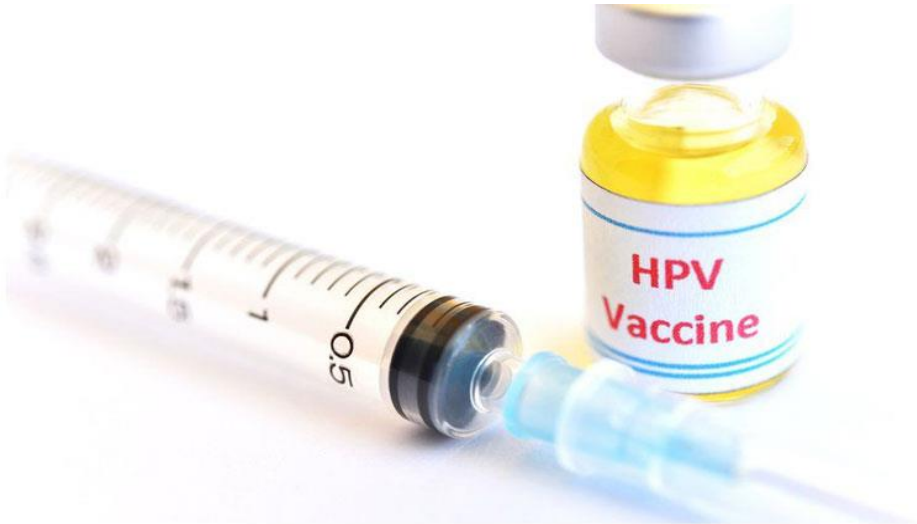
Human papillomavirus vaccination



AVAILABLE VACCINES

- Human papillomavirus quadrivalent vaccine (Gardasil) targets HPV types 6, 11, 16, and 18.

- Human papillomavirus 9-valent vaccine (Gardasil 9) targets the same HPV types as the quadrivalent vaccine (6, 11, 16, and 18) as well as types 31, 33, 45, 52, and 58.

- Human papillomavirus bivalent vaccine (Cervarix) targets HPV types 16 and 18.

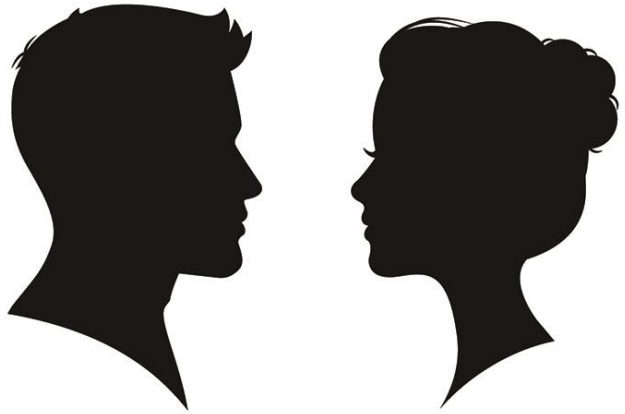
RATIONALE

- Females
- Human papillomavirus vaccination provides a direct benefit to female recipients by safely protecting against cancers that can result from persistent HPV infection

- Vaccination protects against
  - cervical cance
  - anal cancers
  - vaginal,vulvar, and oropharyngeal cancers.
  - anogenital warts

- Males
- HPV vaccination provides a direct benefit to male recipients by safely protecting against cancers that can result from persistent HPV infection
- despite a smaller direct absolute benefit of HPV vaccination in males compared with females, the overall benefit of vaccinating males outweighs its potential risks because of additional population benefit from herd immunity and the documented safety of HPV vaccines.

Vaccination of male or female???



- Various models have indicated that vaccinating both males and females is more beneficial in reducing HPV infection and disease than by vaccinating only females, although male vaccination is less cost effective than female vaccination

Indications and age range

- we recommend routine HPV vaccination for all females and males in the following age ranges

- Routine HPV vaccination is recommended at 11 to 12 years.
  It can be administered starting at 9 years of age.

- For adolescents and adults aged 13 to 26 years who have not been previously vaccinated or who have not completed the vaccine series, catch-up vaccination is recommended.

- For adults 27 years and older, catch-up vaccination is not routinely recommended

Optimal timing

- Within the recommended age range, the optimal time for HPV immunization is prior to an individual's sexual debut

- None of the available HPV vaccines treat or accelerate the clearance of pre-existing vaccine-type HPV infections or related disease.
- Individuals who are sexually active should still be vaccinated consistent with age-specific recommendations. A history of an abnormal Papanicolaou test, genital warts, or HPV infection is NOT a contraindication to HPV immunization
- However, immunization is less beneficial for those who have already been infected with one or more of the HPV vaccine types.

Choice of vaccine

- Not all HPV vaccines are available in all locations. If cost and availability are not an issue, we recommend the human papillomavirus 9-valent vaccine
- In general, the same formulation should be used to complete the series, if possible. However, if the HPV vaccine formulation initially used is unknown or unavailable, or if the 9-valent vaccine is being introduced into the formulary, a different HPV vaccine formulation can be used to complete the series

Immunization schedule

- Individuals initiating the vaccine series at 9 to 15 years of age (Two doses of HPV vaccine should be given at 0 and at 6 to 12 months)
- If the second dose was administered less than five months after the first, the dose should be repeated a minimum of 12 weeks after the second dose and a minimum of five months after the first

- Individuals initiating the vaccine series at 15 years of age or older (Three doses of HPV vaccine should be given at 0, 1 to 2 (typically 2), and 6 months).
- The minimum intervals between the first two doses is four weeks, between the second and third doses is 12 weeks, and between the first and third dose is five months. If a dose was administered at a shorter interval, it should be repeated once the minimum recommended interval since the most recent dose has passed.

- Immunocompromised patients (Three doses of HPV vaccine should be given at 0, 1 to 2, and 6 months regardless of age.)

Missed doses

- Patients often do not follow up for their immunizations on schedule The ACIP recommends that if the vaccination series is interrupted for any length of time, it can be resumed without restarting the series

Postvaccination instructions

- Because of a potential for syncope with any vaccine, and particularly with the HPV vaccine, a routine 15-minute waiting period in a sitting or supine position following HPV vaccination is recommended . This may decrease the risk of syncope with subsequent injury

Unnecessary evaluation

- Prevaccination assessment

HPV vaccination can be administered without special evaluation. Serologic or HPV DNA testing is not warranted prior to immunization . Pregnancy testing is also not necessary

- Postvaccination serology

There is no evidence that the measurement of postvaccination antibody titers to monitor immunity is useful for determining who is protected against infection by the vaccine-targeted types

Limited benefit of revaccination

- HPV vaccines have demonstrated durable protection from HPV-associated diseases, and there is no evidence that revaccination is necessary

- For patients who have already completed HPV vaccine series with the bivalent or quadrivalent vaccine, which target the most common high-risk HPV types, revaccination with the 9-valent vaccine is likely of marginal individual benefit, and we do not suggest it

Pregnant or breastfeeding females

HPV vaccination during pregnancy is not recommended because of limited Information about safety

Lactating females can receive the immunization series since subunit vaccines do not affect the safety of infant breastfeeding

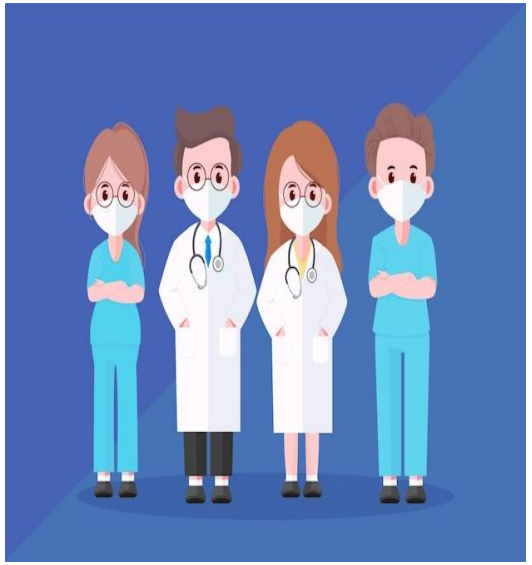
Pre-existing HPV-associated disease

- A history of genital warts, a positive HPV test result, or abnormal cervical, vaginal, vulvar, or anal cytology all indicate a prior HPV infection but not necessarily with the HPV types included in the vaccines. Vaccination is still recommended in individuals within the recommended age range who have evidence of prior HPV infection, as it can still provide protection against infection with HPV vaccine types not already acquired
- However, these patients should be advised that vaccination will have no therapeutic effect on pre-existing HPV infection or HPV-associated disease, and the potential benefit of HPV vaccination is not as great as if they were vaccinated before their sexual debut

Health care workers at risk for occupational exposure

- There is evidence that upper aerodigestive (nasal and oropharyngeal) HPV infection may be transmitted through exposure to HPV in vapors generated during surgical excision or ablation of HPV-associated lesions, although the magnitude of this risk is unknown

- We agree with recommendations from the American Society for Colposcopy and Cervical Pathology that health care workers who may be routinely exposed to HPV in this way receive HPV vaccination . This recommendation includes health care providers and operating room and ofice staff in the fields of gynecology, dermatology, and family practice. Insurance providers or other payers may not cover HPV vaccination for individuals older than 26 years, and this may affect the decision to vaccinate.



Patients with HIV or immunocompromising conditions

- Immunocompromised patients, particularly transplant recipients and patients with HIV and CD4 cell counts <200 cells/microL, are at especially high risk for HPV-related disease . HPV vaccination with a three-dose schedule (at 0, 1 to 2, and 6 months) is recommended for all immunocompromised patients through 26 years of age if they have not already been vaccinated.
- Immunocompromising conditions that warrant this three-dose schedule include B-lymphocyte antibody deficiencies, complete or partial T-lymphocyte defects, HIV infection, malignant neoplasm transplantation, autoimmune disease, and immunosuppressive therapy.


THANKS FOR YOUR ATTENTION