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Women's Health Care Physicians

COMMITTEE OPINION

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Committee on Adolescent Health Care

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Human Papillomavirus Vaccination

ABSTRACT: The U.S. Food and Drug Administration has approved both a bivalent and quadrivalent human papillomavirus (HPV) vaccine. The Advisory Committee on Immunization Practices has recommended that HPV vaccination routinely be given to girls when they are 11 years or 12 years old. The vaccine can be given to individuals as young as 9 years; catch-up vaccination is recommended in females aged 13 years through 26 years. The American College of Obstetricians and Gynecologists endorses these recommendations. Although obstetrician–gynecologists are not likely to care for many girls in the initial vaccination target group, they are critical to the catch-up vaccination period. Both HPV vaccines are most effective if given before any exposure to HPV infection (ie, before sexual activity). However, sexually active girls and women can receive some benefit from the vaccination because exposure to all HPV types prevented by the vaccines is unlikely in females aged 13 years through 26 years. Vaccination with either HPV vaccine is not recommended for pregnant women. It can be provided to women who are breastfeeding. The need for booster vaccination has not been established but appears unnecessary. Health care providers are encouraged to discuss with their patients the benefits and limitations of the HPV vaccine and the need for routine cervical cytology screening for those aged 21 years and older.

The relationship between infection with human papillomavirus (HPV) and both cervical cancer and genital warts has been recognized for many years (1). More than 100 genotypes of HPV have been discovered to date with approximately 30 found in the genital mucosa. However, only 15 have been shown to be associated with cervical cancer. Approximately 70% of all cases of cervical cancer are associated with HPV genotypes 16 and 18, and 90% of cases of genital warts are associated with HPV genotypes 6 and 11 (2). Although the implementation of cervical cytology screening programs and treatment of precancerous lesions has led to a decrease in deaths from cervical cancer in the United States, such deaths still occur. Approximately one half of all cases of cervical cancer are found in women who have never had a Pap test, and another 10% have not had one within the past 5 years (3). Both ongoing cervical cytology screening and HPV vaccination are needed to help eliminate these deaths.

The U.S. Food and Drug Administration (FDA) has licensed two vaccines shown to be effective at preventing HPV infection. The quadrivalent HPV vaccine offers protection against cervical cancer, cervical dysplasias, vulvar or vaginal dysplasias, and genital warts associated with HPV genotypes 6, 11, 16, and 18 (4). The FDA has approved administration of this three-dose vaccine to females aged 9 years through 26 years. The bivalent HPV vaccine recently obtained FDA approval for protection against cervical cancer and cervical dysplasia in females aged 10 years through 25 years. Results of studies of this bivalent vaccine indicate that it offers protection similar to the quadrivalent vaccine against HPV infections caused by genotypes 16 and 18 (5).

Studies of the quadrivalent HPV vaccine have shown that in participants naive to the vaccine genotypes who followed protocol, the vaccine was close to being 100% effective in preventing cervical intraepithelial neoplasia (CIN) 2, CIN 3, and condylomatous vulvar disease related to the HPV genotypes covered by the vaccine (4). For a woman with HPV infection, there is no evidence of protection from disease caused by the HPV genotypes with which she is infected. There is, however, evidence of protection from disease caused by the remaining HPV vaccine genotypes (6). Results of the clinical trials of the bivalent vaccine demonstrate similar protection against CIN 2 and CIN 3 in women who are naive to the vaccine's genotypes (7). The bivalent vaccine does not protect against lower genital tract condyloma caused by low-risk HPV types 6 and 11.

To be maximally effective against all HPV genotypes included in either vaccine, vaccination should be given before the onset of sexual activity. If the vaccine is given after the onset of sexual activity, patients may have already been infected with HPV. The need for booster doses remains to be demonstrated but is unlikely (7). To date, protection has been shown to last at least 5 years for the quadrivalent vaccine (4) and more than 6 years for the bivalent vaccine (7).

Recommendations

Vaccination of Girls, Adolescents, and Young Women

The Advisory Committee on Immunization Practices has recommended the initial HPV vaccination target of females aged 11 years or 12 years. Depending on the circumstances, the vaccine can be given to individuals as young as age 9 years and catch-up is recommended in females aged 13 years through 26 years (2). The American College of Obstetricians and Gynecologists (the College) endorses these recommendations. Obstetrician–gynecologists are encouraged to discuss HPV and the potential benefit of the HPV vaccine and to offer vaccination to those females aged 13 years through 26 years who have not already received it or completed the series (see box). During a health care visit with a girl or woman in the age range for vaccination, a health care provider should assess the patient's HPV vaccine status and document this information in the patient's record.

Human Papillomavirus Testing

Testing for HPV DNA is currently not recommended for adolescents or adults before vaccination. Serologic assays for HPV are unreliable and currently not commercially available. If the patient is tested and the results are positive, vaccination is still recommended because the chance that all vaccine preventable types are present is low.

Vaccination of Sexually Active Adolescents and Young Women

Sexually active adolescents and young women can receive either the quadrivalent or bivalent HPV vaccine. These patients should be counseled that the vaccine may be less effective in individuals who have been exposed to HPV before vaccination than in individuals who were HPV naive at the time of vaccination (4, 5). The need for ongoing cervical cytology screening should be emphasized in all women aged 21 years and older, even those vaccinated before the onset of sexual activity.

Vaccination of Adolescents and Young Women With Previous Cervical Intraepithelial Neoplasia or Genital Warts

The HPV vaccines can be given to patients with previous CIN or genital warts, but health care providers need to emphasize that the benefits may be limited, and cervical cytology screening and corresponding management based on the College recommendations must continue.

Vaccination Is Not Treatment

The HPV vaccines are not intended to treat patients with a positive DNA test result, cervical cytologic abnormalities, or genital warts. Patients with these conditions should undergo the appropriate evaluation and treatment (8, 9).

Vaccination of Pregnant and Lactating Women

Both the quadrivalent and bivalent HPV vaccines have been classified by the FDA as pregnancy category B. Although HPV vaccination in pregnancy is not recommended, routine pregnancy testing before vaccination is not recommended. In clinical studies, the proportion of pregnancies with adverse outcomes was comparable in women who received the HPV vaccine and in women who received a placebo (10, 11). However, it is wise to remind patients to use contraception during the period of time when they are receiving the vaccination series. The manufacturer's pregnancy registry (see box) should be contacted if pregnancy is detected during the vaccination schedule. Completion of the series should be delayed until pregnancy is completed. Lactating women can receive either HPV vaccine because inactivated vaccines, such as these vaccines, do not affect the safety of breastfeeding for mothers or infants (12).

Vaccination of Immunosuppressed Patients

The presence of immunosuppression, like that experienced in patients with HIV infection or organ transplantation, is not a contraindication to HPV vaccination. However, the immune response may be less robust in the immunocompromised patient.

Vaccination of Women Older Than 26 Years and Males

Research regarding vaccination of women older than 26 years is currently under way. Data available are insufficient to make recommendations for these women. The FDA has approved the quadrivalent vaccine for boys and men aged 9 years through 26 years for the prevention of genital warts.

Educational Efforts

It is important for health care providers to provide patient education about HPV-related disease and be prepared to respond to questions from patients regarding the HPV vaccine, its benefits, and its limitations as discussed earlier. Studies have shown that physicians' recommendations play a crucial role in the acceptance of the vaccine by patients (13).

Consent for Human Papillomavirus Vaccination

In all states, minors are allowed to consent for diagnosis and treatment of sexually transmitted infections. However, many of the laws that authorize them to pro-

Key Information Regarding the Bivalent and Quadrivalent Human Papillomavirus Vaccines*

Dosage

Administered intramuscularly as three separate 0.5-mL doses based on the following schedule:

1. First dose: at elected date
2. Second dose: 1–2 months after the first dose
3. Third dose: 6 months after the first dose

Minimum interval between first and second dose is 4 weeks, between second and third dose is 12 weeks, and between first and third dose is 24 weeks. If vaccine schedule is interrupted, the series does not need to be restarted, regardless of the length of time between doses. Whenever possible, the same vaccine product should be used for all doses in the series.

Recommended Age

- Target population: females aged 11 years or 12 years (can be started as early as age 9 years)
- Catch-up vaccination: females aged 13 years through 26 years

Contraindications

Individuals who develop symptoms indicative of hypersensitivity to the active substances or to any of the components of either vaccine after receiving a dose of vaccine should not receive further doses of the product. Safety and effectiveness of the two formulations have not been established in pregnant women. The manufacturers maintain pregnancy registries to monitor fetal outcomes of pregnant women exposed to the vaccine. Any exposure to it during pregnancy can be reported by calling 800-986-8999 for the quadrivalent vaccine and 888-452-9622 for the bivalent vaccine.

Precautions

As with any vaccine, vaccination may not protect all vaccine recipients. Neither vaccine is intended to be used for treatment of active disease (ie, genital warts, cervical cancer, cervical intraepithelial neoplasia, vulvar intraepithelial neoplasia, or vaginal intraepithelial neoplasia). Human papillomavirus vaccines can be administered simultaneously or at any time before or after a different inactivated or live vaccine administration. Because vaccinated individuals may develop syncope, sometimes resulting in falling with injury, health care providers should consider observing patients for 15 minutes after vaccine administration.

Storage

Both formulations should be refrigerated at 2–8°C (36–46°F), should not be frozen, and should be protected from light.

Vaccine Adverse Event Reporting

To report an adverse event associated with administration, go to http://vaers.hhs.gov.

Advisory Committee on Immunization Practices Recommendations

For current recommendations by the Advisory Committee on Immunization Practices, go to http://www.cdc.gov/vaccines/recs/acip/default.htm.

Current Procedural Terminology Code†

The American Medical Association has established a Current Procedural Terminology code of 90649 for quadrivalent HPV vaccination and 90650 for bivalent HPV vaccine.

*Note that the U. S. Food and Drug Administration labeling for the bivalent vaccine indicates it is for use in females aged 10 years through 25 years. In addition, the U. S. Food and Drug Administration approved dosage intervals for the quadrivalent and bivalent vaccines to be 0 months, 2 months, and 6 months and 0 months, 1 month, and 6 months, respectively.

vide such consent may only permit it after they have reached a specific age. Furthermore, these laws do not mention vaccinations (14). Clinicians should be familiar with state and local statutes regarding the rights of minors to health care services and the federal and state laws that affect confidentiality.

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Resources

College Resources

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Other Resources

The following list of organizations with information about HPV infection or HPV vaccination is for information purposes only. Referral to these sources and web sites does not imply the endorsement of the College. This list is not meant to be comprehensive. The exclusion of a source or web site does not reflect the quality of that source or web site. Please note that web sites are subject to change without notice. Furthermore, the College does not endorse any commercial products that may be advertised or available from these organizations or on these web sites.

American Cancer Society
(800) ACS-2345
http://www.cancer.org

The American Social Health Association
(919) 361-8400
(919) 361-8488 (Sexually Transmitted Infection Resource Center Hotline)
http://www.ashastd.org
http://www.iwannaknow.org

American Society for Colposcopy and Cervical Pathology
(301) 733-3640
(800) 787-7227
http://www.asccp.org

Center for Young Women's Health
(617) 355-2994
http://www.youngwomenshealth.org

Centers for Disease Control and Prevention
(800) 232-4636
http://www.cdc.gov

Planned Parenthood
(800) 230-PLAN
http://www.plannedparenthood.org

Society for Adolescent Health and Medicine
(847) 753-5226
http://www.adolescenthealth.org

U.S. Food and Drug Administration
(888) 463-6332
http://www.fda.gov

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