

### American Cancer Society Recommendations for HPV Vaccine Use to Prevent Cervical Cancer

To work best, the HPV vaccine should be given before the young person has any type of sexual contact with another person.

- Routine HPV vaccination is recommended for females 11-12 years old. Females as young as age 9 can be vaccinated.
- HPV vaccination is also recommended for females 13-18 years old who have not started the vaccines, or who have started but not completed the series.
- A decision about whether a woman 19-26 years old should get the vaccine should be based on an informed discussion between the woman and her health care provider. This discussion should include the likelihood of previous HPV exposure and the potential benefit from vaccination. The more sexual partners, the less likely the vaccine will be helpful.

While these vaccines protect against 70% of cervical cancers, they do not protect against all cancer-causing types of HPV, which means cervical cancer can develop even in women who have been vaccinated. Vaccinated and unvaccinated women should still be screened for cervical cell changes according to current American Cancer Society screening guidelines.

### American Cancer Society Screening Guidelines for the Prevention of Cervical Cancer

Among women at average risk, cervical cancer screening is recommended for those who are 21-65 years old. For women 21-29 years old, screening should be done every three years with conventional or liquid-based Pap tests. For women 30-65 years old, screening should be done every five years with both the HPV test and the Pap test, or every 3 years with the Pap test alone.

# Human Papilloma Virus (HPV) and Cancer in Minnesota



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## Human Papilloma Virus-related Cancers

Almost all cervical cancers are caused by the human papilloma virus (HPV), a common virus that can be passed from one person to another during sex. There are many types of HPV. Some types can cause changes on a woman's cervix that can lead to cervical cancer over time, while other types can cause genital or skin warts.

Other factors that can increase the risk of cervical cancer:

- Cigarette smoking
- A suppressed immune system
- Long-term use of oral contraceptives
- High number (three or more) of childbirths
- Multiple sexual partners

### What Is HPV?

HPV is the most common sexually transmitted infection. There are more than 40 types of HPV that can infect the genital, mouth, and throat areas of males and females. Most people who become infected with HPV do not know they have it.

Typically, HPV goes away by itself within two years and does not cause health problems. It is thought that the immune system fights HPV naturally. It is only when HPV stays in the body for many years that it can cause cancer.

### How Do High-risk HPVs Cause Cancer?

HPVs infect epithelial cells. These cells, which are organized in layers, cover the inside and outside surfaces of the body, including the skin, throat, genital tract, and anus.

Researchers believe that it can take between 10 and 20 years from the time of an initial HPV infection until a tumor forms. However, even high-grade lesions, which are moderate to severe abnormalities, do not always lead to cancer. The percentage of high-grade cervical lesions that progress to invasive cervical cancer has been estimated to be 50% or less.

### What Cancers Are Caused by HPV?

Virtually all cervical cancers are caused by HPV infections, with just two HPV types, 16 and 18, responsible for about 70% of all cases. HPV also causes anal cancer, with about 85% of all cases caused by HPV-16. HPV types 16 and 18 have also been found to cause close to half of vaginal, vulvar, and penile cancers.

Most recently, HPV infections have been found to cause cancer of the oropharynx, which is the middle part of the throat including the soft palate, the base of the tongue, and the tonsils. In the United States, more than half of the oropharynx cancers diagnosed are linked to HPV-16.

### Trends in HPV-related Cancers

The incidence rate of HPV-related cancers has declined in Minnesota, from 10.1 to 9.2 per 100,000 from 1988-2009. While rates of penile, cervical, vaginal, and vulvar cancers have declined, rates of selected oropharyngeal and anal cancers have significantly increased in Minnesota.

In males and females, incidence of HPV-associated anal cancer has increased by 46% and HPV-associated oropharyngeal cancer has increased by 60%. It has been estimated that, by 2020, HPV will cause more oropharyngeal cancers than cervical cancers in the US.

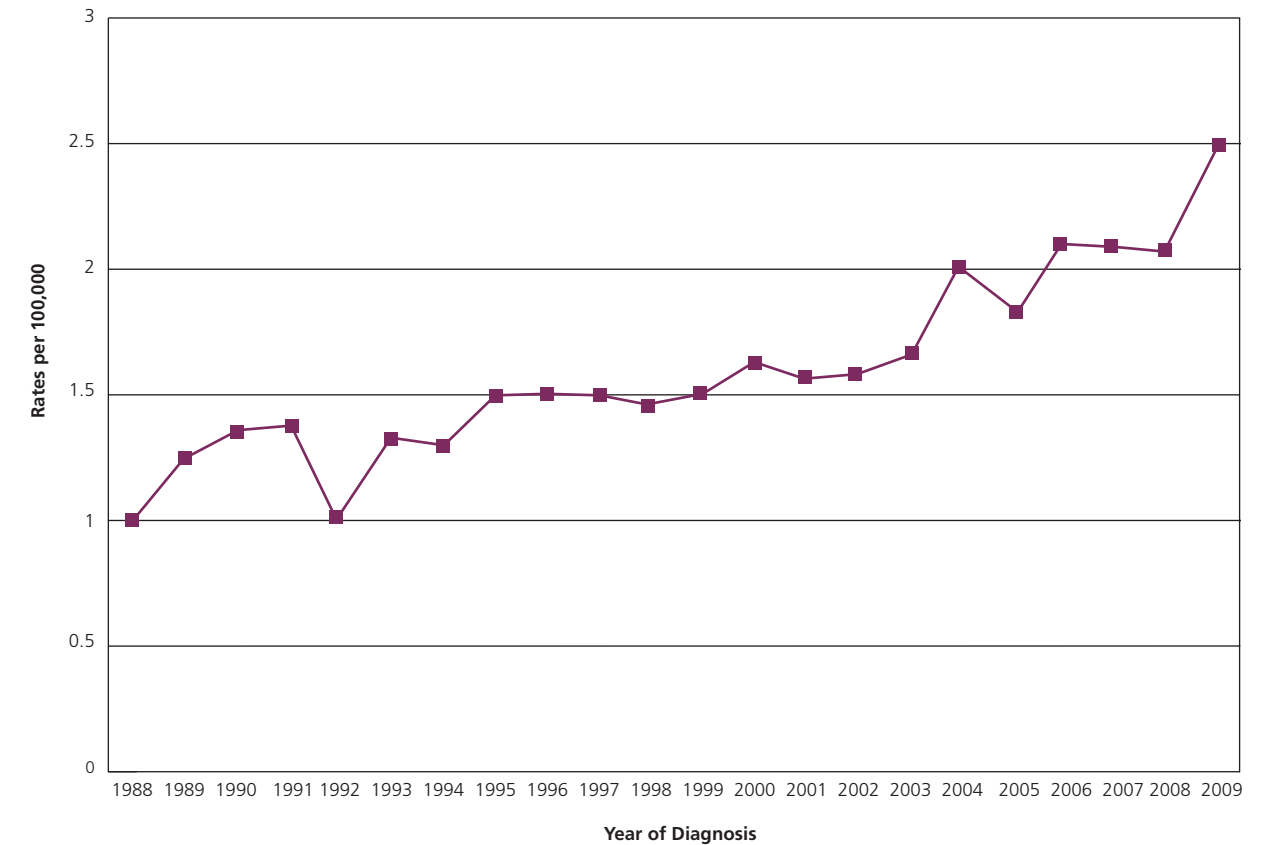
### Prevention of HPV-related Cancers

Research shows that correct and consistent condom use can reduce the transmission of HPV between sexual partners. However,

because areas not covered by a condom can be infected by the virus, condoms are not likely to provide complete protection against transmission of infection.

HPV is a preventable infection. The Food and Drug Administration has approved two vaccines to prevent HPV: Gardasil® and Cervarix®. Both vaccines are highly effective in preventing infections with HPV types 16 and 18. Gardasil also prevents infection with HPV types 6 and 11, which cause 90% of genital warts.

### Selected Oropharyngeal Cancer Incidence, Minnesota, 1988-2009



Source: Minnesota Cancer Surveillance System (MCSS), 2011. Rates are age-adjusted to the 2000 US population.

### HPV-related Cancers in 1988 and 2009

Year of Diagnosis	Male and Female Cases (Rate)		Male Cases (Rate)	Female Cases (Rate)			Total
	Anal*	Oropharyngeal*	Penile	Cervical	Vaginal	Vulvar	All Sites
1988	29 (0.7)	39 (1.0)	23 (0.6)	213 (5.1)	24 (0.6)	89 (2.2)	417 (10.1)
2009	78 (1.3)*	153 (2.5)*	24 (0.4)	170 (3.3)	12 (0.2)	83 (1.5)	520 (9.2)

Source: Minnesota Cancer Surveillance System (MCSS), 2011. Rates are age-adjusted to the 2000 US population. \*The observed increases in anal and select oropharyngeal cancers among males and females from 1988-2009 are statistically significant.