



Human Papillomavirus Vaccination

Human papillomavirus (HPV) infection is the most common **sexually transmitted infection (STI)** in the United States. Some types of HPV cause genital warts. Others can cause cancer of the **cervix** and other types of cancer. Almost everyone who is sexually active will get an HPV infection at some point during their life. HPV vaccination is a safe and effective way to protect yourself and your sexual partners against HPV-related diseases.

This pamphlet explains

- *how infection with HPV occurs*
- *HPV and genital warts*
- *HPV and cancer*
- *who should get the HPV vaccine*
- *possible side effects*

How Infection With HPV Occurs

There are more than 150 types of HPV. About 40 types infect the genital area of men and women and are spread by skin-to-skin contact during vaginal, anal, or oral sex. Genital HPV infection can occur even if you do not have **sexual intercourse**.

Like many other STIs, genital HPV infection often has no signs or symptoms. The infected person usually is not aware that he or she has been infected and can unknowingly pass the infection to others.

HPV is a **virus**. Like all viruses, HPV causes infection by entering **cells**. Once inside a cell, HPV takes control of the cell's internal machinery and uses it to make

copies of itself. These copies then infect other nearby cells. Infected cells may become abnormal or damaged. HPV infection is a slow process. In most people, the **immune system** clears the body of HPV before it causes disease.

HPV and Genital Warts

About a dozen types of HPV cause genital warts. These types are called "low-risk types." Most cases of genital warts are caused by just two low-risk types: type 6 and type 11.

Genital warts are growths that can appear on the outside or inside of the **vagina** or on the **penis** and

can spread to nearby skin. Genital warts also can grow around the **anus**, on the **vulva**, or on the cervix. They may cause itching or pain, or they may not cause any symptoms. Genital warts are not cancer and do not turn into cancer. Warts can be removed with medication or surgery.

HPV and Cancer

There are at least 13 types of HPV linked to cancer of the cervix, anus, vagina, penis, mouth, and throat. Types of HPV that cause cancer are known as “high-risk types.” Most cases of HPV-related cancer are caused by just two high-risk types of HPV: type 16 and type 18.

The immune system fights most high-risk and low-risk HPV infections and clears them from the body. Infections that are not cleared from the body are called persistent infections. A persistent infection with a high-risk HPV type can cause cells to become abnormal and can lead to a condition called precancer. It usually takes years for this to happen. Cervical cancer screening can detect signs of abnormal cell changes of the cervix and allows early treatment so they do not become cancer (see “Screening for Cervical Cancer”).

HPV Vaccines

A vaccine is available that can prevent infection with HPV. The vaccine protects against the HPV types that are the most common cause of cancer, precancer, and genital warts. The HPV vaccine is safe and effective. Millions of people around the world have gotten the HPV vaccine without serious side effects.

Who Should Get the HPV Vaccine

Girls and boys should get the HPV vaccine as a series of shots. Vaccination works best when it is done before a person is sexually active and exposed to HPV, but it still can reduce risk of getting HPV if given after a person has become sexually active. The ideal age for HPV vaccination is age 11 years or 12 years, but it can be given starting at age 9 years and through age 26 years.

For those age 9–14 years, two shots of vaccine are recommended. The second shot should be given 6–12 months after the first one. For those age 15 years through 26 years, three shots of vaccine are recommended.

If your child has not gotten all of the recommended shots, he or she does not have to “start over.” He or she can get the next shot that is due even if the time between them is longer than recommended. This is also true for you if you have not completed the recommended number of shots through age 26 years. If you have questions about completing your HPV vaccine shots, talk with your health care professional.

Effectiveness of HPV Vaccines

The HPV vaccine is highly effective when given before the start of sexual activity. The vaccine can reduce the risk of genital warts and HPV-related cancer and

precancer by up to 99% when all recommended shots have been given. If you have had sex, you may already be infected with one or more types of HPV, but you can still get the vaccine through age 26 years. The vaccine may help protect you against the types of HPV included in the vaccine that you are not infected with.

Side Effects

There have been no reports of severe side effects or bad reactions to the vaccine. The most common side effect of the HPV vaccine is soreness and redness where the shot is given.

Screening for Cervical Cancer

HPV vaccination helps prevent HPV infection. It is not a cure for an HPV infection that has already occurred. Women who have been vaccinated still need to have regular cervical cancer screening as recommended for their age group and health history.

Cervical cancer screening includes a **Pap test**, in which cells are taken from the cervix and vagina and looked at under a microscope. This test can detect abnormal changes in cells of the cervix. If further testing shows precancer, treatment can be given before the changes become cancer. Women should have their first Pap test starting at age 21 years.

An HPV test is part of cervical cancer screening for some women. It may be used along with the Pap test in women 30 years and older. This is called co-testing. It also can be used as a follow-up test for women 21 years and older whose Pap tests show abnormal or uncertain results. The HPV test can identify most of the cancer-causing types of HPV even before there are visible changes in the cervical cells. Currently, there are no approved tests to detect HPV in men.

Staying Healthy

Even if you get the HPV vaccine, it still is important to take other steps to protect yourself against HPV and other STIs:

- Limit your number of sexual partners. The more partners you have over the course of your life, the greater your risk of infection.
- Use a male or female condom to reduce your risk of infection when you have vaginal, anal, or oral sex. But be aware that condoms cover only a small percentage of skin and do not completely protect against HPV infection. HPV can be passed from person to person by touching infected areas not covered by a condom. These areas may include skin in the genital or anal areas.

Finally...

The HPV vaccine may help protect you from certain types of HPV. If you are age 26 years or younger, talk to your health care professional about getting the

vaccine. Using condoms and limiting your number of sexual partners also may reduce your risk of HPV infection. Even if you have gotten the HPV vaccine, be sure to have regular cervical cancer screening and continue to use condoms to protect yourself from other STIs.

Glossary

Anus: The opening of the digestive tract through which bowel movements leave the body.

Cells: The smallest units of a structure in the body; the building blocks for all parts of the body.

Cervix: The lower, narrow end of the uterus at the top of the vagina.

Human Papillomavirus (HPV): The name for a group of related viruses, some of which cause genital warts and some of which are linked to cancer of the cervix, vulva, vagina, penis, anus, mouth, and throat.

Immune System: The body's natural defense system against foreign substances and invading organisms, such as bacteria that cause disease.

Pap Test: A test in which cells are taken from the cervix and vagina and examined under a microscope.

Penis: An external male sex organ.

Sexual Intercourse: The act of the penis of the male entering the vagina of the female (also called "having sex" or "making love").

Sexually Transmitted Infection (STI): An infection that is spread by sexual contact, including chlamydia, gonorrhea, genital warts, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

Vagina: A tube-like structure surrounded by muscles leading from the uterus to the outside of the body.

Virus: An agent that causes certain types of infections.

Vulva: The external female genital area.

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