THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS
AAP News
DEDICATED TO THE HEALTH OF ALL CHILDREN
Volume 35 • Number 10
November 2014
www.aapnews.org

ID Snapshot

Which outcome do you choose for your female patients?

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Young women, their parents and pediatricians have the privilege of being able to help ensure women have a normal cervix instead of a cancerous cervix. The difference between these two outcomes may depend on whether a pediatrician administers human papillomavirus (HPV) vaccine.

Which course of action should you take?

a. Administer HPV vaccine when the patient becomes sexually active.
b. Strongly recommend and administer age-appropriate HPV vaccine.
c. Administer HPV vaccine if parents request it.

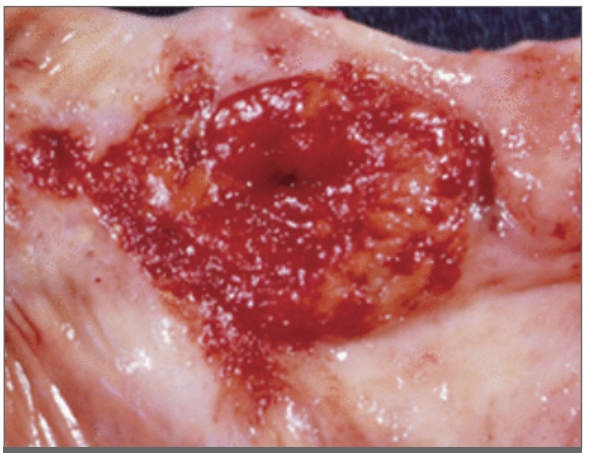

Image courtesy of the Centers for Disease Control and Prevention

More than 10,000 new cases of cervical cancer attributable to high-risk HPV vaccine serotypes (types 16 and 18) occur annually in the United States, resulting in approximately 4,000 deaths each year.

Answer: b) Strongly recommend and administer age-appropriate HPV vaccine.

Data from the 2013 National Immunization Survey — Teen involving more than 18,000 adolescents 13 through 17 years of age show HPV vaccine uptake in 2013 remained distressingly low (see figure), despite a slight increase in immunization rates from 2012. By comparison, immunization rates for the same age cohort for one dose of meningococcal conjugate (MenACWY) vaccine and tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine were 77% and 86%, respectively, indicating many adolescents receive Tdap and MenACWY but not HPV vaccine.

Receipt of three doses of HPV vaccine varied by state from 57% in Rhode Island to 21% in Utah.

One of the main reasons cited by parents as to why they did not vaccinate their child was because their physician did not recommend the vaccine. Will you be comfortable if one of your patients develops a vaccine-preventable cancer of the cervix because vaccine was not administered?

Avoidance of HPV infection by any sexually active adolescent or adult is unlikely. More than 50% of males and females are infected with at least one type of HPV within three years of onset of sexual activity. Data from the Centers for Disease Control and Prevention (CDC) suggest 14 million new HPV infections occur each year in the United States. Approximately 50% of new HPV infections occur among females 15-24 years of age. Most HPV infections of the cervix are asymptomatic and resolve without symptoms, but some result in a persistent infection.

Screening with the Pap test has resulted in about a 75% reduction in the number of women with cervical cancer. Nonetheless, more than 10,000 new cases of cervical cancer attributable to high-risk vaccine serotypes (types 16 and 18) occur annually in the United States resulting in approximately 4,000 deaths each year. Thirty-seven percent of cervical cancers occur in women between the ages of 22 and 44.

Clinical trials with HPV vaccines conducted before licensure demonstrated remarkable efficacy in the prevention of precancerous, high-grade cervical lesions caused by vaccine serotypes. In the time since the first HPV vaccine was licensed in 2006, several studies have demonstrated significant benefit in a number of HPV-related outcomes. These include a reduction in HPV vaccine serotype prevalence among cervical-vaginal samples from vaccinated females between 14 and 19 years of age. No reduction in HPV prevalence was found among older, unvaccinated women. The prevalence of genital warts caused by vaccine serotypes has decreased since HPV vaccine availability, in the absence of a reduction of other sexually transmitted infections.

Following licensure, the CDC has monitored vaccine safety through several programs. Studies of HPV vaccine safety demonstrate a safety profile similar to the meningococcal conjugate vaccines and Tdap vaccines. No reproducible data suggest a causal relationship between HPV vaccination and autoimmune or neurologic conditions or thromboembolism. An increased risk of syncope or skin infection following HPV vaccine administration in females has been reported. No other safety concerns have been found.

A number of viruses are associated with malignancies, including

hepatocellular cancer (hepatitis B and C viruses), lymphomas (human T-cell lymphotropic virus-1 and adult T-cell, Epstein–Barr virus, Burkitt and Hodgkin) and sarcomas (Kaposi and human herpesvirus-8). Papillomaviruses are responsible for more than 250,000 deaths worldwide annually and are estimated to be responsible for 5% of the global cancer burden. More than 99% of cervical cancer is associated with one of 10 types of high-risk HPV.

Unlike most viruses, HPV has not been grown in cell culture because the viral life cycle requires differentiating epithelial cells. The availability of HPV vaccines is the culmination of a remarkably successful collaboration between basic scientists and industry.

Future developments are equally exciting. Results from early phase III trials suggest that an experimental 9-valent vaccine prevents precancerous lesions caused by types 31, 33, 45, 52 and 58, which account for approximately 20% of HPV cancers. This novel vaccine induces an immune response to types 6, 11, 16 and 18 that is as effective as the current 4-valent vaccine. This vaccine will have the potential to prevent 90% of cervical cancers.

Other studies suggest that fewer than three doses of HPV vaccine may induce a protective immune response. Although the need for booster doses should be evaluated carefully, a requirement for fewer than three doses would have great benefit, especially in developing countries where Pap testing is unavailable.

Estimated national HPV vaccine coverage for 2013 (%)

	Females	Males
≥ 1 dose	57.3 ±1.9	34.6 ±1.9
≥ 3 doses	37.6 ±1.9	13.9 ±1.4

Source: Centers for Disease Control and Prevention

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AAP News 2014;35;9
DOI: 10.1542/aapnews.20143511-9