



## Fact Sheet

### Lewin Case Study IV

## Screening for Cervical Cancer with HPV Genetic Tests

Genetic tests for the HPV viruses that cause cervical cancer are improving diagnostic accuracy in identifying the disease at its earliest stages.

- The tests are leading to improved disease-free survival and quality of life, along with reductions in disease occurrence, death, and progression to advanced cancers.
- The increased precision of the tests in documenting true cases of cancer allows many women to avoid unnecessary procedures, such as biopsies, and the associated costs.

### Background

Cervical cancer is the second most commonly diagnosed cancer and third leading cause of cancer mortality among women worldwide. Mortality rates have declined steadily in recent decades—from 3.7 deaths per 100,000 in 1986 to 2.4 deaths per 100,000 in 2005—because of prevention efforts and early detection through use of the conventional Pap test and newer forms of microscopic evaluation of cervical cells. The HPV DNA tests add another important screening tool by identifying the high-risk strains of human papillomavirus (HPV) that lead to cervical cancer. The tests can also determine whether atypical cells identified by Pap tests are actually pre-cancerous.

### Highlights

- The increased sensitivity of HPV DNA testing aids in deciding which patients truly need follow-up procedures. For example, the tests can reduce unnecessary biopsies and other procedures by determining whether a woman with abnormal result on a traditional Pap test truly has a high risk strain of HPV or other precancerous conditions.
- The HPV DNA tests lead to longer disease-free survival and improved long-term outcomes, whether used by themselves or in combination with Pap testing. In a Swedish study of 12,527 women, adding HPV testing at the initial screening stage increased detection rates of grade 2 pre-cancerous lesions (abnormal cells) by 51% compared to Pap only. In subsequent screenings during a four-year follow-up, the proportion of women with grade 2 or 3 lesions was 42% lower in the HPV group, as well as 47% lower for women with grade 3 lesions or cancer.
- HPV testing provides an effective primary screening test for cervical cancer, with data showing that it can significantly reduce the number of early stage cancers and cervical cancer-related deaths. A nine-year randomized controlled study of 131,746 women in rural India found that

the death rate and the incidence of grade 2 pre-cancerous lesions per 100,000 population were significantly lower in the HPV testing group than in groups tested through Pap tests and other means. Study investigators concluded that a single round of HPV testing was associated with a significant reduction in the number of grade 2 pre-cancers and cervical cancer-related death.

- HPV DNA testing can lead to decreased costs of cancer through early intervention and prevention, as well as by reducing complications and severity of illness. Studies of HPV testing in several countries have demonstrated high levels of cost-effectiveness. The most cost-effective strategy is a combination of HPV and Pap screening at three-year intervals up to age 75.
- Many health groups in the US recommend the use of HPV DNA testing, including the American Cancer Society, the American College of Obstetricians and Gynecologists, and the US Preventive Services Task Force.