

# Clinical Overview of HPV

JULY 9, 2024

## KEY POINTS

- HPV vaccination could prevent more than 90% of cancers caused by HPV from ever developing.
- All 11–12-year-olds need 2 doses of HPV vaccine to protect against infections that can cause some cancers later in life.



## Introduction

About 85% of people will get an HPV infection in their lifetime. Vaccinating all 11–12-year-olds can protect them long before they are ever exposed.

## How it spreads

Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States. Although the majority of HPV infections are asymptomatic and resolve spontaneously, persistent infections can develop into anogenital warts, precancers, and cervical, anogenital, or oropharyngeal cancers in women and men.

**KEEP READING:**  
[About Genital HPV Infection](#)

## HPV infection and cancer

Every year in the United States, 36,500 people (including women and men) are estimated to be diagnosed with a cancer caused by HPV infection. Although cervical cancer is the most well-known of the cancers caused by HPV, there are other types of cancer caused by HPV.

HPV vaccination could prevent more than 90% of cancers caused by HPV from ever developing. This is an estimated 33,700 cases in the United States every year.

### Cervical cancer and pre-cancers

Cervical cancer is the only type of cancer caused by HPV with a recommended screening test for detection at an early stage. The other cancers may not be detected until they cause health problems.

Even with screening, HPV causes 11,000 cases of cervical cancer each year in the United States. Every year, 4,000 women die of cervical cancer.

There are an estimated 196,000 cervical precancer cases each year in the United States. Treatment for cervical cancers and precancers may sometimes limit a person's ability to have children.

Source: <https://www.cdc.gov/mmwr/volumes/68/wr/mm6815a1.htm>.

### Other cancers caused by HPV

Every year in the United States, there are:

- 14,000 people with oropharyngeal cancer

- 6,500 people with anal cancer
- 3,500 people with vulvar & vaginal cancer
- 900 people with penile cancer

Recommended cancer screening tests are not available yet for these cancers. These cancers may not be detected until they cause serious health problems.

## Prevention

CDC recommends two doses of HPV vaccine for all adolescents at age 11 or 12 years.

More than 15 years of monitoring and research have accumulated reassuring evidence that human papillomavirus (HPV) vaccination provides safe, effective, and long-lasting protection against cancers caused by HPV infections.

KEEP READING:  
[HPV Vaccination Recommendations](#)

## Patient counseling

▼ Expand All

Why is a 2-dose schedule recommended only for age 9–14 years? ▼

ACIP makes recommendations based on the best available scientific evidence. Immunogenicity studies show that two doses of HPV vaccine given at least 6 months apart to 9–14-year-olds provided as good or better antibody responses as three doses given to older adolescents or young adults.

**Answering parents' questions:** The data we have from current scientific studies show that in children age 9–14 years, two doses of HPV vaccine given at least 6 months apart were as good or better as three doses. The immune response for older people hasn't been studied in the same way, so information is not available for that age group. For this reason, older teens and adults should get three doses for best protection.

If someone age 9–14 years received two doses of HPV vaccine less than 5 months apart, should they get a third HPV vaccine dose? ▼

Yes. In a 2-dose schedule of HPV vaccine, the recommended interval is 6–12 months, and the minimum interval is 5 months between the first and second dose. If the second dose is given earlier than 5 months, a third dose should be given.

**Answering parents' questions:** The recommended schedule is two doses given 6–12 months apart. The minimum amount of time between those doses is 5 months. Because your child received two doses less than 5 months apart, your child should get a third dose.

If someone is age 15 years or older and started the vaccination series at age 11 but only received one dose then, how many more doses do they need now? ▼

This person needs one more dose to complete a 2-dose series, which is recommended because the vaccination series was started before their 15th birthday. In a 2-dose series, the second dose is recommended 6–12 months after the first dose, but there is no upper time limit. In this case, the first dose was given several years ago, so the second dose can be given right away.

**Answering parents' questions:** Since your child received the first dose before 15 years of age, they only need one more dose to be fully protected. However, the second dose should be given as soon as possible and not further delayed.

What is the recommendation for persons with immunocompromising conditions? ▼

CDC recommends three doses of HPV vaccine (0, 1–2, 6-month schedule) for people ages 9–26 years if they have certain immunocompromising conditions. People whose immune responses might be lower, for example due to HIV infection, cancer, transplantation, autoimmune disease, or taking immunosuppressant medications, should receive three doses to make sure they get the most benefit. However, children with asthma, diabetes, and other conditions that do not suppress immune response to vaccination can receive a 2-dose schedule.

**Answering parents' questions:** Even though CDC has recommended just two doses of HPV for kids under 15 years, your child should get three doses because they have a health condition that can weaken the immune system.

If an HPV vaccine series was started with quadrivalent HPV vaccine or bivalent HPV vaccine and will be completed with 9-valent HPV vaccine, what are the intervals for the remaining doses in a 3-dose or 2-dose series? ✓

Any licensed HPV vaccine can be used to complete the vaccination series with the same recommended schedule and dosing intervals.

If the first dose of any HPV vaccine was given before the 15th birthday, vaccination should be completed according to a 2-dose schedule. In a 2-dose series, the second dose is recommended 6–12 months after the first dose (0, 6–12-month schedule).

If the first dose of any HPV vaccine was given on or after the 15th birthday, vaccination should be completed according to a 3-dose schedule. In a 3-dose series, the second dose is recommended 1–2 months after the first dose, and the third dose is recommended 6 months after the first dose (0, 1–2, 6-month schedule).

If the vaccination schedule is interrupted, vaccine doses do not need to be repeated.

**Answering parents' questions:** A 9-valent HPV vaccine that protects against infections with nine types of the virus has been available in the United States since 2016. If your child got their first dose of HPV vaccine before 2016, they may have received a 2-valent or 4-valent vaccine. Regardless of which vaccine they received previously, they should complete the series with the currently available HPV vaccine. They will not need to restart the series.

Should adults ages 27–45 years be vaccinated against HPV? ✓

HPV vaccination provides the most benefit when given before a person is exposed to any HPV. This is why CDC recommends HPV vaccination at age 11–12 years. HPV vaccination is also recommended through age 26 years for everyone who did not get vaccinated when they were younger.

Vaccination is not recommended for everyone older than age 26 years. In general, HPV vaccination of people in this age range provides minimal benefit because most people have been exposed to HPV already. However, some adults aged 27–45 years who are not adequately vaccinated might be at risk for new HPV infection and might benefit from vaccination.

For adults who are 27–46 years old, clinicians can consider discussing HPV vaccination with people who are most likely to benefit. HPV vaccination does not need to be discussed with most adults over age 26 years. For more details, see Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices | MMWR (cdc.gov).

**Answering patients' questions:** Most sexually active adults have been exposed to HPV already, although not necessarily all of the HPV types prevented by vaccination. At any age, having a new sex partner is a risk factor for getting a new HPV infection. People who are already in a long-term, mutually monogamous relationship are not likely to get a new HPV infection.

HPV vaccination prevents new HPV infections but does not treat existing infections or diseases.

#### SOURCES

##### CONTENT SOURCE:

[National Center for Immunization and Respiratory Diseases](#); [Division of Viral Diseases](#)