HPV Vaccines

What is HPV?

HPV stands for human papilloma virus. 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 papilloma viruses 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 tongue).

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. Gardasil®, Gardasil 9®, and Cervarix® are the brand names of the vaccines used today.

All of these vaccines help prevent infection by HPV-16 and HPV-18. These 2 types cause about 70% of all cervical cancers and pre-cancers, as well as many cancers of the anus, penis, vulva, vagina, and throat.

Gardasil also helps prevent infection by the 2 types of HPV (HPV-6 and HPV-11) that cause most genital warts.

Gardasil 9 helps prevent infection with the same 4 types of HPV as Gardasil, 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 at age 11 or 12. The vaccines are given in a series of shots.

**The American Cancer Society’s recommendations for HPV vaccine use**

- Routine HPV vaccination for girls and boys should be started at age 11 or 12. The vaccination series can be started as early as age 9.
- HPV vaccination is also recommended for females 13 to 26 years old and for males 13 to 21 years old who have not started the vaccines, or who have started but not completed the series. Males 22 to 26 years old may also be vaccinated.*
- HPV vaccination is also recommended through age 26 for men who have sex with men and for people with weakened immune systems (including people with HIV infection), if they have not previously been vaccinated.

*For people 22 to 26 years old who have not started the vaccines, or who have started but not completed the series, it's important to know that vaccination at older ages is less effective in lowering cancer risk.
Why should the vaccines be given to pre-teens?

The vaccines 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 men and women older than 26? Should they get one of the vaccines?

HPV vaccines are not approved nor recommended after age 26. While the vaccines are safe, they will not provide much, if any, benefit.

Who should not get one of the HPV vaccines 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:

- Anyone with a severe allergy to latex should not get the Cervarix 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
How long will the vaccines prevent HPV infection?

How long a vaccine will protect people is never known when the vaccine is first introduced. Current research shows that the vaccines are 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. So far, all studies show no serious side effects caused by the vaccines, and no deaths have been linked to any HPV vaccine. Common, mild side effects include pain and redness where the shot was given, fever, dizziness, and nausea.

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 cost if the vaccine 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 and for some children and teens who are underinsured. 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, or call 1-800-232-4636.

Merck, the maker of Gardasil and Gardasil 9, also offers a vaccine patient assistance program for people age 19 to 26 who do not have health insurance and can’t afford the vaccine.

**Do women who have been vaccinated against HPV still need Pap tests?**

Yes. Women who have been vaccinated will still need regular testing for **cervical cancer** because the vaccines do not prevent all of the types of HPV that can cause cervical cancer.


- **References**


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