



Yesterday

- As recently as the 1940s, cervical cancer was a major cause of death among women of childbearing age in the United States. However, with the introduction in the 1950s of the Papanicolaou (Pap) smear – a simple test in which a sample of cervical cells is examined under a microscope to detect cellular abnormalities – the incidence of invasive cervical cancer declined dramatically. Between 1955 and 1992, U.S. cervical cancer incidence and death rates declined by more than 60%.
- Epidemiologic evidence had long suggested that cervical cancer might be caused by a sexually transmitted agent, but the nature of this agent was not known until the 1980s.
- In the early 1970s, the mainstays of treatment for cervical cancer and precancerous cervical lesions (growths) were cone biopsy and hysterectomy.
- Clinical researchers were only beginning to develop and test less invasive procedures, such as cryosurgery, laser surgery, and LEEP (loop electrosurgical excision procedure), for treating precancerous cervical lesions.

Today

- Cervical cancer – once one of the most common cancers affecting U.S. women – now ranks 14th in frequency. Because precancerous lesions found by Pap smears can be treated and cured before they develop into cancer, and because cervical cancer is often detected before it becomes advanced, the incidence and death rates for this disease are relatively low. According to the most recent data (for the period from 2003 through 2007), the incidence rate for cervical cancer was 8.1 cases per 100,000 women per year in the United States. The mortality rate was 2.4 deaths per 100,000 women per year. In 2010, an estimated 12,200 women in the United States will be diagnosed with cervical cancer, and an estimated 4,210 will die of the disease.
- In certain populations and geographic areas of the United States, cervical cancer incidence and death rates

are still high, due in large part to limited access to cervical cancer screening. Rates are also high in developing nations, where more than 80% of cervical cancer cases occur. Worldwide, cervical cancer is the third most common cancer among women and the second most frequent cause of cancer-related death, accounting for nearly 300,000 deaths annually. In developing nations, it is often the most common cause of cancer-related death among women and a leading cause of death overall.

- Virtually all cases of cervical cancer are caused by specific types of human papillomavirus (HPV). There are more than 100 types of HPV, of which more than 40 can be sexually transmitted. Among these, about 15 are considered to be cancer-causing, or high-risk, types. Two of these high-risk types, HPV-16 and HPV-18, cause about 70% of cervical cancers worldwide. HPV infection is very common, but it usually goes away on its own. Persistent HPV infections, however, can cause cellular abnormalities that sometimes develop into cervical cancer if not treated.
- Highly sensitive and specific molecular tests are now available to identify DNA from high-risk HPV types in cervical specimens. HPV DNA testing can help to determine whether a woman needs further medical attention following a borderline or ambiguous Pap test result. In addition, the FDA has approved HPV DNA testing in conjunction with cervical cytology (i.e., Pap smears) for routine cervical screening of women 30 years of age and older. Pap tests have a relatively high percentage of false-negative results and are, therefore, often repeated annually to maximize their effectiveness. However, if the results on both a Pap smear and an HPV DNA test are normal, a false negative is less likely. Therefore, the screening interval can be extended (to 3 or more years).
- The FDA has approved two vaccines, Gardasil® and Cervarix®, which are highly effective in preventing persistent infections with HPV types 16 and 18, the two high-risk HPV types that cause the majority of cervical cancers. Gardasil also protects against infection with HPV types 6 and 11, which cause about 90% of genital

