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An tÚdarás Um Fhaisnéis  
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**Plain language summary of the**  
***Health technology assessment of  
human papillomavirus testing as  
the primary screening method for  
prevention of cervical cancer***

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*Safer Better Care*

## **Health technology assessment of human papillomavirus (HPV) testing as the primary screening method for prevention of cervical cancer.**

### **Plain language summary**

#### **The issue**

Some types of human papillomavirus (HPV) infection can cause changes to the cells of the cervix which can develop into cervical cancer if they are not treated. Most women who have a HPV infection do not develop cervical cancer. In Ireland, 1 in 13 women by age 74 will be diagnosed with pre-invasive cervical cancer (cervical carcinoma *in situ*), 1 in 112 will be diagnosed with invasive cervical cancer, and 1 in 333 will die from cervical cancer. There are two ways to help prevent cervical cancer:

- primary prevention by vaccinating against the types of HPV that cause changes to the cells of the cervix
- and secondary prevention through cervical screening.

Cervical screening programmes find and treat precancerous changes to reduce the risk of a woman developing cervical cancer. Two types of cervical screening test are commonly used: a cytology test (smear test) and the newer HPV test. The cytology test looks for changes in the cells of the cervix while the HPV test looks for HPV infection.

CervicalCheck – Ireland’s National Cervical Screening Programme started in 2008. It provides free cervical screening to women between the ages of 25 and 60 years who live in the Republic of Ireland.

CervicalCheck currently uses cytology testing as the first (screening) test. Changes in the cells of the cervix are divided into low-grade and high-grade precancerous changes. High-grade changes are less likely to clear up on their own and a more detailed examination of the cervix (colposcopy) is needed. If low-grade changes are found, a follow-up (triage) test is carried out using the same sample taken for the first (screening) test. CervicalCheck currently uses HPV testing as the follow-up (triage) test. Women who have a negative HPV test result are returned to routine cervical screening. Women who have a positive HPV test result are referred to colposcopy.

Over the last 10 years, new evidence has shown that HPV testing is a better first (screening) test than cytology testing. HPV testing identifies more women with

precancerous abnormalities and early stage invasive cervical cancer. Evidence also shows that the length of time between screenings can be safely increased when HPV testing is used as the first test.

### **The aim of the health technology assessment**

CervicalCheck asked the Health Technology Assessment (HTA) team at the Health Information and Quality Authority (HIQA) to undertake an assessment to identify:

- the best sequence of first (screening) and follow-up (triage) tests in women who have and women who have not been vaccinated against HPV,
- how often women should be screened,
- and at what age should screening stop.

### **What are the main findings?**

A review of scientific literature identified 23 relevant studies (involving 181,338 women) that compared the accuracy of HPV testing to the accuracy of cytology testing as the first (screening) test to detect high-grade precancerous changes. The results of these studies showed that HPV testing is a better first (screening) test than cytology testing. Fifteen studies (involving 133,891 women) looked at follow-up (triage) tests, when HPV was used as the first test, in detecting high-grade precancerous changes. All the tests had good long-term evidence to show that they were useful when used in combination with HPV as the first test. However, no one test was better than the rest. For this reason different combinations of tests were looked at in an economic model.

HIQA looked at the potential benefits and costs of 32 different screening strategies (all of which included HPV testing either as a first (screening) or follow-up (triage) test), for preventing cervical cancer.

Based on the results of this, HIQA is recommending HPV testing is used as the first screening test and cytology testing as the follow-up (triage) test every five years for women aged 25 to 60 years. Women between the ages of 25 and 30 years who have not been vaccinated against HPV would also benefit from screening at age 28 years. Women who were aged 50 years or over when CervicalCheck started in 2008 would also benefit from screening at 65 years.

The way the cervical screening test sample is taken will not change. Changes will happen in the laboratory. Currently, women between the ages of 25 and 44 years

are offered cytology testing as the first screening test every three years. These women can safely be screened every five years because HPV testing is a better first test than cytology testing. Other countries such as the Netherlands, the UK, Australia and New Zealand also plan to change from using cytology testing as the first screening test to using HPV testing.

### **What are the conclusions?**

Based on the results of a review of the scientific literature and an economic evaluation, HIQA recommends that CervicalCheck changes the order of its tests. HPV testing is the best first screening test and cytology testing is the best follow-up test to detect high-grade precancerous changes in cervical cells. HIQA has recommended that:

- CervicalCheck offer HPV tests and cytology follow-up tests (when needed) every five years to all women between the ages of 25 and 60 years.
- Women between the ages of 25 and 30 years who have not been vaccinated against HPV would also benefit from an additional screening at 28 years of age.
- Women who were aged 50 years or over when CervicalCheck started in 2008 would also benefit from screening at 65 years.

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