



HPV and HPV Testing

What are viruses?

Viruses are very small organisms – most cannot even be seen with a regular microscope. They cannot reproduce on their own. They must enter a living cell, which becomes the *host cell*, and “hijack” the cell’s machinery to make more viruses.

Different viruses can enter the body in different ways, such as:

- Through the mucous membranes, such as the inner lining of the nose or mouth, the lining of the eyes, or the genitals
- Through the digestive system (such as the lining of the stomach or intestines)
- Through insect bites, needle sticks, or other breaks in the skin
- Through unbroken skin

Once inside the body, each virus infects a specific type of cell. For example, cold and flu viruses invade cells that line the respiratory tract (nose, sinuses, breathing tubes, and lungs).

What is HPV?

HPV is short for *human papillomavirus*. HPVs are a group of more than 150 related viruses. Each HPV virus is given a number, which is called an *HPV type*. HPVs are called *papillomaviruses* because some HPV types cause papillomas (warts), which are non-cancerous tumors. But some types of HPV are known to cause cancer, including cancers of the cervix (the base of the womb at the top of the vagina), vagina, vulva (the area around the outside of the vagina), penis, anus, and parts of the mouth and throat.

HPVs are attracted to and can live only in certain cells called *squamous epithelial cells*.

These cells are found on the surface of the skin and on moist surfaces (called *mucosal surfaces*) like:

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

Cutaneous (skin) HPV types

Most HPV types are called *cutaneous* because they cause warts on the skin, such as on the arms, chest, hands, and feet. These are common warts, not genital warts.

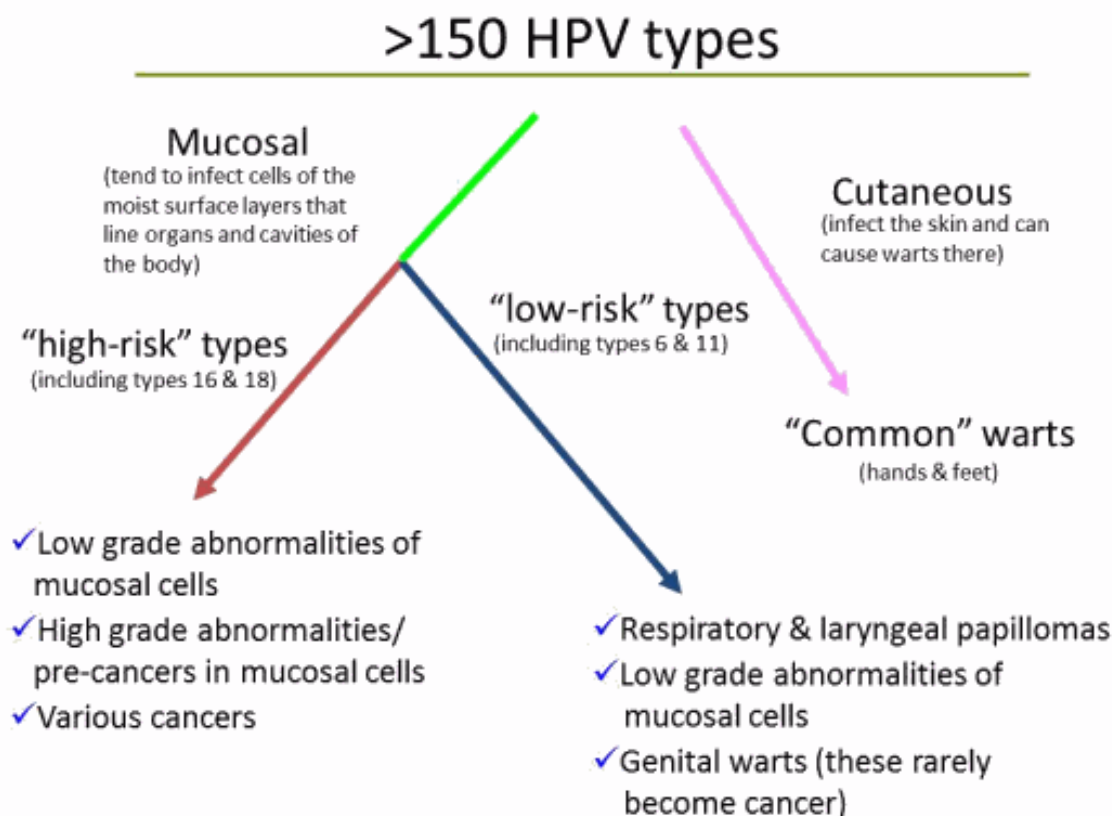
Mucosal (genital) HPV types

The other HPV types are considered *mucosal* types because they invade and live in cells on mucosal surfaces. The mucosal HPV types are also called *genital* (or *anogenital*) HPV types because they often affect the anal and genital area. These types can also infect the lining of the mouth and throat. Mucosal HPV types generally don't grow in the skin or parts of the body other than the mucosal surfaces.

Low-risk mucosal (genital) HPV types: HPV types that tend to cause warts and rarely cause cancer are called *low-risk types*. Low-risk genital HPV infection can cause cauliflower-shaped warts on or around the genitals and anus of both men and women. In women, warts may appear in areas that aren't always noticed, such as the cervix and vagina.

High-risk mucosal (genital) HPV types: HPV types that can cause cancer are called *high-risk types*. These types have been linked to certain [cancers](#)¹ in both men and women. Doctors worry about the cell changes and pre-cancers these types cause because they are more likely to grow into cancers over time.

This diagram shows the different groups of HPV types and the problems each group can cause.



How do you get HPV?

Mucosal (genital) HPV is spread mainly by direct skin-to-skin contact during vaginal, oral, or anal sexual activity. It’s not spread through blood or body fluids. It can be spread even when an infected person has no visible signs or symptoms.

Anyone who has had sexual contact can get HPV, even if it was only with only one person, but infections are more likely in people who have had many sex partners.

The virus can also be spread by genital contact without sex, but this is not common. Oral-genital and hand-genital spread of some genital HPV types have been reported. And there may be other ways to become infected with HPV that aren’t yet clear.

You DO NOT get HPV from:

- Toilet seats
- Hugging or holding hands

- Swimming in pools or hot tubs
- Sharing food or utensils
- Being unclean

Transmission from mother to newborn during birth is rare, but it can happen, too. When it does, it can cause warts (papillomas) in the infant's breathing tubes (trachea and bronchi) and lungs, which is called *respiratory papillomatosis*. These papillomas can also grow in the voice box, which is called *laryngeal papillomatosis*. Both of these infections can cause life-long problems.

How common is HPV? Who gets it?

HPV is a very common virus. Some doctors think it's almost as common as the cold virus. The Centers for Disease Control (CDC) estimates that about 80 million people are currently infected with HPV in the United States, and about 14 million people in the US get a new HPV infection every year.

Most men and women who have ever had sexual contact get at least one type of genital HPV at some time in their lives. Even people who have only had sex with one person in their lifetime can get HPV.

In most people, the body clears the infection on its own. But sometimes, the infection doesn't go away. Chronic, or long-lasting infection, especially when it's caused by certain high-risk HPV types, can cause cancer over time.

Can HPV be prevented?

HPV is very common, so the only way to keep from becoming infected may be to completely avoid any contact of the areas of your body that can become infected (like the mouth, anus, and genitals) with those of another person. This means not having vaginal, oral, or anal sex, but it also means not allowing those areas to come in contact with someone else's skin.

HPV vaccines can prevent infection with the types of HPV most likely to cause cancer and genital warts, although the vaccines are most effective when given at a younger age (between ages 9 and 12). See [HPV Vaccines²](#) for more on this.

If you are sexually active, **limiting the number of sex partners** and avoiding sexual activity with people who have had many other sex partners can help lower your risk of exposure to genital HPV. But again, HPV is very common, so having sexual

contact with even one other person can put you at risk.

Condoms can offer some protection from HPV infection, but HPV might be on skin that's not covered by the condom. And condoms must be used every time, from start to finish. The virus can spread during direct skin-to-skin contact before the condom is put on, and male condoms don't protect the entire genital area, especially for women. The female condom covers more of the vulva in women, but hasn't been studied as carefully for its ability to protect against HPV. Condoms are very helpful, though, in protecting against other infections that can be spread through sexual activity.

It's usually not possible to know who has a mucosal HPV infection, and HPV is so common that even using these measures doesn't guarantee that a person won't get infected, but they can help lower the risk.

What are the symptoms of HPV?

Most people will never know they have HPV because they have no symptoms and most won't develop health problems because of HPV. In most people, their immune system attacks the virus and clears the HPV infection, typically within 2 years. This is true of both high-risk and low-risk HPV types. But sometimes HPV infections are not cleared by the body.

Infection with a high-risk HPV type usually has no symptoms. But, this type of HPV can lead to cell changes that over many years may develop into cancer.

Infection with a low-risk HPV type can cause genital warts. Genital warts may appear within weeks or months after contact with a partner who has HPV. The warts may also show up years after exposure, but this is rare. The warts usually look like small bumps or groups of bumps in the genital area. They can be small or large, raised or flat, or shaped like a cauliflower. If they're not treated, genital warts might go away, might stay and not change, or might increase in size or number. But, the warts caused by low-risk HPV types rarely turn into cancer.

Can HPV be treated?

There's no treatment for the virus itself. But most genital HPV infections go away with the help of a person's immune system.

Even though HPV itself cannot be treated, the cell changes caused by an HPV infection can. For example, genital warts can be treated. Pre-cancer cell changes caused by HPV can be found by Pap tests and treated. And head and neck, cervical, anal, and

genital cancers can be treated, too.

Testing for HPV

What's the difference between an HPV test and a Pap test?

The HPV test and Pap test are done the same way. A health professional uses a special tool to gently scrape or brush the cervix to remove cells for testing.

HPV is a virus that can cause cervix cell changes. The [HPV test](#)³ looks for cervical infection by high-risk types of HPV that are more likely to cause pre-cancers and cancers of the cervix. The test can be done by itself or at the same time as the Pap test (called a co-test) (with the same swab or a second swab), to determine your risk of developing cervical cancer. The American Cancer Society recommends a primary HPV test* as the preferred way to screen for [cervical cancers](#)⁴ or pre-cancers in individuals 25 to 65 years with a cervix. (*A primary HPV test is an HPV test that is done by itself for screening. The US Food and Drug Administration has approved certain tests to be primary HPV tests.)

A [Pap test](#)⁵ is used to find cell changes or abnormal cells in the cervix. (These abnormal cells may be pre-cancer or cancer, but they may also be other things, too.) Cells from the cervix are sent to a lab and looked at closely to see if the cells are normal or if changes can be seen.

Because a primary HPV test may not be an option everywhere, a co-test every 5 years or a Pap test every 3 years are still good options because they are all good at finding cancer and pre-cancer. But the primary HPV test is better at preventing cervical cancers than a Pap test done alone and does not add more unnecessary tests, which can happen with a co-test. ***The most important thing to remember is to get screened regularly, no matter which test you get.***

What about testing other sites on the body?

The FDA has only approved tests to find HPV in individuals with a cervix, where positive results can be managed with extra testing and prompt treatment if the infection causes abnormal cell growth. Although HPV tests might be used in research studies to look for HPV in other sites, there's no proven way to manage positive findings. Also, the accuracy of the test itself may be affected by the site it's taken from and the way the sample is taken.

Finally, there's no useful test to find out a person's "HPV status," because an HPV test

result can change over a period of months or years as the body fights the virus. (See “If I have a positive HPV test, what does it mean?”)

If HPV goes away, can you get it again?

There are many types of HPV. You may have one type that goes away, but you can get another different type. It’s possible to get the same type again, but the risk of this is low.

Will HPV affect my pregnancy or my baby?

HPV infection does not directly affect the chances of getting pregnant.

If HPV infection leads to cervical changes that need to be treated, the treatment should not affect your chances of getting pregnant. But if you have many treatments and biopsies, which can happen with more frequent screening, the risk of pre-term labor and low birth weight babies can go up.

HPV is rarely passed from a mother to her baby. The rare cases where this has happened do not involve the types of HPV that can cause cancer. “How do you get HPV?” has more on HPV being transmitted from mother to baby during pregnancy.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/infectious-agents/hpv/hpv-and-cancer-info.html
2. www.cancer.org/cancer/cancer-causes/infectious-agents/hpv/hpv-vaccines.html
3. www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/screening-tests/hpv-test.html
4. <http://www.cancer.org/cancer/cervical-cancer.html>
5. www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/screening-tests/pap-test.html

References

Centers for Disease Control and Prevention. About HPV. 2019. Accessed at <https://www.cdc.gov/hpv/parents/about-hpv.html> on June 24, 2020.

Centers for Disease Control and Prevention. Genital HPV Infection - Fact Sheet. 2017.

Accessed at www.cdc.gov/std/HPV/STDFact-HPV.htm on September 28, 2017.

Centers for Disease Control and Prevention. Basic Information about HPV and Cancer. 2013. Accessed at www.cdc.gov/cancer/hpv/basic_info/ on September 28, 2017.

Fontham, ETH, Wolf, AMD, Church, TR, et al. Cervical Cancer Screening for Individuals at Average Risk: 2020 Guideline Update from the American Cancer Society. *CA Cancer J Clin.* 2020. <https://doi.org/10.3322/caac.21628>.

National Cancer Institute. HPV and Cancer. 2015. Accessed at www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-fact-sheet on September 28, 2017.

Palefsky JM. Human papillomavirus infections: Epidemiology and disease associations. UpToDate. 2017. Accessed at www.uptodate.com/contents/human-papillomavirus-infections-epidemiology-and-disease-associations on September 28, 2017

Rodríguez AC, Schiffman M, Herrero R, et al, for the Proyecto Epidemiológico Guanacaste Group. Rapid clearance of human papillomavirus and implications for clinical focus on persistent infections. *J Natl Cancer Inst.* 2008 Apr 2;100(7):513-517.

Winer RL, Hughes JP, Feng Q, et al. Condom use and the risk of genital human papillomavirus infection in young women. *N Engl J Med.* 2006;354:2645-2654.

Last Medical Review: October 9, 2017 Last Revised: July 30, 2020

Written by

The American Cancer Society medical and editorial content team
(www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

American Cancer Society medical information is copyrighted material. For reprint requests, please see our Content Usage Policy (www.cancer.org/about-us/policies/content-usage.html).

cancer.org | 1.800.227.2345