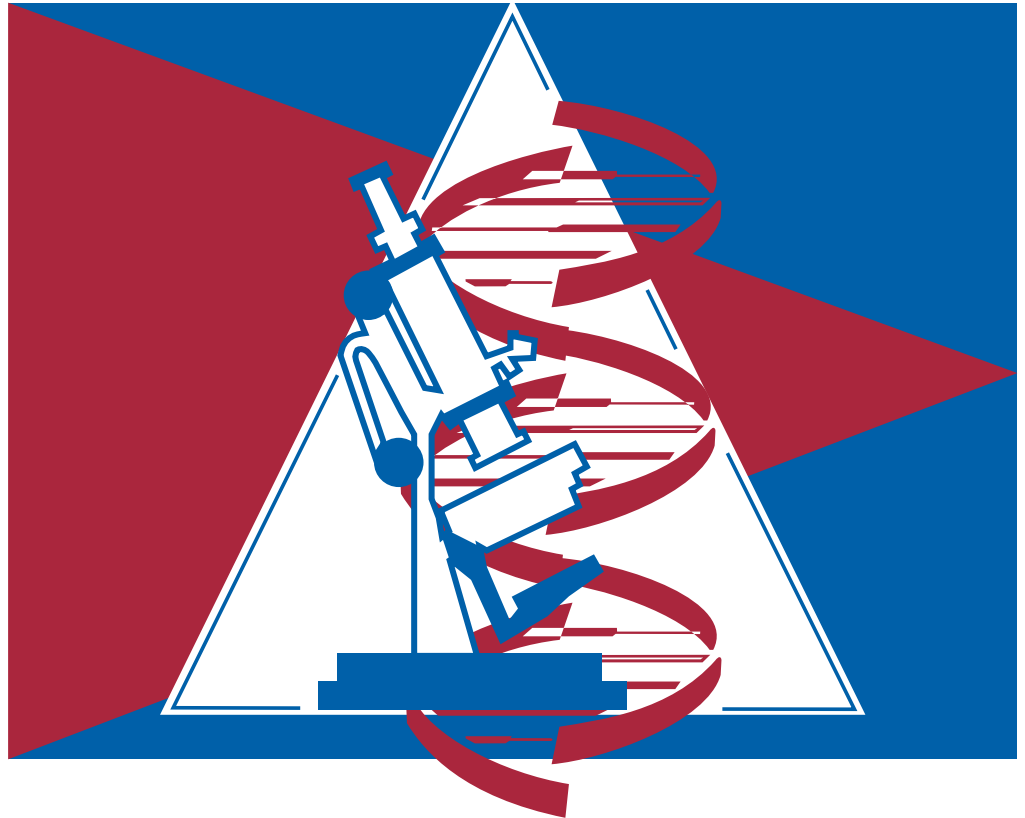


Diagnostic Cytology, Histology and Molecular Pathology

OncoDiagnostic Laboratory, Inc.

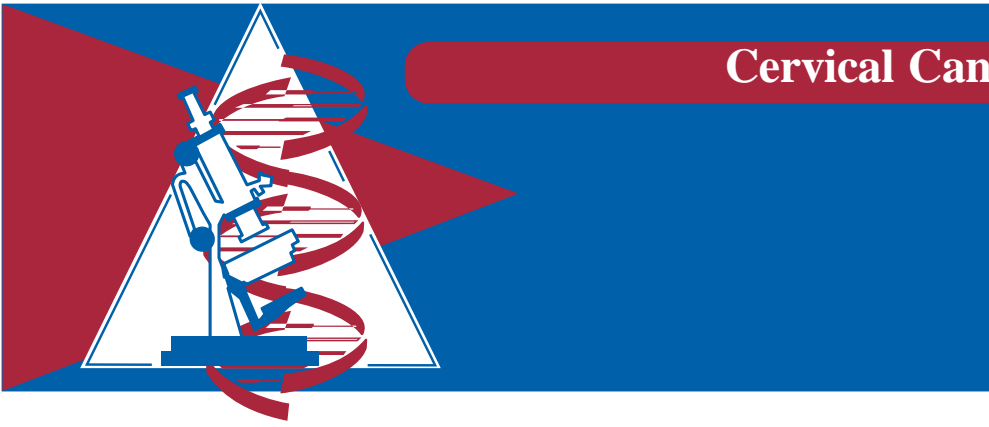


FYI

Cervical Cancer

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Cervical Cancer



WHAT IS CERVICAL CANCER?

Cervical cancer is a cancer in the lining of the cervix. Cervical cancers do not form suddenly, there is a gradual change from a normal cervix to precancer to cancer. This usually takes several years but sometimes can happen in less than a year.

There are two main types of cervical cancers: *squamous cell carcinoma* and *adenocarcinoma*. About 85%-90% of cervical cancers are *squamous cells carcinomas*. The remaining 10%-15% of cervical cancers are *adenocarcinomas*. Less commonly, cervical cancers have features of both squamous cell carcinomas and adenocarcinomas. These are called *mixed carcinomas*.

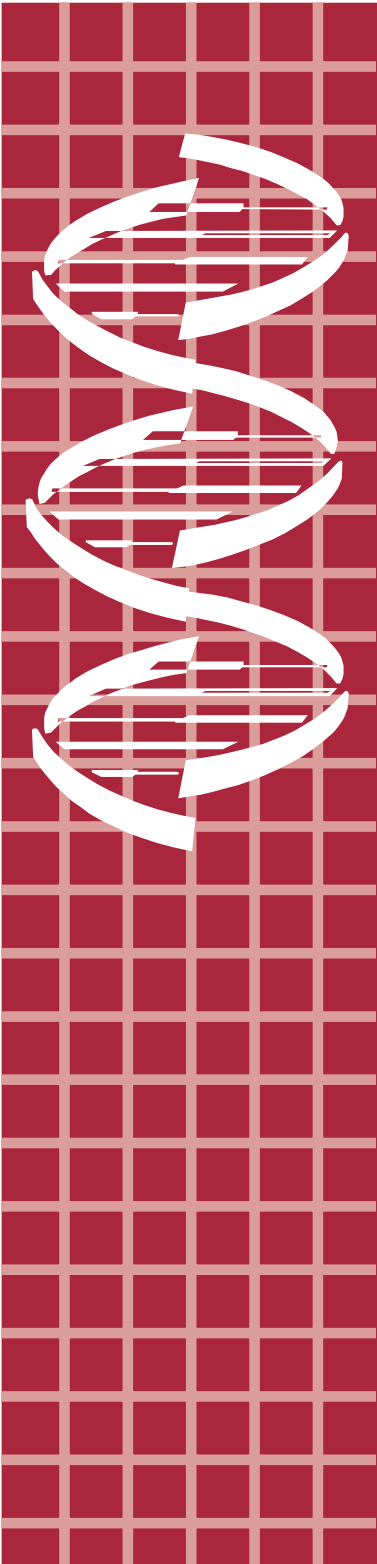
WHAT ARE THE KEY STATISTICS?

The American Cancer Society estimates that during 2001, about 12,900 cases of invasive cervical cancer will have been diagnosed in the United States. Some researchers estimate that non-invasive cervical cancer (carcinoma in situ) is about 4 times more common than invasive cervical cancer.

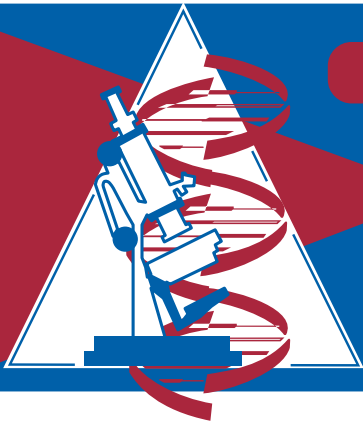
About 4,400 women will have died from cervical cancer in the United States during 2001. Cervical cancer was once one of the most common causes of cancer death for American women. Between 1955 and 1992, the number of cervical cancer deaths in the United States declined by 74%. The main reason for this is the increased use of the Pap test. The death rate continues to decline at a rate of about 2% a year. The 5-year relative survival rate for the earliest stage of invasive cervical cancer is 91%. The overall (all stages combined) 5-year survival rate for cervical cancer is about 70%. For cervical precancer the 5-year survival rate is nearly 100%. The 5-year survival rate refers to the percent of patients who live at least 5 years after their cancer is diagnosed. Improvements in treatment often result in a more favorable outlook for recently diagnosed patients.

WHAT ARE THE RISK FACTORS?

Age: The average age of women diagnosed with cervical cancer is 50 to 55 years. Girls less than fifteen have a low risk of developing this cancer. This risk increases between the late teens and mid-thirties. Unlike many other cancers that rarely affect young adults, cervical cancer can strike young women in their 20's and even in their teens. Although cervical cancer risk doesn't increase much beyond 40 years of age, it doesn't get any lower. Many older women do not realize that they have the highest risk of developing cervical cancer. It is very important for them to continue having Pap tests regularly.



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Race and ethnicity: Some racial and ethnic groups have higher death rates from cervical cancer than the U.S. average. African Americans death rate is more than twice the national average. Hispanics and American Indians have cervical cancer death rates that are also above average.

Human papillomavirus (HPV) infection: The most important risk factor for cervical cancer is infection by *human papillomavirus*. HPVs are a group of more than 70 types of viruses. They can cause warts, or *papillomas*. Different HPV types cause different types of warts in different parts of the body. Certain HPV types can infect the female and male genital organs and the anal area. These HPV types are passed from one person to another during sexual activity. Most genital warts are caused by two HPV types, HPV 6 and HPV 11. These rarely develop into cancer and are called “low risk” viruses. However, other sexually transmitted HPVs have been linked with genital or anal cancers in both men and women. These are called “high risk” HPV types and include HPV 16, HPV 18, HPV 33, HPV 35, HPV 45, as well as some others.

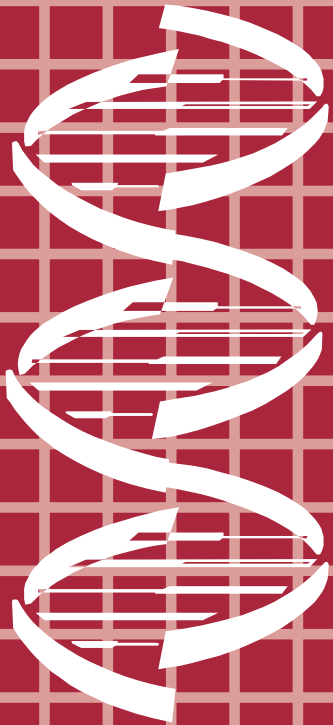
Smoking: Smoking exposes the body to many cancer-causing chemicals that affect more than the lungs. Tobacco by-products have been found in the cervical mucus in women smokers. Researchers believe that these substances damage the DNA of cells in the cervix and may contribute to the development of cervical cancer. Smokers are about twice as likely as nonsmokers to get cervical cancer.

Human immunodeficiency virus (HIV) infection: HIV is the virus that causes AIDS. This virus damages the body’s immune system and it makes women more susceptible to HPV infections. This may increase the risk of cervical cancer.

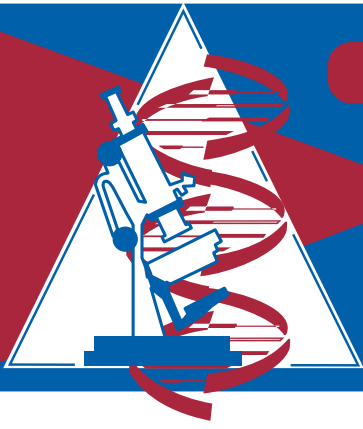
Diet: Women with poor diets may be at increased risk for cervical cancer. Diets low in fruits and vegetables are associated with an increased risk of cervical cancer and several other cancers.

Oral contraceptives: No definite evidence exists linking the use of oral contraceptives with cervical cancer. There is some statistical evidence that long-term oral contraceptive (OC) use may slightly increase the risk of cancer of the cervix. For women with multiple sexual partners, no matter what form of contraception is used, condoms should be used to reduce their risk of sexually transmitted diseases.

Low socioeconomic status: Low socioeconomic status is also a risk factor for cervical cancer. Many people with low incomes do not have ready access to



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adequate health care services, including Pap tests and treatment of precancerous cervical disease.

Diethylstilbestrol (DES): DES is a hormonal drug that was prescribed between 1940 to 1971 for some women thought to be at increased risk for miscarriages. About 99.9% of “DES daughters” do not develop cancer. The risk appears to be greatest in those whose mothers took the drug during their first 16 weeks of pregnancy.

CAN CERVICAL CANCER BE PREVENTED?

The vast majority of cervical cancers can be prevented. Since the most common form of cervical cancer starts with preventable and easily detectable precancerous changes, there are two ways to prevent this disease.

First, most precancers of the cervix can be prevented by avoiding risk factors. Delaying onset of sexual intercourse if you are young can help avoid HPV infection. Limiting your number of sexual partners and avoiding sex with people who have had many other sexual partners decreases your risk of exposure to HPV.

Secondly, have a Pap test to detect HPV infection and precancers. Treatment of these disorders can stop cervical cancer before it is fully developed. Most invasive cervical cancers are found in women who have not had regular Pap tests.

ADVANCED TESTING FOR ABNORMAL PAPSMEAR TEST RESULTS

The Pap test is a screening test rather than a diagnostic test. Patients with abnormal Pap test results have additional tests like colposcopy and biopsy to find out whether a precancerous change or cancer is present. If the biopsy shows SIL or dysplasia, steps will be taken to prevent progression to an actual cancer.

Colposcopy: In this procedure the cervix is viewed through a colposcope (an instrument with magnifying lenses like binoculars). The colposcope makes it possible to see the surface of the cervix closely and clearly. The exam is not painful, has no side effects, and it can be performed safely throughout pregnancy. If abnormal areas are seen on the cervix, a *biopsy* (removal of a small tissue sample) is done. This is examined under the microscope by a pathologist. If an abnormal area is seen by colposcopy, a biopsy is the only way to tell for certain whether you have a precancer, a true cancer, or neither.

Cervical biopsies: There are several types of biopsies used to diagnose cervical precancers and cancers. For precancers and early cancers, some types of biopsies can completely remove the abnormal tissue and may be the only treatment needed. In some



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situations, additional treatment of precancers or cancers is needed.

Colposcopic biopsy: For this type of biopsy, a doctor or other health care provider first examines the cervix with a colposcope. This instrument uses magnifying binoculars to help find abnormal areas. A biopsy forceps is used to remove a small (about 1/8 inch) section of the abnormal area on the surface of the cervix.

Endocervical curettage (endocervical scraping): This procedure is usually done during the same session as the colposcopic biopsy. A narrow instrument (the *curette*) is inserted into the *endocervical canal* (the passage between the outer part of the cervix and the inner part of the uterus). Some of the tissue lining the endocervical canal is removed by scraping with the curette and sent to the pathology laboratory.

Cone biopsy: This procedure removes a cone-shaped piece of tissue from the cervix. The cone biopsy is also a form of treatment, and can completely remove many precancers and very early cancers. There are two methods used for taking cone biopsies, the *loop electrosurgical excision procedure* (LEEP or LLETZ) and the *cold knife cone biopsy*.

HOW ARE PATIENTS WITH ABNORMAL PAP SMEAR RESULTS TREATED?

If an area of SIL can be seen during the colposcopy, your doctor will be able to remove the abnormal area by using such biopsy techniques as the LEEP (LLETZ) technique or a cold knife cone biopsy or by destroying the abnormal cells with *cryosurgery* or *laser surgery*. These treatments are almost always effective in destroying precancers and preventing them from developing into true cancers. Follow-up examinations will be needed to make sure that the abnormality does not come back. If it does, the treatments can be repeated.

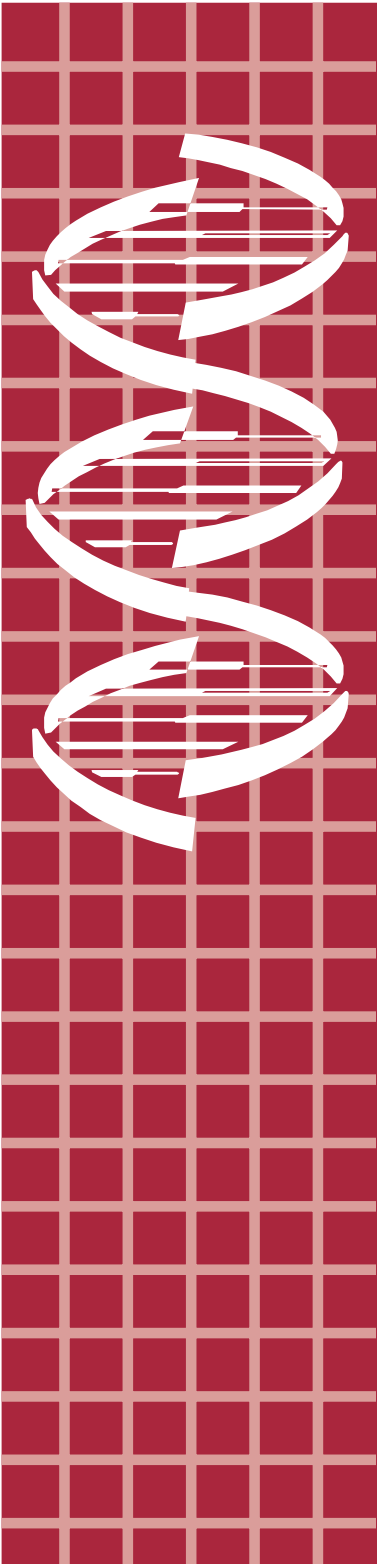
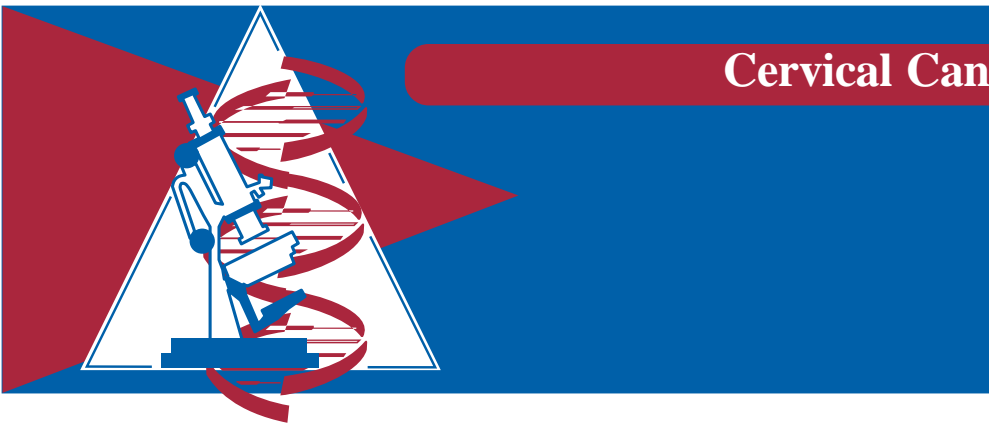
WHAT IS PATHOLOGY STAGING OF CERVICAL CANCER?

Staging is a process of collecting, organizing, and describing information about the extent of a cancer. The important information is the size of the tumor, how deeply the tumor has invaded tissues within and around the cervix and the presence of *metastasis* (spread) to lymph nodes or distant organs. This is a very important process because the stage of the cancer is the most important factor in selecting the right treatment plan. Staging of the cancer is performed by the pathologist examining the cancer in the laboratory.

Cervical cancer is classified in stages 0 through IV. It is based on clinical staging rather than surgical staging. A brief description of the various stages is listed below:

Stage 0: The tumor is *carcinoma in situ*, which means that cancer is found only in the layer of cells lining the cervix.

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Stage I: The cancer has spread from the lining of the cervix into the deeper connective tissue of the cervix.

Stage IA: There is a very small amount of cancer which is visible only under a microscope.

Stage IA1: The area of invasion is less than 1/8 inch deep and less than 1/3 inch wide.

Stage IA2: The area of invasion is about 1/5 inch deep, and less than 1/3 inch wide.

Stage IB: This stage includes cancers that can be seen without a microscope.

Stage IB1: A IB cancer that is no larger than about 1 3/5 inches.

Stage IB2: A IB cancer that is larger than 4 centimeters.

Stage II: The cancer has spread beyond the cervix to nearby areas, but is still inside the pelvic area.

Stage IIA: Cancer has spread beyond the cervix to the upper part of the vagina.

Stage IIB: Cancer has spread to the tissue next to the cervix.

Stage III: Cancer has spread to the lower part of the vagina or the pelvic wall.

Stage IIIA: The cancer has spread to the lower third of the vagina, but not to the pelvic wall.

Stage IIIB: The cancer extends to the pelvic wall and/or blocks urine flow to the bladder.

Stage IV: The cancer has spread to other parts of the body.

Stage IVA: The cancer has spread to the bladder or rectum.

Stage IVB: The cancer has spread to distant organs beyond the pelvic area.