

Cancers associated with human papillomavirus, United States—2012-2016

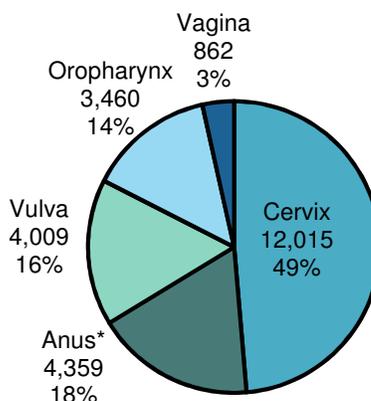
Human papillomavirus (HPV) is a recognized cause of cancer. Although most HPV infections are asymptomatic and clear spontaneously, persistent infections can progress to precancer or cancer. HPV causes most cervical cancers, as well as some cancers of the vagina, vulva, penis, anus, and oropharynx (cancers of the back of the throat, including the base of the tongue and tonsils). Cancer registries do not routinely collect information about HPV status, so in this report, **HPV-associated cancers** are defined as those that occur in parts of the body where HPV is often found.

Number of new HPV-associated cancer cases each year

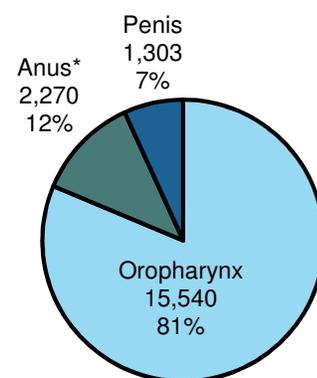
Based on data from 2012 to 2016, about 44,000 new cases of HPV-associated cancers occurred in the United States each year, including about 24,900 among women, and about 19,100 among men.

Cervical cancer is the most common HPV-associated cancer among women, and oropharyngeal cancers (cancers of the back of the throat, including the base of the tongue and tonsils) are the most common among men.

Females (24,886)

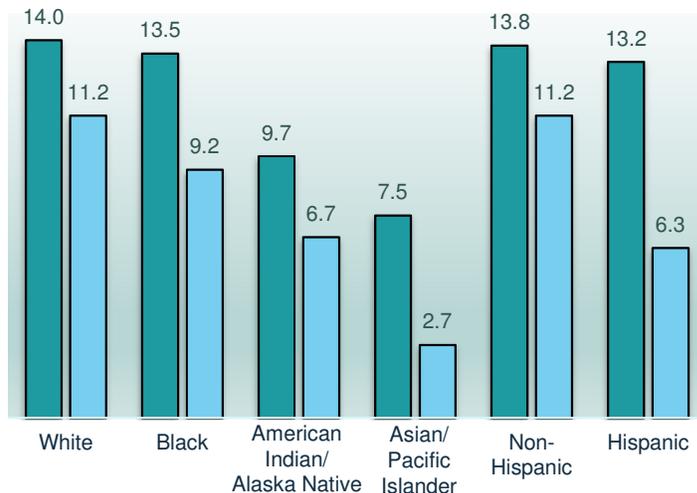
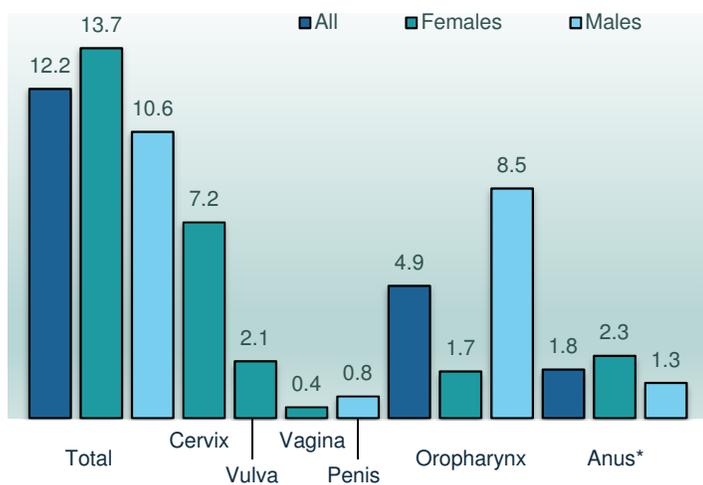


Males (19,113)



Rate of new HPV-associated cancer cases each year by a) sex and cancer type and b) sex and race/ethnicity group

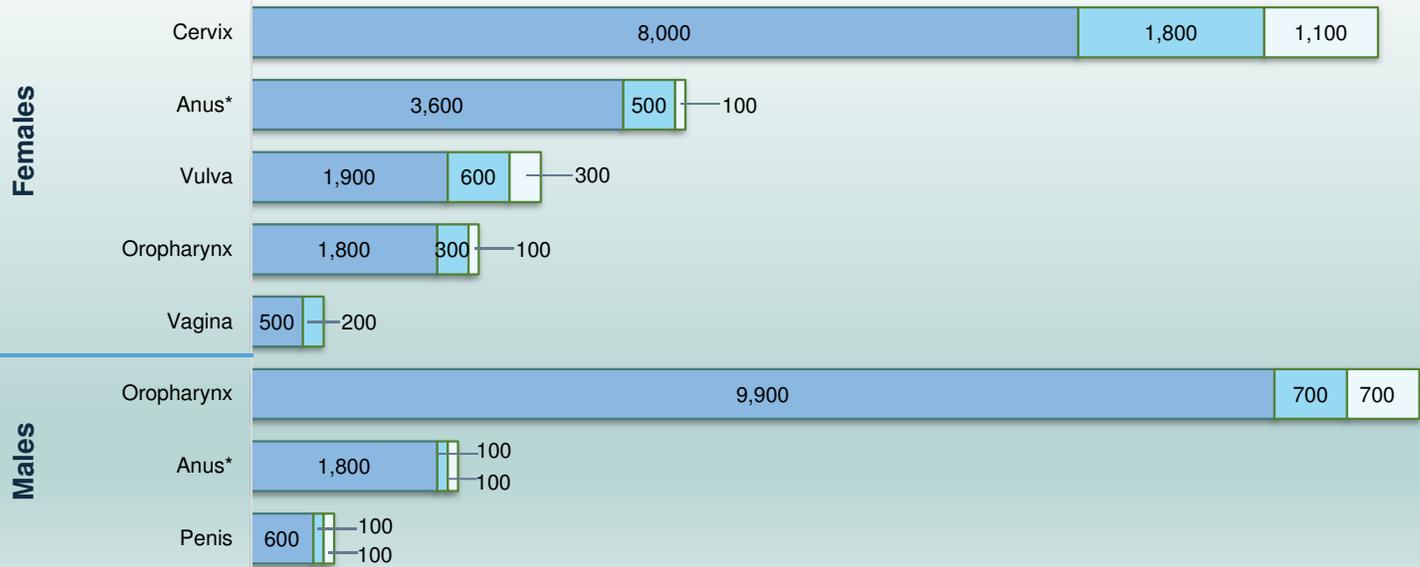
The incidence rate (number of cases per 100,000 persons, age-adjusted to the 2000 U.S. standard population) of HPV-associated cancers varied by cancer type, sex, and race/ethnic group. In each race/ethnic group, women had higher incidence than men. However, there were differences by cancer site. For example, men had higher incidence of HPV-associated cancers of the oropharynx than women. Among women, whites had the highest and Asian/Pacific Islanders had the lowest incidence compared with other racial groups. Among men, whites had the highest and Asian/Pacific Islanders had the lowest incidence compared with other racial groups and non-Hispanics had higher incidence than Hispanics.





Estimated annual number of cancer cases attributable to HPV by sex, cancer type, and HPV type

■ Caused by HPV types 16 and 18 ■ Caused by HPV types 31/33/45/52/58 □ Caused by other HPV types



For each cancer type, we estimated **HPV-attributable** cancers by multiplying the number of cancer cases by the percentage attributable to HPV based on a genotyping study. We estimated that 34,800 cancers (79%) were attributable to HPV each year during 2012–2016. Of these, we estimated that 32,100 cancers could have been prevented by the 9-valent HPV vaccine, including 28,100 caused by HPV types 16 and 18, and 4,300 caused by HPV types 31/33/45/52/58. HPV-negative cancers are not shown in the graph; it is estimated that about 10% of cervical and anal cancers, 30% of oropharyngeal, vaginal, and vulva cancers and 40% of penile cancers are HPV-negative.

HPV vaccination is cancer prevention. For information about HPV vaccination, visit www.cdc.gov/hpv.

Notes about the data

Population-based cancer registries do not routinely collect information about HPV status; however, the data can be used to monitor the number of cancers associated with HPV and *estimate* the number probably caused by HPV.

An **HPV-associated cancer** is a specific cellular type of cancer that is diagnosed in a part of the body where HPV is often found. These parts of the body include the cervix, vagina, vulva, penis, anus, and oropharynx (back of the throat, including the base of the tongue and tonsils). These cellular types include carcinomas of the cervix and squamous cell carcinomas of the vagina, vulva, penis, anus (including rectal squamous cell carcinoma), and oropharynx.

An **HPV-attributable cancer** is a cancer probably caused by HPV, and is estimated by multiplying the number of HPV-associated cancers by the percentage attributable to HPV. Based on a CDC study that used population-based data to genotype HPV types from cancer tissue, about 90% of cervical and anal cancers, 70% of oropharyngeal, vaginal, and vulvar cancers, and 60% of penile cancers are attributable to HPV.

*Includes anal and rectal squamous cell carcinomas.

Data Sources

Data in this brief come from **U.S. Cancer Statistics** (www.cdc.gov/uscs), the official federal cancer statistics.

Information about new cancer cases comes from CDC’s National Program of Cancer Registries and NCI’s Surveillance, Epidemiology, and End Results Program for 2012–2016, covering 100% of the U.S. population.

The analysis and methods were based on: Viens et al. Human Papillomavirus-Associated Cancers—United States, 2008–2012. *MMWR* 2016;65(26):661–666.

More Information

HPV www.cdc.gov/STD/HPV/STDFact-HPV.htm
 HPV vaccine www.cdc.gov/hpv/parents/vaccine.html
 HPV cancer www.cdc.gov/cancer/hpv/

Suggested Citation

Centers for Disease Control and Prevention. Cancers associated with human papillomavirus, United States—2012–2016. U.S. Cancer Statistics data brief, no 10. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2019.