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## HPV Vaccines

### What is HPV?

HPV stands for *human papillomavirus*. HPVs are a group of more than 150 related viruses. Each HPV virus in the group is given a number, and is called an *HPV type* (for instance, HPV-16).

HPVs are called *papillomaviruses* because some of the HPV types cause warts or papillomas, which are non-cancerous tumors. But some types of HPV are known for causing cancer. HPV causes most cases of cervical cancer, as well as many vaginal, vulvar, anal, penile, and oropharyngeal cancers (cancers of the throat and mouth).

The papilloma viruses are attracted to and are able to live only in certain cells in the body called *squamous epithelial cells*. These cells are found on the surface of the skin and on moist surfaces (called *mucosal surfaces*) like:

- The vagina, anus, cervix, vulva (around the outside of the vagina)
- The inner foreskin and urethra of the penis
- The inner nose, mouth, throat
- The trachea (the main breathing tube) and bronchi (smaller breathing tubes branching off the trachea)
- The inner eyelids

About 75% of the HPV types cause warts on the skin – often on the arms, chest, hands, and feet. These are common warts.

The other 25% of HPV types are considered mucosal types of HPV. These can infect the moist surface layers that line organs and cavities of the body that open to the outside, like those listed above. The mucosal HPV types are also called *genital* (or

*anogenital*) type HPVs because they often affect the anal and genital area.

## Can a vaccine help prevent HPV?

Yes. Vaccines are available to help prevent infection by certain types of HPV and some of the cancers linked to those types. As of 2020, Gardasil 9 is the only HPV vaccine available in the United States. Other HPV vaccines are available outside the U.S.

All of these vaccines help prevent infection by HPV-16 and HPV-18. These 2 types cause most [cervical cancers](#)<sup>1</sup> and pre-cancers, as well as many cancers of the [anus](#)<sup>2</sup>, [penis](#)<sup>3</sup>, [vulva](#)<sup>4</sup>, [vagina](#)<sup>5</sup>, and [throat](#)<sup>6</sup>.

Gardasil 9 helps prevent infection by 4 types of HPV (16, 18, 6 and 11), plus 5 other high risk types: 31, 33, 45, 52 and 58. Together these types cause about 90% of cervical cancers.

## Who should be vaccinated against HPV and when?

HPV vaccine produces the strongest immune response in preteens. To work best, the HPV vaccines should be given between the ages of 9 to 12. The vaccines are given in a series of shots.

## The American Cancer Society's recommendations for HPV vaccine use

- Girls and boys should get 2 doses of the HPV vaccine between the ages of 9 to 12.
- Teens and young adults age 13 through 26 who have not been vaccinated, or who haven't gotten all their doses, should get the vaccine as soon as possible. Vaccination of young adults will not prevent as many cancers as vaccination of children and teens.
- The ACS does not recommend HPV vaccination for persons older than age 26 years.

**The COVID-19 pandemic has resulted in health care check-ups and annual physicals being put on hold, including visits for routine vaccinations. Learn important information that can help you plan a safe return to well-child visits in [Getting Essential Vaccines During the COVID-19 Pandemic](#)<sup>7</sup>.**

## Why should the HPV vaccine be given to pre-teens?

The vaccine work best at this age. Research shows that younger people have a better immune response to the vaccine than those in their late teens and early 20s. And, the vaccines will prevent the covered types of HPV only if they are given before exposure to the virus.

This is also an age when other vaccinations are given, and when children are likely to still be getting regular medical check-ups.

### **What about people older than 26?**

The HPV vaccine is most effective in early adolescence, but this starts to decrease by age 18. Because of this, it is unlikely to provide much benefit for cancer prevention as people get older. The ACS does not recommend HPV vaccination for persons older than age 26 years.

### **Who should not get an HPV vaccine or who should wait?**

**Pregnant women** should not get any HPV vaccine at this time, even though they appear to be safe for both mother and the unborn baby. If a woman who is pregnant does get an HPV vaccine, it's not a reason to consider ending the pregnancy. Women who started a vaccine series before they learned they were pregnant should complete the series after the pregnancy.

Make sure the health care provider knows about any **severe allergies**. The following should not get an HPV vaccine:

- Those with a severe allergy to yeast should not receive Gardasil or Gardasil 9.
- Anyone who has ever had a life-threatening allergic reaction to anything else contained in the vaccines
- Anyone who has had a serious reaction to an earlier dose of HPV vaccine

### **Is HPV testing needed before getting the vaccine?**

No. In fact, testing is not recommended because it cannot show if the HPV vaccine will be effective or not. A positive HPV test result doesn't always tell you which types of HPV you have. And even if you are infected with one type of HPV, the vaccine could still prevent other types of HPV infection. A negative test result cannot tell you if you've had HPV in the past.

## **How long will the vaccine prevent HPV infection?**

How long a vaccine will protect people is never known when the vaccine is first introduced. Current research shows that the vaccine is effective, and there's no sign that the protection decreases with time. Research will continue to look at how long protection against HPV lasts, and if booster shots will be needed.

## **Are HPV vaccines safe?**

All of the HPV vaccines were tested in thousands of people around the world before they were approved. And they continue to be constantly monitored for safety. So far, all studies show no deaths have been linked to any HPV vaccine. Common, mild side effects include headache, fever, nausea, and dizziness. Sometimes pain and redness can happen where the shot was given.

As with any medication or injection, people may have an allergic reaction afterwards. Anyone who has a severe (life threatening) allergy to any ingredient in the HPV vaccine should not get the vaccine, including a severe allergy to yeast. Some people may faint after getting any vaccine, including HPV vaccines. Fainting after getting a shot is more common in teens than in young children or adults. To keep people from getting hurt from fainting, a 15-minute waiting period for people of all ages is recommended after any vaccination.

## **Monitoring for possible side effects**

Like all vaccines, even "old" vaccines approved many years ago, the HPV vaccines are continuously monitored for side effects. The US Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA) review all serious side effects reported to the Vaccine Adverse Event Reporting System (VAERS) to watch for potential safety concerns that may need further study.

## **Does health insurance pay for the HPV vaccines?**

Insurance plans will probably cover the HPV vaccine cost if it is given according to national guidelines. But check with your insurance plan to be sure.

The vaccines are included in the federal Vaccines for Children (VFC) program. This program covers vaccine costs for children and teens who don't have insurance. The VFC program provides free vaccines to children and teens younger than 19 years of age, who are either Medicaid-eligible, American Indian or Alaska Native, or uninsured.

The VFC program also allows children and teens to get VFC vaccines through federally qualified health centers or rural health centers. For more on the VFC program or to find the VFC contact where you live, visit [www.cdc.gov/vaccines/programs/vfc/contacts-state.html](http://www.cdc.gov/vaccines/programs/vfc/contacts-state.html)<sup>8</sup>, or call 1-800-232-4636.

## **Do people who have a cervix and have been vaccinated against HPV still need to be screened for cervical cancer?**

Yes. People who have gotten the HPV vaccine will still need regular testing for [cervical cancer](#)<sup>9</sup> because the vaccines may not prevent all of the types of HPV that can cause cervical cancer.

See [The American Cancer Society Guidelines for the Prevention and Early Detection of Cervical Cancer](#)<sup>10</sup> to learn more.

## **Hyperlinks**

1. <http://www.cancer.org/content/cancer/en/cancer/cervical-cancer.html>
2. [www.cancer.org/cancer/anal-cancer.html](http://www.cancer.org/cancer/anal-cancer.html)
3. [www.cancer.org/cancer/penile-cancer.html](http://www.cancer.org/cancer/penile-cancer.html)
4. [www.cancer.org/cancer/vulvar-cancer.html](http://www.cancer.org/cancer/vulvar-cancer.html)
5. [www.cancer.org/cancer/vaginal-cancer.html](http://www.cancer.org/cancer/vaginal-cancer.html)
6. [www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer.html](http://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer.html)
7. [www.cancer.org/healthy/hpv-vaccine/vaccination-during-covid.html](http://www.cancer.org/healthy/hpv-vaccine/vaccination-during-covid.html)
8. <http://www.cdc.gov/vaccines/programs/vfc/contacts-state.html>
9. <http://www.cancer.org/content/cancer/en/cancer/cervical-cancer.html>
10. [www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/cervical-cancer-screening-guidelines.html](http://www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/cervical-cancer-screening-guidelines.html)

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