men).

Position Paper



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