

# Spotlight on Health

## Cervical Cancer Screening

The Pap test has been the gold standard for cervical cancer screening for many decades and has reduced the number of deaths from the disease.<sup>1</sup> Because most cervical cancers are caused by “high-risk” types of the human papillomavirus (HPV),<sup>2</sup> co-testing (a Pap test *plus* an HPV test) is included in cervical cancer screening guidelines for women 30 to 65 years of age.<sup>3,4</sup>

This newsletter discusses the benefits of co-testing for women 30 to 65 years of age, and reviews screening options for cervical cancer in other age groups.

### The Pap and HPV Tests

The Pap test detects abnormal precancerous cells associated with a condition called cervical intraepithelial neoplasia (CIN). CIN is graded according to the amount of epithelial tissue affected, ranging from CIN1 (about one-third) to CIN3 (more than two-thirds). Screening for cervical cancer with the Pap test is very effective because, in most cases, precancerous cells take years to undergo malignant transformation.

HPV tests used for cervical cancer screening detect the high-risk HPV genotypes that are associated with almost all invasive cervical cancers and high-grade (CIN2 and CIN3) precancers.<sup>2</sup> Detection of high-risk HPV genotypes does not mean that a woman will develop cervical cancer, however; most women will clear HPV infections within 6 to 12 months.<sup>5</sup>

HPV tests can be based on detection of HPV DNA or mRNA. Whereas DNA testing detects the presence of HPV, mRNA testing detects the presence of HPV and transcriptional activity of viral oncogenes.<sup>5</sup> HPV mRNA testing has similar sensitivity for detecting CIN as HPV DNA testing. However, it has significantly greater specificity, which can reduce the false-positive rate.<sup>2</sup>

### Benefits of Co-testing

Compared with Pap testing alone every 3 years, co-testing every 5 years has several benefits, including<sup>3,6</sup>

- Increased sensitivity for CIN3
- Lower subsequent risk of CIN3 or cervical cancer following a negative HPV result
- Increased detection of cervical adenocarcinoma (important because the incidence of adenocarcinoma has been increasing<sup>1</sup>)
- Improved identification of precancer and cancer compared to Pap or HPV testing alone

Compared with Pap testing or HPV testing alone, co-testing has<sup>6</sup>

- Improved sensitivity for detecting CIN3 or cervical cancer (99% vs 91% for Pap alone and 94% for HPV alone)
- Fewer missed cancer cases (5.5% vs 12.2% for Pap alone and 18.6% for HPV alone)



### Risk Factors for Cervical Cancer<sup>10</sup>

The most important risk factor for cervical cancer is infection with a high-risk HPV type. Other risk factors include

- Smoking
- HIV infection
- Some immunosuppressive medications
- Past or present sexually transmitted infection (chlamydia)
- Diet low in fruits and vegetables
- Being overweight
- Long-term use of oral contraceptives
- Never having used an intrauterine birth control device
- 3 or more full-term pregnancies
- Age younger than 17 at first full-term pregnancy
- Family history of cervical cancer

### Screening Guidelines Include Co-testing for Women 30 to 65 Years of Age

Guidelines from multiple professional societies list co-testing as a preferred or acceptable option for cervical cancer screening in women 30 to 65 years of age. The American College of Obstetricians and Gynecologists (ACOG) indicates that co-testing (a Pap test *plus* an HPV test) is preferred, because it “has the additional advantage of better detection of adenocarcinoma of the cervix and its precursors than cytology screening alone.”<sup>3</sup> The United States Preventive Services Task Force (USPSTF) guidelines published in August 2018 include co-testing every 5 years as an option for women in this age group (Grade A recommendation); Pap testing alone every 3 years or high-risk HPV testing every 5 years are also options.<sup>4</sup> The Society of Gynecologic Oncology and American Society for Colposcopy and Cervical Pathology (ASCCP) also support co-testing for women 30 to 65 years old.<sup>7</sup>

### Screening Guidelines for Other Age Groups

For women 21 to 29 years of age, guidelines recommend screening with Pap testing alone every 3 years; because of the high prevalence of HPV and low incidence of cervical cancer in this age group, co-testing and HPV testing alone are not recommended.<sup>3,4</sup> Given the low rate of cervical cancer in women <21 years old, cervical cancer screening is not recommended in this age group.<sup>3,4</sup> Screening is also not recommended for women >65 years old, providing they have had 3 consecutive negative Pap tests or 2 consecutive negative co-tests within the last 10 years, with the most recent test within the past 5 years.<sup>3,4</sup>

### How the Laboratory Can Help

Quest Diagnostics offers ThinPrep® and SurePath™ liquid-based cytology (LBC) collection systems, as well as image-guided cytology. Imaging involves a prescreening step that helps the cytotechnologist quickly focus on cells of most concern. It is also more effective than conventional Pap testing for detecting CIN and adenocarcinoma of the cervix.<sup>8</sup> Samples collected using the ThinPrep system remain stable for longer, which allows more time to conduct additional tests if needed, such as HPV testing.<sup>9</sup> HPV E6/E7 mRNA testing, co-testing, and HPV genotyping are also available.

Quest Diagnostics also offers streamlined options for ordering cervical cancer screening tests, along with testing for sexually transmitted infections based on the patient's age and ACOG guidelines.

For more information visit [QuestDiagnostics.com/home/physicians/testing-services/condition/womens-health/cervical-cancer/cervical-cancer.html](https://www.questdiagnostics.com/home/physicians/testing-services/condition/womens-health/cervical-cancer/cervical-cancer.html).

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