Cervical Cancer Screening Guidelines: A Backgrounder

A guide for journalists prepared by the Science Media Centre of Canada

New Guidelines

The Canadian Task Force on Preventive Medicine has published updated guidelines for routine cervical cancer screening. The guidelines were last updated in 1994. The new guidelines take into account new evidence for screening effectiveness, risks, and benefits in different age groups. Doctors will consider these guidelines when recommending screening for Canadian women. Patients and their doctors should also discuss values, beliefs and preferences. The Task Force is a national, independent panel supported by the Public Health Agency of Canada. Provinces also have individual guidelines.

What is Cervical Cancer?

Cervical cancer affects the lower part of the uterus, beginning in the narrow opening between the vagina and the uterus. The sexually transmitted Human Papilloma Virus (HPV) is the necessary precursor to nearly all cervical cancer, including all types detectable with screening. Other risk factors include having a compromised immune system, or smoking. There are over 100 known types of HPV. Thirteen types are known to cause cancer, while 12 others are suspected. HPV types 16 and 18 cause about 70 per cent of cervical cancer worldwide. Other low-risk strains cause genital warts or asymptomatic infections. HPV will infect 80 per cent of sexually active people over their lifetime. Most infections have no symptoms and clear on their own. However, some persist, and may develop into cancer over time.

Canadian Statistics

One in 150 women develops cervical cancer in her life, and for 1 in 423 women it will be fatal. Cervical cancer will not affect 98 per cent of women, with or without screening. In 2011, 1300 new cases were diagnosed in Canada, with 350 deaths. Five year relative survival rates are approximately 74 per cent, which means patients have a 74 per cent chance of being alive after five years compared to a member of the general population of the same sex and age.

Disease Screening

Screening tests for disease in people with no symptoms. Detecting a condition before symptoms develop allows early treatment and can prevent serious outcomes.

A good screening test:

- Is acceptable to the screening population;
- Detects conditions that cause serious illness or functional problems early;
- Decreases death rates from the disease;
- Is used only when appropriate early intervention can improve outcome and an intervention or treatment exists;
- Is accurate in detecting the condition;
- Correctly identifies people with the disease and people without the disease;

Problems associated with screening include:

False negatives: When disease is present but not detected, leading to delays in diagnosis and treatment;

False positives: When disease is not present but the test indicates it is, resulting in anxiety and unnecessary interventions.

Over-diagnosis and over-treatment: Some tests can identify underlying disease that, if left untreated, would not affect the quality of life or have caused death.
Risks associated with the screening methodology: For example, after an abnormal Pap test, procedures to treat abnormalities can cause problems in pregnancy and childbearing including preterm labour.
Lead-time bias: A test that discovers a disease early in a patient, but does not extend the patient's life.

The Pap Test

Georgios Papanicolaou developed the Pap test in the 1940s. Cells were scraped from the cervix, smeared on a slide, and examined for abnormal or precancerous cells. More recently, the test can be taken with a brush and suspended in a medium that is spun down to better prepare the cells (liquid-based technology). The Pap test does not diagnose cervical cancer, but screens for abnormal or pre-cancerous cells, thus allowing early diagnosis and treatment.
The Pap test catches about 55 out of 100 cases of abnormal cells, but because most cervical cancer is relatively slow-growing, repeat testing improves detection. A yearly Pap test reduces the cumulative rate of cervical cancer by 93.3 per cent; every three years, by 91.4 per cent; and every five years by 83.9 per cent.

HPV Testing

Several DNA tests are now available to test for HPV, including all known high-risk strains. These tests are done on cells collected from the cervix. Some international bodies now recommend incorporating HPV testing into screening. The US Preventive Services Task Force recommends Pap tests every three years, or, for women ages 30-65, every five years if HPV testing is added and both tests are negative. The province of Ontario recommends just HPV testing and follow-up Pap test if the test is positive. (This is projected for 2013: the HPV test isn't yet funded in Ontario.) Some Canadian provincial screening recommendations also incorporate HPV tests if the Pap test detects an abnormality (reflex testing). Neither the HPV test nor the Pap test have significant health risks.

Weighing benefits and harms, the Task Force said there was not enough evidence that HPV testing ultimately decreases cervical cancer deaths to make recommendations on the test, and that it could lead to a high number of potentially harmful follow-up procedures on an abnormality that would not become cancer. While HPV tests lead to the detection of cervical precancerous lesions over 90 per cent of the time, positivity does not mean that cancer will develop, and follow-up can result in unnecessary and potentially harmful procedures. This is rapidly developing science, and current studies, including some in Canada, will produce better evidence for future recommendations.

The new screening guidelines:

• For women aged less than 20 years, we strongly recommend not screening for cervical cancer.
• For women aged 20–24 years, we recommend not routinely screening for cervical cancer.
• For women aged 25–29 years, we recommend routine screening for cervical cancer every 3 years.
• For women aged 30–69 years, we strongly recommend routine screening for cervical cancer every 3 years.

• For women 70 years of age or older who have undergone adequate screening (i.e., 3 successive negative Pap test results in the last 10 years), we recommend that routine screening may stop. For all other women 70 years of age or older, we recommend continued screening until 3 negative test results have been obtained.

Screening is no longer recommended in women under 25. Rates of HPV infection are highest in young women, and since most HPV infections clear on their own, screening may lead to many false positives and unnecessary procedures in this age group.
The frequency of routine screening for all women is now every three years. Guidelines vary among countries in when screening should start or stop, how often it should be done, and tests used. For example, in the US, screening is recommended to start at 21 and the HPV test has been incorporated into screening after age 30. In Australia, Pap tests are recommended every two years. In the UK, women start screening with Pap tests at 25, are screened every three years until age 50, and then every five years. These guidelines do not apply to women with a history of abnormal Pap results or cervical cancer, who have had their cervix removed in hysterectomy for benign conditions, or who are immunocompromised, such as HIV patients. The guidelines are intended for all women who have ever been sexually active.

HPV Vaccines

The HPV vaccine is a new tool to prevent cervical cancer. Two vaccines are available and approved in Canada. At present, the Gardasil (Merck) vaccine protects against high risk HPV 16 and 18 types, and is used in the public school based programs. It also protects against the low risk HPV 6 and 11 types, which cause 90 per cent of genital warts. The Cervarix vaccine (GlaxoSmithKline) targets HPV 16 and 18. The vaccines are nearly 100 per cent effective in people who haven't had sex, but they can also help prevent infections by high-risk strains in women who haven't previously been exposed to these strains. Gardasil is also approved in males aged 9 - 26 to prevent anal pre-cancer and genital warts.

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