

Human papillomavirus (HPV) is a virus that can lead to genital warts and various forms of cancer, including those of the cervix and other reproductive organs as well as cancers of the head and neck. HPV is the most common sexually transmitted infection in the United States and around the world; in fact, each year, about 300,000 women die from cervical cancer caused by HPV.

Q. What is human papillomavirus?

A. Human papillomavirus (HPV) is a family of viruses that commonly infect the genital area and lining of the cervix. Some types of HPV infect the genital areas of men and women, causing warts. Genital warts can be unsightly and emotionally debilitating. Other types of HPV cause cervical cancer, as well as other cancers of the reproductive organs. On occasion, HPV infections can lead to cancers of the head and neck.

Q. How common is HPV?

A. HPV is the most common sexually transmitted infection in the United States and around the world. More than half of sexually active people will be infected with HPV at some time in their lives. Twenty million Americans are currently infected with HPV, and another 6 million become infected every year. Half of those newly infected with HPV are between 15 and 24 years of age.

Q. Is HPV dangerous?

A. Yes. Most of the time, HPV goes away on its own and doesn't cause any health problems. But sometimes HPV can linger and lead to cancer. Every year in the United States, approximately 39,000 men and women develop cancers caused by HPV. Cervical cancer is one of the most common cancers in women, killing about 300,000 every year worldwide.

Q. How do you get HPV? How can you avoid it?

A. HPV in the genital area is passed from one person to another through genital contact, most often, but not always, during sex. The best way to avoid HPV infection is to abstain from any sexual activity. You can also lower your chance of getting HPV by having sex with only one person who isn't infected with HPV. But most people who have HPV don't know they have it, so it can be hard to avoid. Although condoms are recommended as a way of decreasing sexually transmitted infections, they don't offer complete protection against HPV.

Q. Can't women avoid cervical cancer by getting routine Pap tests?

A. Not always. Once, cervical cancer was the most common cause of U.S. cancer deaths. The Pap test changed that. HPV infection causes changes in the cervix that can result in cancer. The Pap test is performed by scraping cells from the cervix and examining them to see whether they show changes consistent with the early development of cancer (called precancerous changes). If these changes are detected, the doctor can perform surgery on the affected areas before cancer develops. Typically, the length of time from infection with HPV to development of cervical cancer is decades. So, although most HPV infections occur in teenagers and young adults, cervical cancer is more common in women during their 40s and 50s.

The Pap test is one of the most effective cancer screening tests and has dramatically reduced the incidence of cervical cancer in the United States. But the test isn't entirely predictive of cancer, and not all women get tested as often as they should. Further, the Pap test will not detect cancer caused by HPV in areas other than the cervix.

Q. Is there a vaccine to prevent HPV?

A. Yes. Gardasil® 9, protects against nine types of HPV. Studies in thousands of girls and young women found the vaccine to be safe and effective in preventing persistent infections caused by HPV. Studies in boys and young men found that the HPV vaccine was safe and prevented anal and genital warts. The vaccine is given as a series of two or three shots depending on the age of the recipient. Those who are younger than 15 years old should get two doses separated by 6 to 12 months. Those 15 years and older or any recipient with a compromised immune system should get three doses. The second shot should be given one or two months after the first, and the third shot, six months after the first.



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Human Papillomavirus: What you should know

Q. Who should get the HPV vaccine?

A. The HPV vaccine is recommended for all boys and girls between 11 and 12 years of age. The vaccine can be given to those as young as 9 years of age. It is also recommended for all teenagers and adults between 13 and 26 years of age if they did not get the vaccine when they were younger. Some people wonder why boys are recommended to get the HPV vaccine. First, because boys can get genital warts as well as cancer caused by HPV, they benefit



from receiving the HPV vaccine; in fact, about one-third of the cancers caused by HPV occur in males. Second, by immunizing boys, they will be less likely to transmit the virus to their sexual partners. Although studies in boys lagged behind those in girls, the vaccine has now been shown to be safe and effective in boys as well.

Q. Why is the vaccine recommended for adolescents when it protects against a sexually transmitted disease?

A. Although most 11- and 12-year-olds are not sexually active, it is important to get the vaccine at that age for a few reasons. First, studies have shown that the vaccine is more protective when it is received at an earlier age. Second, in order to have the best protection, all doses should be completed before sexual activity begins and the series takes at least six months to complete. Third, logistically, teens get busier as they get older, so it is often easier to get the doses completed at the younger age. Finally, because studies indicate that the protection is long-lasting, delaying the vaccine provides no benefit and only increases the risk of cancer.

Q. How is the HPV vaccine made?

A. The HPV vaccine is made using a protein from the surface of nine types of HPV virus that most commonly cause either cancers or genital warts.

This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies.

Q. Is the HPV vaccine safe?

A. Yes. Because the HPV vaccine is made using only a single protein from each type of the virus, it can't cause HPV and, therefore, can't cause cervical cancer or other cancers. The most common side effect of the vaccine is redness and tenderness at the injection site. The vaccine may also cause a slight fever. Because people of the age group recommended to get the HPV vaccine might faint, it is recommended they remain at the doctor's office for about 15 minutes after receiving this or other vaccines. Although adverse events such as blood clots, neurological damage and death have been reported following receipt of the HPV vaccine, scientific studies have found these events were not caused by the vaccine.

Q. Do young women who get the HPV vaccine still need to get Pap tests?

A. Yes. Because the HPV vaccine does not protect against all HPV types that cause cervical cancer, women should continue to be screened with routine Pap tests.

Q. Do women who have received the HPV vaccine still need to worry about sexually transmitted infections?

A. Yes. The HPV vaccine does not prevent other sexually transmitted infections such as syphilis, gonorrhea, chlamydia and herpes. Also, the vaccine doesn't protect against all HPV types.

Q. Do people immunized with older versions of the HPV vaccine (HPV2 or HPV4) need to get the HPV9 vaccine?

A. At this time, additional doses of the vaccine are not routinely recommended by the CDC. However, those who decide to get HPV9 following completion of HPV2 or HPV4 will be protected against five additional serotypes that cause several thousand cases of cancer and several hundred deaths every year. In this situation, HPV9 should be given as two doses separated by 6 to 12 months.

For additional information about HPV disease and vaccination, visit www.prevent-HPV.org.

 The Children's Hospital of Philadelphia

 VACCINE EDUCATION CENTER

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