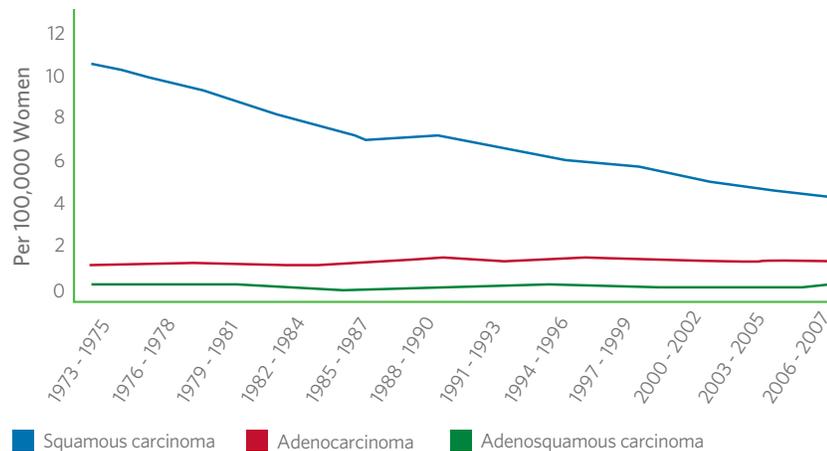


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Cervical Cancer

Trends in cervical cancer

Incidence of cervical cancer has gone down since the 1970s.¹ This is mostly due to fewer patients being diagnosed with squamous cell cervical cancers. But now it may be time to focus on adenocarcinomas of the cervix too. This less common type of cervical cancer has not been showing the same downward trend.



Incidence rates are age-adjusted to the US 2000 standard population. From: *J Womens Health*. 2012;21(10):1031-1037.¹

Screening reduces cervical cancer rates

Current screening guidelines include cytology (Pap smears) and human papilloma virus (HPV) testing.² Screening can be done every 3 or 5 years if screening results are negative.

Age (years)	Recommended Screening ²
<21	No screening
21 to 29	Pap test every 3 years
30 to 65	Pap test + HPV every 5 years (preferred) OR Pap test every 3 years
>65	No screening (if low cancer risk)

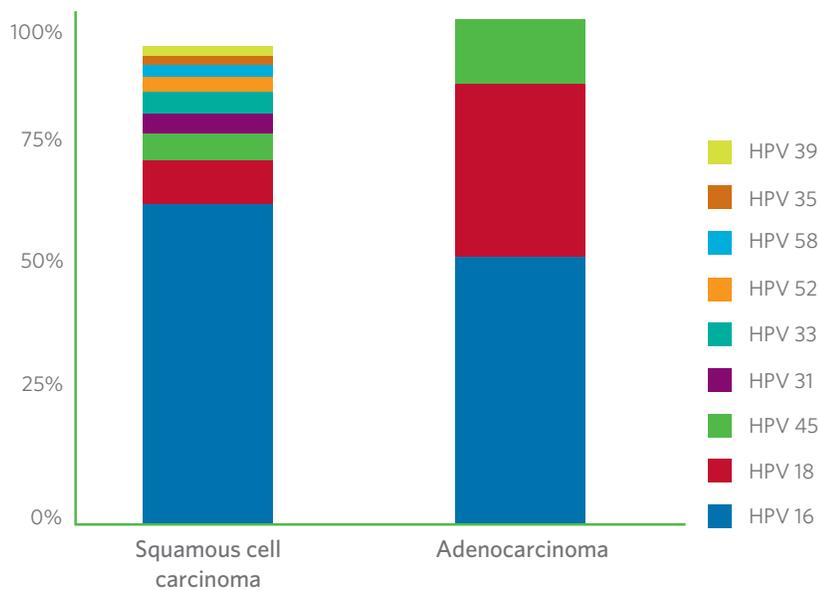


Following up with HPV genotyping

Women over 30 who have a negative Pap test but a positive HPV test have two choices per the guidelines.² One choice is to repeat the Pap and HPV test in a year. The other choice is to do an HPV genotype test now. This test tells you if one of the highest risk HPV genotypes is present. If so, a colposcopy is advised.²

Types of HPV found in cervical cancer

HPV types 16 and 18 are the most common HPV types causing cervical cancer.³ Some genotype tests include only type 16, but others include type 16 and 18. Type 45 is the next most common HPV type causing cervical cancer. Type 45 is found in 5% of squamous cell cervical cancers and 12% of cervical adenocarcinomas.³ So adding type 45 to a follow-up genotype test should theoretically help improve detection of cervical adenocarcinomas. Together the 3 genotypes cause 75% of squamous cell and 94% of adenocarcinoma cervical cancers.³



Genotypes contributing <2% not shown. From: *Lancet Oncol.* 2010;11:1048-1056.³

How the laboratory can help

The laboratory plays a critical role in cervical cancer screening by providing Pap testing, high-risk HPV testing, and HPV genotype testing. High-risk HPV screening detects presence or absence of the genotypes that can cause cervical cancer. But it does not differentiate between the 14 types. HPV genotype testing tells you if the high-risk types most likely to cause cervical cancer are present. Cervical adenocarcinomas are hard to detect with Pap testing,⁴ so HPV testing might prove to be especially important for screening.

Quest Diagnostics offers high-risk HPV mRNA testing for use in screening. The test measures mRNA expression of the E6 and E7 proteins found in high-risk HPV types. These proteins are involved in cervical cancer development. Studies have shown that the HPV mRNA test has similar sensitivity as the HPV DNA test. The specificity, however, is better.^{5,6}

Quest Diagnostics also offers an HPV mRNA genotype test. This test detects E6/E7 mRNA of HPV types 16, 18, and 45. It can differentiate type 16 from types 18 and 45, but it does not differentiate type 18 from type 45.

References

1. Adegoke O, Kulasingam S, Vinnig B. Cervical cancer trends in the United States: a 35-year population-based analysis. *J Womens Health.* 2012;21(10):1031-1037.
2. Saslow D, Solomon D, Lawson HW, et al. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. *CA Cancer J Clin.* 2012;62(3):147-172.
3. de Sanjose S, Quint WG, Alemany L, et al. Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. *Lancet Oncol.* 2010;11(11):1048-1056.
4. Zappa M, Visioli CB, Ciatto S, et al. Lower protection of cytological screening for adenocarcinomas and shorter protection for younger women: the results of a case-control study in Florence. *Br J Cancer.* 2004;90(9):1784-1786.
5. Ratnam S, Coutlee F, Fontaine D, et al. Aptima HPV E6/E7 mRNA test is as sensitive as Hybrid Capture 2 assay but more specific at detecting cervical precancer and cancer. *J Clin Microbiol.* 2011;49:557-564.
6. Coquillard G, Palao B, Patterson BK. Quantification of intracellular HPV E6/E7 mRNA expression increases the specificity and positive predictive value of cervical cancer screening compared to HPV DNA. *Gynecol Oncol.* 2011;120:89-93.