

CERVICAL CANCER SCREENING and PREVENTION

An estimated 12,360 new cervical cancers and 4,020 cervical cancer deaths occurred in the United States in 2014. An additional 1,250,000 women will be diagnosed with pre-cancers annually by cytology using the Papanicolaou (Pap) smear which was developed at Strang in the 1940s. The incidence of cervical cancer has decreased dramatically with the advent and widespread adoption of screening using Pap smears. Regular screening, however, is associated with large numbers of diagnostic procedures to evaluate abnormal tests, and the treatment of low-grade lesions may adversely affect subsequent fertility and pregnancy. Prevention of cancer may be more efficient, with fewer adverse consequences.

Nearly all cases of cervical cancer are associated with human papillomavirus infection, which is transmitted during sexual activity. Therefore, cervical cancer is seen more frequently in women who engage in sexual activity at an early age and have multiple partners. Barrier contraception and/or spermicidal gels offer some protection.

Cigarette smoking or exposure to environmental smoke (second hand smoke) is also associated with increased risk of cervical cancer among HPV-infected women, suggesting that components of tobacco are promoters of abnormal growth of viral-infected cells.

Avoidance of Human Papillomavirus Infection (HPV)

More than 170 distinct types of HPV have been identified, approximately 30 of which infect the human genital tract. HPV types 16 and 18 are most often associated with cervical cancer. The following measures are effective to avoid human HPV infection, and thus cervical cancer:

Abstinence from sexual activity provides complete protection of HPV infection.

Barrier protection or spermicidal gel during sexual intercourse decreases cancer incidence by 60%.

Vaccination against HPV-16/HPV-18 with one of the two cervical cancer vaccines approved by the Food and Drug Administration (FDA) in the U.S. — Gardasil, for girls and boys, and Cervarix, for girls only. Both vaccines can prevent most cases of cervical cancer if given before a girl or woman is exposed to the virus. Vaccinating boys against HPV might also help protect girls from the virus by possibly decreasing transmission.

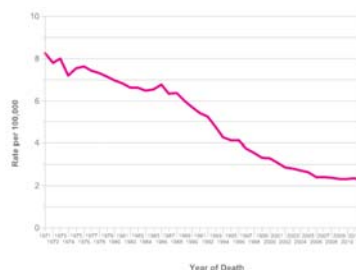
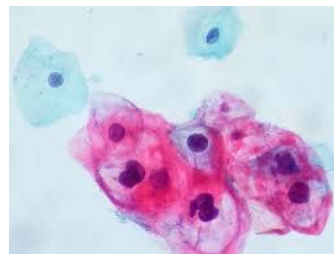
Cervical cancer vaccine is recommended for girls and boys ages 11 to 12, although it can be given as early as age 9. It's important for girls and boys to receive the vaccine before they have sexual contact and are exposed to HPV. Once HPV infection is established the vaccine might not be as effective or might not work at all. Also, response to the vaccine is better at younger ages than it is at older ages.

continued

SCREENING FOR CERVICAL CANCER

Screening for cervical cancer using the Pap test, with treatment of precancerous abnormalities (see a photomicrograph of cervical cancer cells detected on a Pap test to the right and a graph showing the decline in cervical cancer death rates between 1971 to 2012 on the right), decreases the incidence and mortality of cervical cancer.

Screening is not beneficial in detecting invasive cancer in women younger than 25 years because of the low likelihood of invasive cancer occurring at this age, and the harms outweigh the benefits. Screening is not beneficial in women older than 60 years if they have had a history of recent negative Pap tests. Estimates from population studies suggest that screening with the Pap test may decrease cancer incidence and mortality by more than 80%.



Screening for Human Papillomavirus

The Society of Gynecologic Oncology, American Society for Colposcopy and Cervical Pathology, American College of Obstetricians and Gynecologists have recently reported on a growing body of evidence for screening with for HPV alone (primary hrHPV testing), including a prospective US-based study.

The recommendations can be summarized as follows:

- Primary HPV testing can be considered for women starting at age 25. Women under age 25 should continue to follow current guidelines that recommend a Pap test alone beginning at age 21.
 - Women with a negative primary HPV test result should not be retested again for three years. This is the same screening interval recommended under current guidelines for a normal Pap test result.
 - An HPV test positive for HPV-16 and HPV-18 should be followed with colposcopy, a test that allows the doctor to examine the cervix under illumination and magnification.
 - A test that is positive for HPV types other than 16 and 18 should be followed by Pap testing.
- These recommendations have not yet been endorsed by either the American Cancer Society or the US Preventive Health Task force.

For further information go to the Home Page click on Screening & Prevention and Cervical Cancer

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Both vaccines are given as a series of three injections over a six-month period. The second dose is given one to two months after the first dose, and the third dose is given six months after the first dose. If vaccination is not completed by ages 11 to 12, the Centers for Disease Control and Prevention (CDC) recommends that girls and women through age 26 and boys and men through age 21 receive the vaccine. However, men can receive the HPV vaccine through age 26 if desired.

In addition, both vaccines can prevent vaginal and vulvar cancer in women and Gardasil can prevent genital warts and anal cancer in women and men. Oral and pharyngeal cancers are associated with HPV-16 infection in 70% of cases and are usually acquired during oral sex.

Vaccination reduces infection by 90% and persistent infections by 100%. The benefit beyond 6 to 8 years from vaccination is not known. Worldwide there are different strains of HPV associated with cervical cancer. Using data from a multicenter case-control study conducted in 25 countries, it was estimated that a vaccine containing the seven most common HPV types could prevent 87% of cervical cancers worldwide. A vaccine with only HPV-16 and HPV-18 types, the two most common strains, would prevent 71% of cervical cancers worldwide.

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Factors associated with increased risk of Cervical Cancer in HPV Infected Women

Cigarette smoking. Current and former smokers, among HPV-infected women have approximately two to three times the incidence of high-grade cervical pre-cancer or invasive cancer. Passive smoking is also associated with increased risk but to a lesser extent.

Reproductive factors. Multiple pregnancies are associated with increased risk of cervical cancer. Among HPV-infected women, those who have had seven or more full-term pregnancies have approximately four times the risk of cervical cancer compared with women who have never been pregnant, and two to three times the risk of women who have had one or two full-term pregnancies.

The long-term use of oral contraceptives. Use for 5 to 9 years have approximately three times the incidence of invasive cancer, and those who used them for 10 years or longer have approximately four times the risk.

[John Koulos MD, Chief of Gynecological Oncology comments that with the more comprehensive screening tools for Pap/HPV testing along with the availability of vaccines against HPV-16 and HPV-18, the numbers cancers and pre-cancers of the cervix will continue to decline.](#)



January is Cervical Cancer Awareness Month

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