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Patient information: Cervical cancer screening (Beyond the Basics)

CERVICAL CANCER SCREENING OVERVIEW

The Papanicolaou smear (Pap test) is a test used to screen women for cervical precancer or cancer. Testing for human papillomavirus (HPV) is another type of test for cervical cancer that can be used in women over age 30 in conjunction with the Pap test.

Pap tests can find cervical cancer and precancer in the early stages when it can be treated, and thus may reduce the number of deaths from cervical cancer. This article reviews tests used to screen for cervical cancer and a description of both normal and abnormal Pap test results.

The evaluation and treatment of abnormal Pap tests are discussed separately. (See ["Patient information: Follow-up of low-grade abnormal Pap tests \(Beyond the Basics\)"](#) and ["Patient information: Follow-up of high-grade abnormal Pap tests \(Beyond the Basics\)"](#) and ["Patient information: Management of a cervical biopsy with precancerous cells \(Beyond the Basics\)"](#).)

CERVICAL CANCER RISK FACTORS

The most important risk factor for cervical cancer is infection with the human papillomavirus (HPV). There are over 100 different types of HPV; however, most types of HPV do not cause cancer. At least 80 percent of women are exposed to the HPV virus during their lifetime. Most of the time, the body's immune system gets rid of the virus before it does harm.

Researchers have labeled the HPV types as being high or low risk for causing cervical cancer.

- Low risk types — HPV types 6 and 11 can cause genital warts and are low-risk types because they rarely cause cervical cancer. (See ["Patient information: Genital warts in women \(Beyond the Basics\)"](#).)
- High risk types — HPV types 16 and 18 are considered high-risk types because they may cause cervical cancer in some women.

HPV is spread by direct skin-to-skin contact, including sexual intercourse, oral sex, anal sex, or any other contact involving the genital area (eg, hand to genital contact). It is not possible to become infected with HPV by touching an object, such as a toilet seat. Most people who are infected with HPV have no signs or symptoms. Most HPV infections are temporary and resolve within two years. When the virus persists (in 10 to 20 percent of cases), there is a chance of developing cervical precancer or cancer. However, it usually takes many years for HPV infection to cause cervical cancer.

Since HPV is transmitted by sexual contact, having multiple sexual partners is associated with an increased risk for cervical cancer. Condoms provide only partial protection. Smoking can increase the risk of cervical cancer up to fourfold, as does having a condition or taking a medicine that weakens the immune system.

A vaccine is available to help prevent infection with some types of HPV (types 6, 11, 16, and 18) and is recommended for girls or women between the ages of 9 and 26 years and for boys or men between the ages of 9 and 21 years, but can be given up to 26 years of age. Smoking cessation is recommended for those who smoke. (See ["Patient information: Human papillomavirus \(HPV\) vaccine \(Beyond the Basics\)"](#) and ["Patient information: Quitting smoking \(Beyond the Basics\)"](#).)

CERVICAL CANCER SCREENING TESTS

There are several ways to screen for cervical cancer. The traditional screening test is called a Pap test.

Pap smear — The Pap test is a method of examining cells from the cervix ([picture 1](#)). The cervix is located at the lower end of the uterus ([figure 1](#)).

To perform a Pap test, a doctor or other health care provider will perform a pelvic exam and use a small brush or spatula to collect cells from the cervix. The cells are smeared on a glass slide (called a traditional Pap smear) or added to a preservative fluid (called liquid-based, thin layer testing). Studies that have compared the traditional Pap smear to liquid-based cytology do not prove one test to be more accurate than another.

HPV testing — An HPV test can be done along with a Pap test or as a separate test. Like a Pap test, the HPV test is done during a pelvic exam, using a small brush to collect a sample from the cervix. Women who are under age 30 are not usually tested for HPV because many women in this age group have temporary infections, which will go away without treatment.

WHO SHOULD HAVE HPV TESTING?

If you are 30 years or older, your doctor or nurse may recommend HPV testing in addition to a Pap test. If your HPV test and Pap test are negative, repeat testing is not usually needed for five years. HPV testing may also be done if the results of your Pap test results are unclear.

WHO SHOULD HAVE A PAP SMEAR?

Younger women — In the United States, the first Pap test is recommended at age 21; some other countries suggest that screening begin at age 25. Cervical cancer is very rare in younger women. Pap smear screening before age 21 in girls and women who are sexually active is not recommended because of the very high risk of false-positive results (that is, do not indicate a precancerous condition) because many HPV infections in this group are temporary. There is concern that procedures done to follow-up on these results will impair a young woman's future fertility.

In the past, experts recommended that every woman have a Pap test every year. This has changed, and Pap testing is suggested every three years for most women over age 21. More frequent testing may be needed if test results are not normal, or for women with HIV disease or other specific immune system conditions.

Even if you have had a vaccine for human papillomavirus, you will still need cervical cancer screening. (See ["Patient information: Human papillomavirus \(HPV\) vaccine \(Beyond the Basics\)".](#))

Older women — Most experts feel that women who are 65 years or older can stop having Pap tests if:

- You have had Pap tests on a regular basis in the past
- You have had at least three normal Pap tests in a row (or two tests with combination Pap and HPV test) over the past 10 years, with the most recent within the past five years

After hysterectomy — Women who have had a total hysterectomy (your uterus and cervix were removed) do not need a Pap test, unless:

- The hysterectomy did not remove your cervix (eg, if the hysterectomy was "subtotal")
- Your hysterectomy was done because of cervical cancer or precancer
- You were exposed to diethylstilbestrol (DES) during your mother's pregnancy

PREPARING FOR YOUR PAP SMEAR

For two days before your Pap test, do not put anything in your vagina (eg, spermicide, creams). A Pap test can be done at any time during your menstrual cycle.

PAP SMEAR RESULTS

The results from your Pap test will be available a few weeks after your visit. Pap test results may be reported as:

Negative — Pap tests that have no abnormal, precancerous, or cancerous cells are labeled as "Negative for intraepithelial lesion or malignancy."

Abnormal results — Cervical cells may appear abnormal for a variety of reasons. For example, you may have a cervical infection, or you may have a precancerous area or even cervical cancer.

Follow-up testing — If your Pap test is abnormal, or if your Pap test is normal but your HPV test is abnormal (positive), you may need follow-up testing; the best strategy depends on several individual factors.

Follow-up for abnormal Pap tests is discussed separately.

- (See ["Patient information: Follow-up of low-grade abnormal Pap tests \(Beyond the Basics\)".](#))
- (See ["Patient information: Follow-up of high-grade abnormal Pap tests \(Beyond the Basics\)".](#))
- (See ["Patient information: Management of a cervical biopsy with precancerous cells \(Beyond the Basics\)".](#))
- (See ["Patient information: Colposcopy \(Beyond the Basics\)".](#))

WHERE TO GET MORE INFORMATION

Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient information: Cervical cancer \(The Basics\)](#)

[Patient information: Cancer screening \(The Basics\)](#)

[Patient information: Human papillomavirus \(HPV\) vaccine \(The Basics\)](#)

[Patient information: Pap tests \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient information: Follow-up of low-grade abnormal Pap tests \(Beyond the Basics\)](#)

[Patient information: Follow-up of high-grade abnormal Pap tests \(Beyond the Basics\)](#)

[Patient information: Management of a cervical biopsy with precancerous cells \(Beyond the Basics\)](#)

[Patient information: Genital warts in women \(Beyond the Basics\)](#)

[Patient information: Human papillomavirus \(HPV\) vaccine \(Beyond the Basics\)](#)

[Patient information: Colposcopy \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Cervical cancer screening tests: Techniques and test characteristics of cervical cytology and human papillomavirus testing](#)

[Cervical cytology: Evaluation of atypical and malignant glandular cells](#)

[Cervical cytology: Evaluation of high-grade squamous intraepithelial lesions \(HSIL\)](#)

[Cervical cytology: Evaluation of low-grade squamous intraepithelial lesions \(LSIL\)](#)

[Overview of preventive medicine in adults](#)

[Screening for cervical cancer: Rationale and recommendations](#)

[Screening for cervical cancer in HIV infected women](#)

The following organizations also provide reliable health information.

- National Library of Medicine

(www.nlm.nih.gov/medlineplus/healthtopics.html)

- American Society for Colposcopy and Cervical Pathology

(www.asccp.org)

- American Cancer Society

(www.cancer.org, search for HPV)

- National HPV and Cervical Cancer Public Education Campaign

Telephone: 1-866-280-6605

(www42.cervicalcancercampaign.com/)

- Center for Disease Control and Prevention

(www.cdc.gov/)

- American Social Health Association

(<http://www.ashastd.org/>)

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Literature review current through: Oct 2013. | This topic last updated: Jun 11, 2013.

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3. [International Collaboration of Epidemiological Studies of Cervical Cancer, Appleby P, Beral V, et al. Carcinoma of the cervix and tobacco smoking: collaborative reanalysis of individual data on 13,541 women with carcinoma of the cervix and 23,017 women without carcinoma of the cervix from 23 epidemiological studies. Int J Cancer 2006; 118:1481.](#)
4. [Wright TC Jr, Cox JT, Massad LS, et al. 2001 Consensus Guidelines for the management of women with cervical cytological abnormalities. JAMA 2002; 287:2120.](#)
5. [American College of Obstetricians and Gynecologists. ACOG Practice Bulletin number 66, September 2005. Management of abnormal cervical cytology and histology. Obstet Gynecol 2005; 106:645.](#)