

National Cancer Prevention Policy

2007–09



Screening to detect cancer early

Cervical cancer



C e r v i c a l c a n c e r

In Australia, a vaccine that prevents the majority of cervical cancer is now available. The vaccine will have a profound impact on Australia's cervical screening program, and in the future will influence changes to national policy. However, Pap tests will remain important in preventing cancer of the cervix.

Cervical cancer in Australia

In 2005 estimates, cancer of the cervix accounted for 610 new cancers in Australian women (AIHW, AACR, NCSG & McDermid 2005). The lifetime risk of a woman developing cervical cancer before the age of 75 years is 1 in 233 (AIHW, AACR, NCSG & McDermid 2005). In Australia in 2004, cervical cancer accounted for 212 deaths (AIHW 2006).

Between 1991 (when Australia's National Cervical Screening Program commenced) and 2005, the incidence of cervical cancer among women aged 20 to 69 halved from 17.2 per 100,000 women to 7.3 in 2005 (AIHW, AACR, NCSG & McDermid 2005). The mortality rate has also declined from 4.0 in 1991 to 1.8 in 2004 (AIHW 2006), and is now among the lowest in the world (IARC 2002).

Mortality data from 2001 to 2004 in Queensland, South Australia, Western Australia and the Northern Territory indicate that Indigenous women have a mortality rate attributable to cervical cancer of 9.9 per 100,000 women. This is more than four times the corresponding death rate of non-Indigenous women (2.1 per 100,000 women) (AIHW 2006).

Can cervical cancer be prevented?

The human papilloma virus (HPV) has been identified in 99.7% of cervical cancer specimens (Walboomers et al. 1999). While HPV is clearly necessary for the development of cervical cancer, it is certainly not sufficient (Walboomers et al. 1999). Worldwide, there are estimated to be 326 million adult women who are infected with HPV. This compares with approximately 450,000 new cases of cervical cancer worldwide each year (Bosch 2000). Clearly cervical cancer is a very rare outcome of HPV infection.

HPV is a sexually transmitted infection and almost all individuals become infected with HPV within two to five years of initiating sexual activity (Wright et al. 2006). HPV can be classified into high and low-risk types based on the strength of their association with cervical cancer. Co-factors that increase the risk of cervical cancer progressing in women who have a persistent high-risk HPV infection include exposure to tobacco smoke, more than five full-term pregnancies, the use of oral contraceptives for five years or more, immunosuppression, and presence of antibodies to *Chlamydia trachomatis* or to herpes simplex virus type 2 (IARC 2005).

A vaccine to prevent HPV infection

A vaccine designed to prevent two of the most common types of high-risk HPV (HPV 16 and 18) is available in Australia, and from April 2007 was included on the National Immunisation Schedule.

HPV types 16 and 18 are responsible for up to 70% of cervical cancers (Munoz et al. 2003), and clinical trials have found the vaccine to be 100% effective (Wright et al. 2006). The vaccine is highly effective when given to females who are not already infected with the HPV types included in the vaccine. Therefore, it is recommended that the vaccine be administered prior to commencement of sexual activity (Wright et al. 2006). As the vaccine does not protect against all types of HPV that cause cervical cancer, vaccinated women should have regular Pap tests.

In sexually active women, the most important measure to prevent cervical cancer is regular Pap tests.

See the human papilloma virus chapter in the immunisation section of the online edition of the National Cancer Prevention Policy 2007–09 (published in June 2007 at www.cancer.org.au).

Screening tests and programs for cervical cancer

The Pap test

Cervical cancer is one of the few cancers where screening can detect precancerous cell growth. These abnormalities can be treated, preventing the development of cancer. The Pap test (named after its developer, Dr George Papanicolaou) is the most widely used cancer screening test in the world (Eurogin 2003). Typically, cervical cancer takes 10 years or more to develop. Abnormalities detected by a Pap test can be monitored, or, if required, further investigated and early treatment initiated.

Cervical screening with the Pap test began in British Columbia (Canada) in 1949. Although no randomised controlled trials evaluating screening have been conducted, a large number of observational studies have shown a strongly protective effect of screening (USPSTF 1996). In particular, substantial declines in mortality and incidence of cervical cancer have been demonstrated after the introduction of screening programs.

Other screening technologies

In the past decade, a desire to improve the sensitivity of the Pap test and an increased understanding about the role of HPV has led to the development of new screening technologies.

Liquid-based cytology

Liquid-based cytology is a technique where the cervical cells collected on the sampling instruments are suspended in liquid. At the laboratory the liquid sample is filtered to remove unnecessary material such as blood, bacteria and other matter. The cells are then deposited as a single layer onto a slide, stained and examined under a microscope.

As new technologies are evaluated for adoption, appropriate consideration must be given to how they will improve the cervical screening program in terms of sensitivity, specificity, cost-effectiveness and quality of life. An Australian Government review in Australia by the Medical Services Advisory Committee in 2002 concluded that there is insufficient

evidence to suggest that liquid-based cytology is superior to the conventional Pap test, and recommended that public funding not be supported for this screening test in Australia at this time (MSAC 2002). Further research is ongoing into the use of this technology.

HPV DNA testing

Due to the relationship between persistent infection with high-risk types of HPV and the development of cervical cancer, testing for the presence of HPV DNA in cervical cell specimens has the potential to identify women at increased risk of developing cervical cancer. Commercially available HPV DNA testing kits can detect 13 high-risk types of HPV.

Several countries have developed guidelines recognising the role of HPV testing as a primary screening test and in the management of abnormal cervical cell abnormalities (Cox & Cuzick 2006). The International Agency for Research on Cancer states that it is likely longer screening intervals could be achieved using HPV DNA testing as a screening test (IARC 2005). Currently in Australia, HPV DNA testing is recommended for use in women following treatment of a high-grade abnormality. The test is used to determine whether the virus has been cleared from the body (NCSP 2005).

International studies continue to investigate the role of HPV DNA testing for triaging low-grade cervical abnormalities and as a primary screening tool.

The policy context

In Australia, screening for cervical cancer was introduced on an ad hoc basis in the 1960s.

Guidelines on cervical screening programs published in 1986 by the World Health Organization and the International Agency for Research on Cancer were used as a basis for a review of cervical screening in Australia. The review was conducted on behalf of Australian Health Ministers Advisory Council (AIHW, BreastScreen Australia & NCSP 1999).

Following this review, cervical screening was organised into a structured program known today as the National Cervical Screening Program; this was implemented in 1991 as a joint initiative of the Australian, state and territory governments.

State and territory cancer organisations have been involved in a coordinating role in the establishment of state Pap test registries and recruitment of women to the screening program. In some states and territories, cancer councils maintain an important role in cervical screening programs.

Existing recommendations

The National Cervical Screening Program policy developed in 1991 provides guidelines for which women need screening and how often screening should occur. It states:

1. Routine screening with Pap tests should be carried out every two years for women who have no symptoms.
2. All women who have ever been sexually active should start having Pap tests between the ages of 18 and 20 years, or one or two years after beginning sex, whichever is later. In some cases, it may be appropriate to start screening before 18 years of age.
3. Pap tests may cease at the age of 70 years for women who have had two normal Pap tests within the last five years. Women over 70 years who have never had a Pap test, or who request a Pap test, should be screened (Cervical Cancer Prevention Taskforce 1991).

It is anticipated that the introduction of the HPV vaccine will, in the future, influence changes to this national policy.

Recent changes to guidelines

Women with abnormal Pap test results should be managed in accordance with the National Health and Medical Research Council guidelines *Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen detected abnormalities* (NCSP 2005). After extensive review, these guidelines were endorsed by the National Health and Medical Research Council in 2005 and came into effect in July 2006.

Pap test quality

One indicator of Pap test quality is the proportion of tests where an endocervical component is present. Presence of an endocervical component in 80% of Pap tests is generally considered acceptable. It is sometimes difficult to obtain the endocervical component when taking a Pap test in older women. There is some indication that the proportion of Pap tests lacking an endocervical component has increased over time. In Victoria, this has increased from 17.3% in 2000 to 22.1% in 2005 (VCCR 2006).

The role of general practice

In Australia, approximately 80% of Pap tests are taken by GPs (AIHW & AACR 2004) and therefore GPs play an important role in cervical screening in this country. GPs also play an important role in recruiting women who have never had a Pap test or are significantly under-screened.

In November 2001, the Australian Government introduced a cervical screening Practice Incentive Payment to support general practices to enhance cervical cancer screening. The program has a number of components. Accredited practices receive a payment on registering for the scheme. GPs also receive a Special Incentive Payment when they perform a Pap test from unscreened and under-screened women aged between 20 and 69 years. Finally, in order to encourage general practices to adopt a systematic approach to cervical screening, practices receive an outcomes payment when they reach a target screening rate (NCSP 2006). In May 2006, 91.7% of practices in Australia were signed on to participate in these activities (Medicare Australia 2006).

Potential benefits and adverse effects of cervical cancer screening

Rationale

It has been estimated that screening using the Pap test has the potential to reduce squamous cell carcinoma of the cervix by up to 90% (AIHW, BreastScreen Australia & NCSP 1999).

In Australia, the age-standardised incidence rate for cervical cancer declined by an average of 6.2% each year between 1991 and 2001. Mortality rates have also fallen by an average of 5.2% per year since 1991 (AIHW & AACR 2004). These gains can be attributed, in part, to the success of the National Cervical Screening Program.

Potential adverse effects

No screening test is 100% accurate. A Pap test every two years is about 90% accurate and is currently the best available protection against cervical cancer for women who have ever had sex. Like all screening tests, the Pap test is performed on asymptomatic women. False positive results as well as false negative results may occur.

Even minor abnormalities can cause anxiety for some women. Women who receive false negative results may experience delays in diagnosis or treatment. False negative results may also create a false sense of security that may cause warning symptoms to be ignored.

Who should be screened?

All women who have ever been sexually active should commence having Pap tests between the ages of 18 and 20 years, or within two years after beginning sex, whichever is later (Cervical Cancer Prevention Taskforce 1991).

Who has been screened?

Cervical cytology registers in Australia provide information on the majority of women who undergo screening, although an estimated 1% to 3% of women choose not to be included on the register (AIHW, BreastScreen Australia & NCSP 1999). In the two years between January 2003 and December 2004, the participation rate for cervical cancer screening in Australia was 60.7% for the target population of women aged 20 to 69 years (AIHW 2006).

Table 2.2: Participation rates in the National Cervical Screening Program by age group, Australia 2003–04

Age group	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69
Percentage	47.8	58.1	62.8	63.8	64.3	65.9	64.0	66.6	57.2	49.6

Source: AIHW 2006

Participation in screening is highest in the age groups 30–34 to 55–59 but declines sharply after the age group of 55–59. The participation rate across the age groups 40–69 increased slightly in 2003–04 compared to 2001–02 (AIHW 2006).

Australia's two-yearly screening interval is conservative, with many countries recommending three years or more between tests. The International Agency for Research on Cancer recommend three-yearly screening for women aged 25 to 49 and five-yearly screening for women aged 50 to 64 (IARC 2005)—a recommendation that the NHS Cervical Screening Programme in the United Kingdom has recently adopted. Data from Victoria show that if participation in cervical screening is measured over a three-year time interval, then the participation rate in women aged 20 to 69 years is close to 80% (VCCR 2006).

Adherence to the recommended two-yearly screening interval is not optimal. Among women who received a negative Pap test report in February 2000, 26.2% were re-screened before two years had elapsed (AIHW 2006). Early re-screening increases the cost of the program and reduces cost-effectiveness.

Recruitment

Women in the target age group are recruited by a variety of initiatives determined mainly at the state/territory level.

Recruitment strategies are implemented for particular population sub-groups, such as older women, Australian Aboriginal and Torres Strait Islander women and women from culturally diverse backgrounds (AIHW, BreastScreen Australia & NCSP 1999).

Aims

The Cancer Council aims to maximise participation in the cervical screening program of eligible women and contribute to improvements in the program.

What we want to achieve	How The Cancer Council Australia and its members (the state and territory cancer councils) will do this
Maximum screening participation of eligible women	<p>Promote and foster participation in cervical cancer screening, particularly among women in under-screened populations</p> <p>Collaborate with Indigenous communities to improve rates of cervical screening among Australian Aboriginal and Torres Strait Islander women</p> <p>Develop systems to ensure that data are collected on Indigenous status to enable evaluation of program effectiveness</p> <p>Work with all relevant health professionals to reduce early re-screening</p> <p>Work with all relevant health professionals and consumers to increase adherence to the updated guidelines: Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen detected abnormalities (NCSP 2005)</p>
Maximum vaccine uptake among eligible girls and young women and ensure screening messages remain visible	<p>Promote participation in HPV immunisation programs to eligible girls and young women, with particular emphasis on population groups most at risk, such as Indigenous communities</p> <p>Work with all relevant health professionals and consumers to ensure women are aware that, vaccinated or not, Pap tests remain important in preventing cancer of the cervix</p>
Ongoing evaluation of the effectiveness and efficiency of the screening program, so as to inform policy and program development	<p>Advocate for, and contribute expert advice to, the review of evidence in relation to:</p> <ul style="list-style-type: none"> • a change in national policy following the introduction of the HPV vaccine • a change to the screening interval and age at first screen • investigation of new technologies • timely implementation of review findings

References

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