

Introduction

Cancer

Cancer is a group of several hundred diseases in which abnormal cells are not destroyed by normal cell processes, but instead proliferate and spread out of control. Cancers are distinguished from each other by the specific type of cell involved and the place in the body in which the disease begins.

Normally, cells grow and multiply in an orderly way to form tissues and organs that have a specific function in the body. Occasionally, however, cells multiply in an uncontrolled way after developing from a random genetic mutation, or after being affected by a carcinogen, and form a mass which is called a tumour or neoplasm. Tumours can be benign (not a cancer) or malignant (a cancer). Benign tumours do not invade other tissues or spread to other parts of the body, although they can expand to interfere with healthy structures. The main features of a malignant tumour are its ability to grow in an uncontrolled way and to invade and spread to other parts of the body (metastasise).

Although various risk factors for cancer have been identified, for most cancers the causes are not fully known. While some of the causes are modifiable through lifestyle changes, some others are inherited and cannot be avoided through personal action. However, the risk of death due to particular cancers may be reduced through intensive monitoring of individuals at high risk, reducing external risk factors, detecting and treating cancers early in their development, and treating them in accordance with the best available evidence.

Many cancers can be serious and even fatal. However, medical treatment is often successful if the cancer is detected early, as is the aim of cancer screening programs. The goal of treatment is to destroy the cancer cells and stop them from returning. This can be done by surgery to remove the growth or by other methods such as chemotherapy (cancer-destroying drugs) or radiation therapy.

Cervical cancer

Cervical cancer affects the cells of the cervix, which is the lower part of the uterus where it joins the inner end of the vagina. Like other cancers, cervical cancer is a disease where normal cells change, begin to multiply out of control, and form a growth or tumour. Cervical cells however exhibit precancerous changes/abnormalities which can be detected through screening before progression to cancer occurs. The cancer may arise from the squamous cells that cover the outer surface of the cervix (squamous cell carcinoma) or from the glandular (columnar) cells in the cervical canal (adenocarcinoma). Over two thirds of cervical cancers are squamous cell carcinoma, and about 20% are adenocarcinomas.

During the last decade a greater understanding of the natural history of cervical cancer has developed. It is now recognised that cervical cancer is a rare outcome of persistent infection with human papillomavirus (HPV), and that infection with a high-risk HPV type is necessary, although not sufficient, for the development of cancer (Walboomers et al. 1999; Bosch et al. 2002). At least 13 high-risk types of HPV are currently recognised, with HPV types 16, 18, 45, 39, and 73 most predominantly associated with cervical cancer in Australia

(HPV types 16 and 18 account for around 70% of these) (Stevens et al. 2006). It has also been recognised that low-grade abnormalities represent acute infection with HPV, and as such most will regress without treatment within a short period of time. High-grade abnormalities can occur after persistent infection with HPV. The probability of a high-grade abnormality progressing to cancer increases with age and extent of abnormality (NHMRC 2005), but this is still a very rare outcome, with regression rates for high-grade abnormalities estimated to be at least 80% (Raffle et al. 2003).

Because HPV infection is necessary for the development of cervical cancer, risk factors for cervical cancer include having multiple sexual partners and becoming sexually active at a young age. Smoking is also known to increase a woman's likelihood of developing cervical cancer. Daughters of women who took the drug diethylstilboestrol (DES) whilst pregnant with them may also be at increased risk of developing cervical cancer (NMHRC 2005; RANZCOG 2007).

Incidence and mortality

Worldwide, in 2002, the age-standardised (world) incidence of cervical cancer was 16.2 new cases per 100,000 women, and the age-standardised (world) mortality from cervical cancer was 9.0 deaths per 100,000 women. This makes cervical cancer the second most common cancer affecting women behind breast cancer, and the third most common cause of cancer mortality in women worldwide (Parkin et al. 2005).

Since implementing an organised approach to screening in 1991, Australian figures perform better than world figures. Cervical cancer is the 13-th most common cancer affecting Australian women, with an age-standardised (world) incidence of 5.9 new cases per 100,000 women in 2005, and the 19-th most common cause of cancer mortality, with an age-standardised (world) mortality of 1.5 deaths per 100,000 women in 2006.

Screening

Population-based screening involves the systematic use of a test to identify individuals who have a previously unrecognised disease in an asymptomatic population (that is, in people not showing any symptoms of the disease). The aim of population-based screening is to reduce the burden of disease, which may include a reduction in the incidence, morbidity and mortality of the disease, through detection at an early stage in individuals who would not otherwise know they were affected (Wald 2001; Strong et al. 2005; Screening Subcommittee 2008).

The screening test used in a population-based screening program is not intended to be diagnostic; rather it aims to distinguish between individuals who test positive (and therefore may have or may develop the disease) and require further specific testing to ascertain whether they have the disease, and those who test negative (show no early indications of the disease) and require no further testing (Strong et al. 2005; Screening Subcommittee 2008). The screening test should both minimise false-positives (a positive screening result that further diagnostic testing showed was actually negative) and maximise true-positives. Balanced information as to the benefits and potential harms of the screening should be made available to the target population to ensure they can make an informed decision regarding their participation (Screening Subcommittee 2008).

In 1968 the World Health Organization (WHO) endorsed ten principles to be used when determining if a new population-based screening program should be introduced for a disease or condition (Wilson & Jungner 1968). These principles were designed to ensure that the disease in question was well understood and the correct test, treatment and resources were in place to allow screening to be of benefit to the target population. Currently in Australia there are eight National Health Priority Area cancers: lung cancer, bowel cancer, melanoma, non-melanocytic skin cancer, prostate cancer, breast cancer, cervical cancer and non-Hodgkin lymphoma (NHPAC 2006). Of these, bowel, breast and cervical cancer have met the criteria for approved population-based screening programs. This report focuses on the National Cervical Screening Program.

Cervical screening

The National Cervical Screening Program commenced in 1991. The main objective of the Program is to reduce incidence and mortality from cervical cancer. The Program depends on the use of organised regular screening using the Pap test (the terms Pap test and Pap smear are often used interchangeably) to identify treatable pre-cancerous lesions as well as cervical cancer. The Program targets women aged 20–69 years.

Currently, the screening test for cervical cancer is the Pap test, which is carried out by a general practitioner, nurse, or gynaecologist as part of mainstream health services (approximately 80% are performed by general practitioners). During a Pap test, cells are collected from the surface of the cervix, transferred onto a slide or into a special liquid, and sent to a pathology laboratory for assessment. Details of the woman, the Pap test results, and any follow-up that may be recommended are then stored on a cervical cytology register.

The National Cervical Screening Program has both national and state and territory components. Although policy is usually decided at a national level, coordination of screening activity is the responsibility of the individual state or territory.

National policy for the National Cervical Screening Program currently recommends:

- Routine screening with Pap tests every 2 years for women without symptoms or history suggestive of cervical pathology.
- Women who have been sexually active to commence Pap tests between the ages of 18 and 20 years, or 1 or 2 years after first having sexual intercourse, whichever is later.
- Pap tests may cease at the age of 70 years for women who have had two normal Pap tests within the last 5 years (women over 70 years who have never had a Pap test, or who request a Pap test, should be screened).

Cervical cytology registries in each state and territory maintain their cervical cytology register, and play a key role in performance and monitoring of the National Cervical Screening Program. This is done through collecting screening histories of individual women, sending reminder letters to women overdue for screening, providing a safety net for women who have not had follow-up of an abnormal result, and also providing cytology laboratories and Pap test providers with previous results for a woman, to allow a more detailed evaluation of present findings. State and territory cervical cytology registries also fulfil an important role by providing data on the epidemiology and natural history of pre-cancerous lesions, as well as providing data for *Cervical screening in Australia* to allow national monitoring of the Program.

The National Cervical Screening Program is affected by shifts in the understanding, management and treatment of cervical cancer. In 2006–2007, Australia experienced two major changes directly related to cervical cancer.

First, on 1 July 2006, new National Health and Medical Research Council (NHMRC) *Guidelines for the management of asymptomatic women with screen detected abnormalities* (NHMRC 2005) were introduced, which recognise that cervical cellular changes are an infective rather than a neoplastic process. This is reflected in the Guidelines, with changes to the recommendation for the clinical management of women with low-grade squamous intraepithelial lesions, favouring less intervention than previous guidelines, giving HPV infection an opportunity to resolve without treatment. The new guidelines also recommend new management for women who have been treated for high-grade intraepithelial disease, whereby women return to a normal screening interval once they have fulfilled a 'test of cure' criteria (NHMRC 2005).

Second, in 2007, a vaccine against HPV types 16, 18, 6, and 11 was introduced under the National Immunisation Program, free to all women aged 12–26 years. While the vaccine is expected to lower cervical cancer incidence and mortality rates, the slow progression of this disease means that these effects will not be evident for some time.

National Cervical Screening Program Performance Indicators

The National Cervical Screening Program commenced in 1991. The main objective of the Program is to reduce incidence and mortality from cervical cancer through organised cervical screening of women in the target age group 20–69 years. The current method of cervical screening is the Pap test (or Pap smear), and the currently recommended screening interval is 2 years for asymptomatic women with no history suggestive of cervical pathology.

This report monitors the performance of the National Cervical Screening Program using indicators which measure program activity, performance and outcome. These indicators help measure changes in disease patterns and examine the contribution of cervical screening to preventing or reducing death from cervical cancer.

Performance indicators for the National Cervical Screening Program cover the areas of participation, early re-screening, low- and high-grade abnormality detection, incidence and mortality. These were developed and endorsed by the former National Advisory Committee and by state and territory cervical screening programs.

A listing of the current Performance Indicators for the National Cervical Screening Program and their definitions follows:

Indicators

Indicator 1 Participation

Indicator 1.1.1 Two-year participation rate for cervical screening

The percentage of women screened in a 2-year period for women aged 20 years and over and for the target age group 20–69 years.

Indicator 1.1.2 Three-year participation rate for cervical screening

The percentage of women screened in a 3-year period for women aged 20 years and over and for the target age group 20–69 years.

Indicator 1.1.3 Five-year participation rate for cervical screening

The percentage of women screened in a 5-year period for women aged 20 years and over and for the target age group 20–69 years.

Indicator 1.2 Participation by geographic region

The percentage of women screened during a 2-year period by geographic region of residence for women aged 20 years and over and for the target age group 20–69 years.

Indicator 1.3 Participation by socioeconomic status

The percentage of women screened during a 2-year period by socioeconomic status of area of residence for women aged 20 years and over and for the target age group 20–69 years.

This indicator was not able to be reported for 2006–2007 due to technical problems with new data based on the 2006 census, which were unable to be resolved in time for this report.

Indicator 2 Early re-screening

The proportion of women re-screened, by number of re-screens, during a 21-month period following a normal Pap test for women in the target age group 20–69 years.

Indicator 3 Low-grade abnormality detection

The ratio of the number of women with a histologically verified low-grade intraepithelial abnormality detected in a 12-month period to the number of women with a histologically verified high-grade intraepithelial abnormality detected in the same period, for women in the target age group 20–69 years.

Indicator 4 High-grade abnormality detection

Detection rate of histologically verified high-grade intraepithelial abnormalities per 1,000 women screened in a 12-month period for women aged 20 years and over and for the target age group 20–69 years.

Indicator 5.1 Incidence of micro-invasive squamous cervical cancer

Incidence rate of micro-invasive squamous cell carcinoma per 100,000 estimated resident female population in a 12-month period for women of all ages and for the target age group 20–69 years.

Indicator 5.2 Incidence of squamous, adenocarcinoma, adenosquamous and other cervical cancer

Incidence rate of squamous, adenocarcinoma, adenosquamous and other cervical cancer (micro-invasive and invasive) per 100,000 estimated resident female population in a 12-month period for women of all ages and for the target age group 20–69 years.

Indicator 5.3 Incidence by geographic region

Incidence rate of cervical cancer per 100,000 estimated resident female population in a 4-year period by geographic region for women of all ages and for the target age group 20–69 years.

Indicator 6.1 Mortality by age group

Mortality rate for cervical cancer per 100,000 estimated resident female population in a 12-month period for women of all ages and for the target age group 20–69 years.

Indicator 6.2 Mortality by geographic region

Mortality rate for cervical cancer per 100,000 estimated resident female population in a 4-year period by geographic region for women of all ages and for the target age group 20–69 years.

Indicator 6.3**Mortality in Aboriginal and Torres Strait Islander women**

Mortality rate for cervical cancer per 100,000 estimated resident female population in a 4-year period for Aboriginal and Torres Strait Islander women and for Other Australian women, for women of all ages and for the target age group 20–69 years.

Indicator 1 Participation

The participation indicator

The major objective of the National Cervical Screening Program is to reduce incidence and mortality from cervical cancer by detecting treatable pre-cancerous lesions before their progression to cancer. Through increased participation, more women with pre-cancerous abnormalities can be detected and managed before progression to cervical cancer, thus reducing incidence and mortality. In addition, increased participation will lead to the detection of early stage cancer, where treatment can reduce mortality in more women.

The Program, through a variety of recruitment initiatives, targets women in the age group 20–69 years. The recommended screening interval for women in this age group who have been sexually active at any stage of their lives is 2 years. Pap tests may cease at the age of 70 years for women who have had two normal Pap tests within the previous 5 years. Women over 70 years who have never had a Pap test, or who request a Pap test, are screened.

Some women in the target population are unlikely to require screening. They include those who have had a total hysterectomy with their cervix removed and those who have never been sexually active. Women who have previously been diagnosed with gynaecological cancer may also not be eligible for screening.

Participation rate calculations should, in principle, exclude all three groups from the data. In practice, the data are adjusted to remove women who have had a hysterectomy but the latter two groups cannot be excluded due to a lack of reliable data. Hysterectomy rates are derived from self-reported information on hysterectomies in the 2001 National Health Survey conducted by the Australian Bureau of Statistics (ABS), the validity of which was confirmed using data on hysterectomy separations from the National Hospital Morbidity Database.

The objectives and usefulness of participation as an indicator are outlined below:

- Participation data are important in assessing the contribution of the National Cervical Screening Program to reducing cervical cancer incidence and mortality.
- The participation indicator can be used as a means of evaluating the effect of communication and recruitment strategies, particularly if participation is analysed by demographic characteristics.
- When the participation indicator is used in conjunction with others, it can be used to support analysis relating to target groups and screening intervals.
- The participation indicator measures the proportion of the target population participating in the National Cervical Screening Program in the recommended 2-year screening interval. Participation for 3-year and 5-year intervals is also reported, which allows international comparisons of cervical screening performance to be made, since many other countries use a 3-year or 5-year screening interval (Dickinson 2002).
- Participation is also reported by age and for the states and territories, as well as for different geographic regions and quintiles of socioeconomic status (not able to be reported for 2006–2007), to provide information on the demographics of the population that are participating in the Program.

Data issues

Except for Victoria and the Australian Capital Territory, where only women with an address in these jurisdictions are included, 2-year, 3-year and 5-year participation is based on all women screened in each jurisdiction, not just those women resident in each jurisdiction. This may lead to overestimation of numbers of women screened.

Participation by geographic region and socioeconomic status (not able to be reported for 2006–2007) includes only women with a postcode in the jurisdiction in which they were screened for all states and territories, which may lead to underestimation of numbers of women screened.

The denominators for participation rates presented in this report have been calculated using the average of the ABS estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the ABS 2001 National Health Survey.

At the time of preparation of this report, the latest estimated resident population figures available – according to the Australian Standard Geographical Classification (ASGC) – were for the year 2006. Therefore, the denominators for participation rates by geographic location presented in this report have been calculated using the estimated resident female population for 2006 only (adjusted for hysterectomy), rather than the average of the estimated resident populations for 2006 and 2007.

At the time of preparation of this report, participation by socioeconomic status of area of residence was not able to be reported for 2006–2007 due to technical problems related to new methods based on the 2006 census, which were unable to be resolved in time for this report.

There may be discrepancies between participation rates that appear in this report and those presented in state and territory reports in some jurisdictions. This may be due to participation numerators being extracted from the cervical cytology register at a different time, a different source of population data, and state and territory-specific hysterectomy fractions being applied to the population. None of these represent any error in participation estimates, and published participation rates do not differ greatly between national and state and territory reports.

Key points

Participation in the National Cervical Screening Program among women in the target age group 20–69 years for the 2006–2007 reporting period was 61.5%. This is a significant increase from the previous non-overlapping 2-year rate for 2004–2005 of 61.0%, and the highest participation has been since it peaked at 63.4% in 1998–1999.

The number of women screened in 2006–2007 was 3,602,994 (3,549,524 aged 20–69 years), greater than the 3,462,907 (3,407,219 aged 20–69 years) women screened in 2004–2005, and far greater than the 2,630,235 (2,563,107* aged 20–69 years) women screened in 1996–1997 when reporting commenced.*

From 1996–1997 to 2006–2007, there was a decline in participation among women aged less than 40 years. In 2006–2007, participation was highest in women aged 55–59 years (69.1%) and lowest in women aged 20–24 years (48.0%).

Three-year participation for 2005–2007 was 74.0% and 5-year participation for 2003–2007 was 86.4% for women in the target age group 20–69 years.

The Australian 3-year participation rate of 74.0% is comparable with the 3-year participation rates of 73% reported for New Zealand for 2003 (National Cervical Screening Programme 2005), 69.4% for England for 2007 (National Health Service 2007), 63.6% for Wales for 2007 (Cervical Screening Wales 2007), and to the previously reported average for the European Union countries of 75% (van Ballegooijen et al. 2000), although direct comparisons should be made with caution.

The Australian 5-year participation rate of 86.4% also compares favourably with the 5-year participation rates of 79.2% reported for England for 2007 (National Health Service 2007), 74.6% for Wales for 2007 (Cervical Screening Wales 2007), 77% for the Netherlands for 2003 (Rebolj et al. 2006), and the previously estimated participation rate of 90% for Finland (Antilla & Nieminen 2000), although direct comparisons should be made with caution.

In 2006–2007, participation by geographic region was 62.5% for Major cities, 61.2% for Inner regional, 58.9% for Outer regional, 53.6% for Remote and 54.0% for Very remote areas. Differences between geographic regions are significant, apart from Remote and Very remote, which are not significantly different from each other. This trend reflects the greater difficulty in providing cervical screening to women in Remote and Very remote areas.

* Note that because the Queensland Health Pap Smear Register did not commence until 1999, this figure does not include women screened by the Queensland program.

Indicator 1.1.1 Two-year participation

The percentage of women screened in a 2-year period for women aged 20 years and over and for the target age group 20-69 years

Participation in the National Cervical Screening Program

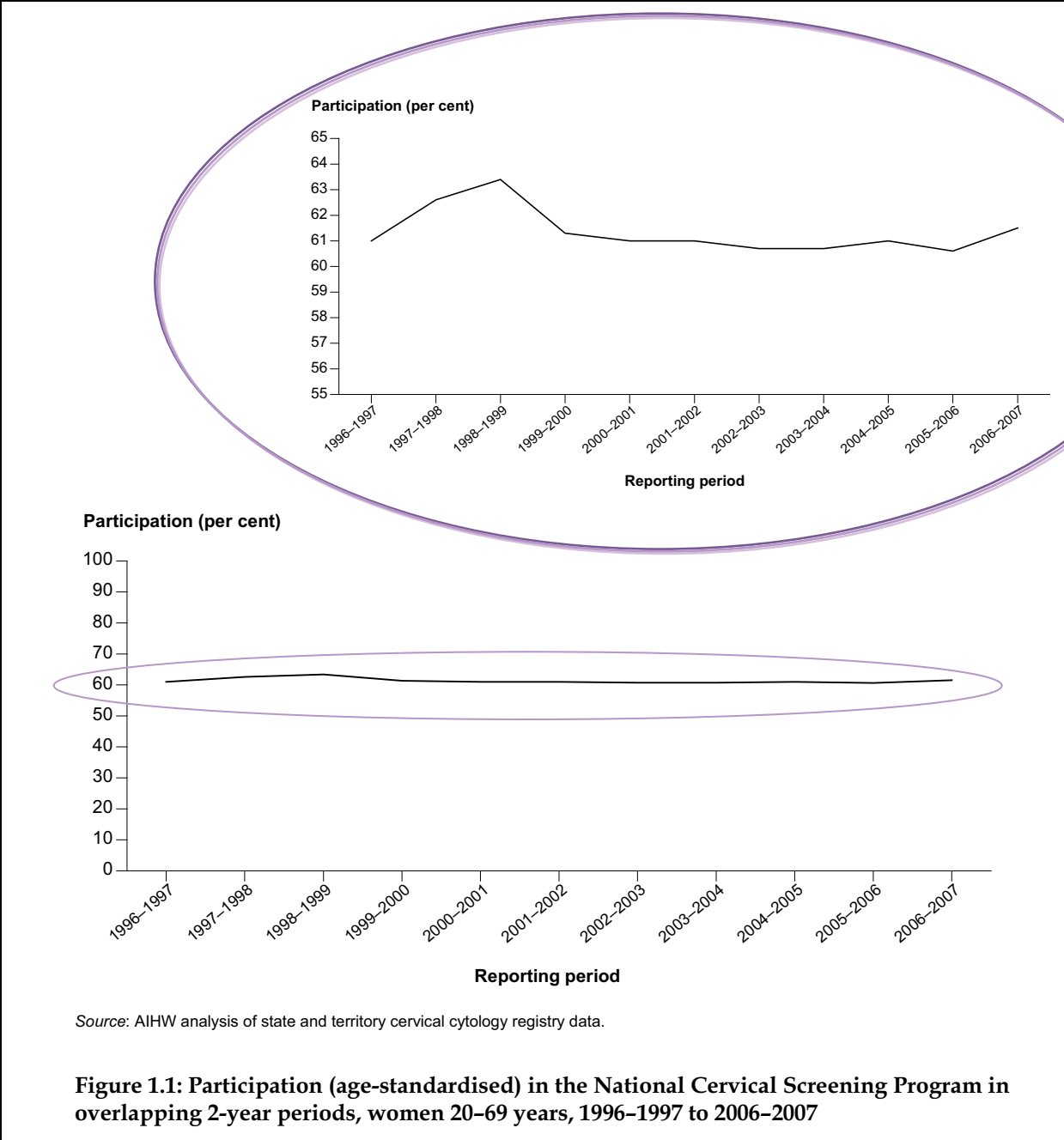


Table 1.1: Participation (age-standardised) in the National Cervical Screening Program in overlapping 2-year periods, women 20–69 years, 1996–1997 to 2006–2007

	Reporting period										
	1996–1997	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006	2006–2007
	Per cent										
AS rate	61.0	62.6	63.4	61.3	61.0	61.0	60.7	60.7	61.0	60.6	61.5
95% CI	60.9–61.1	62.5–62.6	63.4–63.5	61.2–61.3	60.9–61.1	60.9–61.0	60.6–60.8	60.6–60.7	60.9–61.0	60.6–60.7	61.4–61.5

Notes

1. Age-standardised rates are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistics's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for the 1996–1997, 1997–1998, or 1998–1999 reporting periods.
3. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
4. These data exclude women who have opted not to be included on a cervical cytology register.
5. Periods cover 1 January 1996 to 31 December 1997, 1 January 1997 to 31 December 1998, 1 January 1998 to 31 December 1999, 1 January 1999 to 31 December 2000, 1 January 2000 to 31 December 2001, 1 January 2001 to 31 December 2002, 1 January 2002 to 31 December 2003, 1 January 2003 to 31 December 2004, 1 January 2004 to 31 December 2005, 1 January 2005 to 31 December 2006 and 1 January 2006 to 31 December 2007.

- Participation in the National Cervical Screening Program among women in the target age group 20–69 years was 61.0% in 1996–1997 when reporting commenced. This increased to 63.4% in 1998–1999 when there was a national media campaign, and has been stable at around 61% ever since. Participation in 2006–2007 was 61.5%, which is the first time participation has been above 61.0% since 1999–2000, and the highest participation has been since it peaked at 63.4% in 1998–1999.
- While participation has remained relatively stable over this period, there has been an overall increase in the number of women participating in the Program, from 2,630,235* (2,563,107* aged 20–69 years) in 1996–1997 when reporting commenced (AIHW 1998) to 3,462,907 (3,407,219 aged 20–69 years) in 2004–2005 (AIHW 2007), and 3,602,994 (3,549,524 aged 20–69 years) in 2006–2007.
- Between 2004–2005 and 2006–2007, participation increased from 61.0% in 2004–2005 to 61.5% in 2006–2007, which equates to an increase of 140,087 women aged 20 years and over, and an increase of 142,305 women aged 20–69 years. With the number of eligible women aged 20–69 years increasing each year (3.58% between 2004–2005 and 2006–2007[†]), the increase in the number of women participating in the Program has to increase by an equal amount just to keep the participation rate constant. In this case, the increase in participating women aged 20–69 years (an increase of 4.18% between 2004–2005 and 2006–2007[†]) surpassed the increase in eligible women, resulting in increased participation.

* Note that because the Queensland Health Pap Smear Register did not commence until 1999, this figure does not include women screened by the Queensland program.

† AIHW unpublished data.

For more information, see tables A1–A12 beginning on page 60.

Participation by age

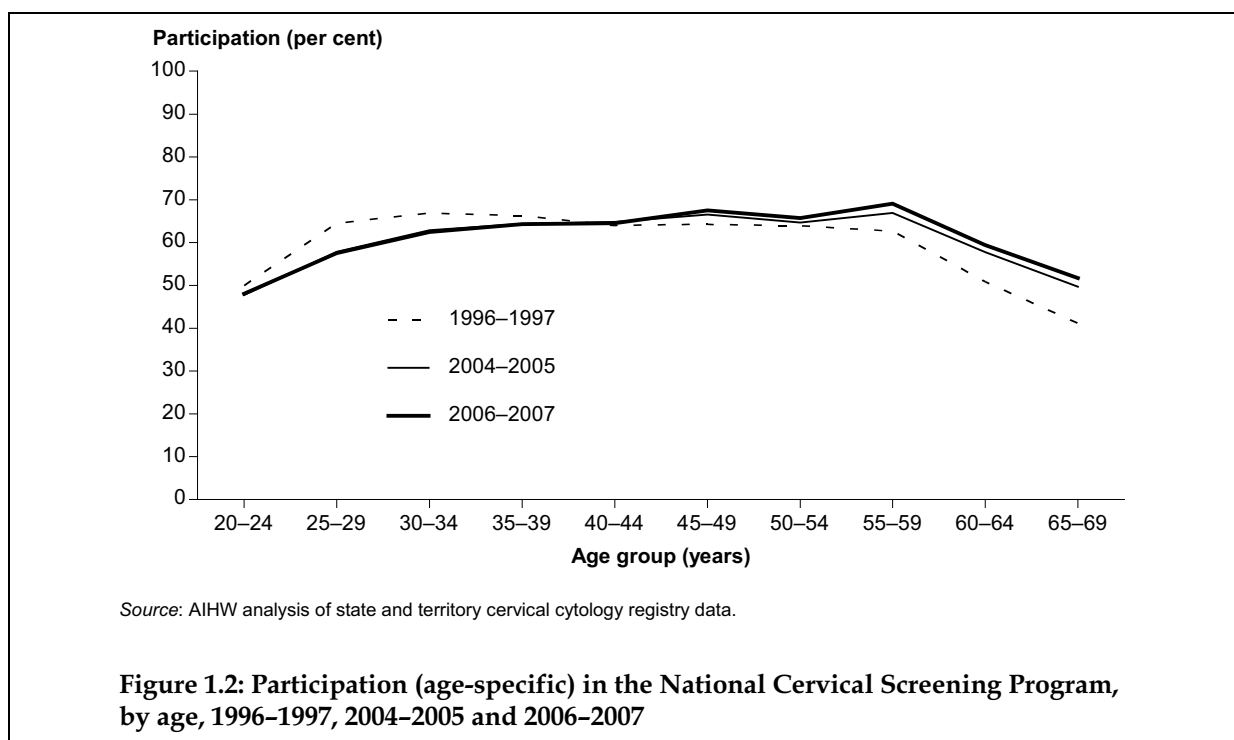


Table 1.2: Participation (age-specific and age-standardised) in the National Cervical Screening Program, by age, 1996-1997 to 2006-2007

2-year period	Age group (years)										20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
	Per cent										
1996-1997	50.0	64.5	66.9	66.4	64.0	64.3	64.0	62.7	50.9	41.2	61.0 (60.9-61.1)
1998-1999	53.5	65.5	68.7	68.2	66.5	66.7	64.7	65.9	56.0	46.5	63.4 (63.4-63.5)
2000-2001	50.3	61.0	64.9	64.8	64.4	65.0	63.0	64.9	55.3	46.7	61.0 (60.9-61.1)
2002-2003	49.0	59.0	63.4	63.9	64.1	65.6	63.1	66.2	56.4	48.8	60.7 (60.6-60.8)
2004-2005	47.7	57.8	62.9	64.4	64.8	66.5	64.7	66.9	57.7	49.7	61.0 (60.9-61.0)
2006-2007	48.0	57.5	62.4	64.3	64.5	67.5	65.7	69.1	59.4	51.7	61.5 (61.4-61.5)

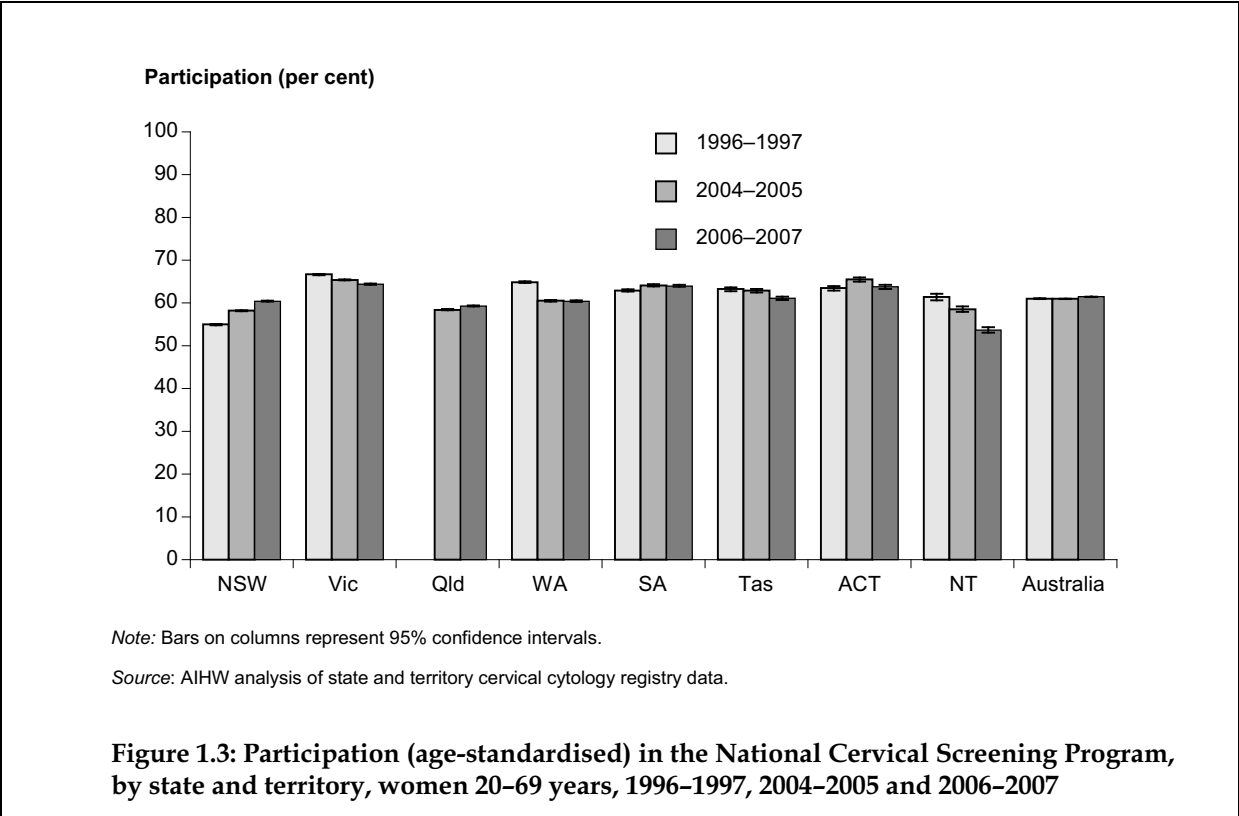
Notes

1. Age-specific rates for 5-year age groups are the number of women screened as a proportion of the eligible female population. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. Age-standardised rates for the target age group 20-69 years are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
3. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for the 1996-1997 or 1998-1999 reporting periods.
4. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
5. These data exclude women who have opted not to be included on a cervical cytology register.
6. Periods cover 1 January 1996 to 31 December 1997, 1 January 1998 to 31 December 1999, 1 January 2000 to 31 December 2001, January 2002 to 31 December 2003, 1 January 2004 to 31 December 2005, and 1 January 2006 to 31 December 2007.

- Over the 2-year period 2006–2007, 3,602,994 women participated in the National Cervical Screening Program. Of these women 3,549,524 (98.5%) were aged 20–69 years.
- Participation for the 2-year period 2006–2007 was 61.5% for women in the target age group 20–69 years.
- From 1996–1997 to 2006–2007, there was a decline in participation among women aged less than 40 years, most prominent in the 25–29 year age group, and an increase in participation among women aged 55 years and over.
- In 2006–2007, participation was highest in women aged 55–59 years (69.1%) and lowest in women aged 20–24 years (48.0%).

For more information, see tables A1–A12 beginning on page 60.

Participation by state and territory



- Between 2004-2005 and 2006-2007, significant declines in participation occurred in Victoria, Tasmania, the Australian Capital Territory, and the Northern Territory.
- Between 2004-2005 and 2006-2007, significant increases in participation occurred in New South Wales and Queensland.
- In 2006-2007, participation was highest in Victoria (64.4%), South Australia (64.0%) and the Australian Capital Territory (63.8%). Participation was lowest in the Northern Territory (53.7%).

Table 1.3: Participation (age-standardised) in the National Cervical Screening Program, by state and territory, women 20–69 years, 1996–1997 to 2006–2007

2-year period	States and territories								
	NSW ^(a)	Vic	Qld ^(b)	WA ^(c)	SA	Tas	ACT	NT ^(d)	Australia
	Per cent								
1996–1997	55.0	66.7	..	64.9	62.9	63.3	63.5	61.4	61.0
95% CI	54.8– 55.1	66.5– 66.8	..	64.7– 65.1	62.7– 63.2	62.8– 63.7	62.9– 64.0	60.6– 62.2	60.9– 61.1
1998–1999	59.4	67.7	..	63.9	66.0	64.5	65.7	62.6	63.4
95% CI	59.3– 59.5	67.6– 67.9	..	63.7– 64.1	65.7– 66.2	64.0– 64.9	65.1– 66.2	61.8– 63.3	63.4– 63.5
2000–2001	59.1	64.6	57.0	61.4	64.9	65.2	62.8	61.7	61.0
95% CI	59.0– 59.3	64.5– 64.8	56.8– 57.1	61.2– 61.6	64.6– 65.1	64.7– 65.6	62.3– 63.4	61.0– 62.4	60.9– 61.1
2002–2003	58.8	64.2	57.2	60.6	65.1	63.1	62.7	60.2	60.7
95% CI	58.7– 58.9	64.1– 64.4	57.0– 57.3	60.3– 60.8	64.8– 65.3	62.6– 63.5	62.2– 63.3	59.5– 60.9	60.6– 60.8
2004–2005	58.2	65.4	58.4	60.5	64.1	62.9	65.5	58.5	61.0
95% CI	58.1– 58.3	65.3– 65.5	58.3– 58.6	60.3– 60.7	63.9– 64.4	62.5– 63.3	65.0– 66.0	57.9– 59.2	60.9– 61.0
2006–2007	60.4	64.4	59.3	60.4	64.0	61.1	63.8	53.7	61.5
95% CI	60.3– 60.5	64.3– 64.6	59.2– 59.4	60.2– 60.6	63.8– 64.3	60.7– 61.5	63.3– 64.3	53.1– 54.3	61.4– 61.5

.. Not applicable

- (a) The New South Wales Pap test register commenced in July 1996; therefore data have been estimated for the period January to July 1996.
- (b) The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for the 1996–1997 or 1998–1999 reporting periods.
- (c) The Western Australia cervical cytology registry only reported on women with a Western Australia address for the 1998–1999 to 2000–2001 reporting periods.
- (d) The Northern Territory Pap test register commenced in March 1996, therefore data have been estimated for the period January to March 1996.

Notes

- Age-standardised rates are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistics' estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
- With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
- These data exclude women who have opted not to be included on a cervical cytology register.
- Periods cover 1 January 1996 to 31 December 1997, 1 January 1998 to 31 December 1999, 1 January 2000 to 31 December 2001, 1 January 2002 to 31 December 2003, 1 January 2004 to 31 December 2005, and 1 January 2006 to 31 December 2007.

For more information, see tables A1–A12 beginning on page 60.

Indicator 1.1.2 Three-year participation

The percentage of women screened in a three-year period for women aged 20 years and over and for the target age group 20–69 years

Three-year participation by age

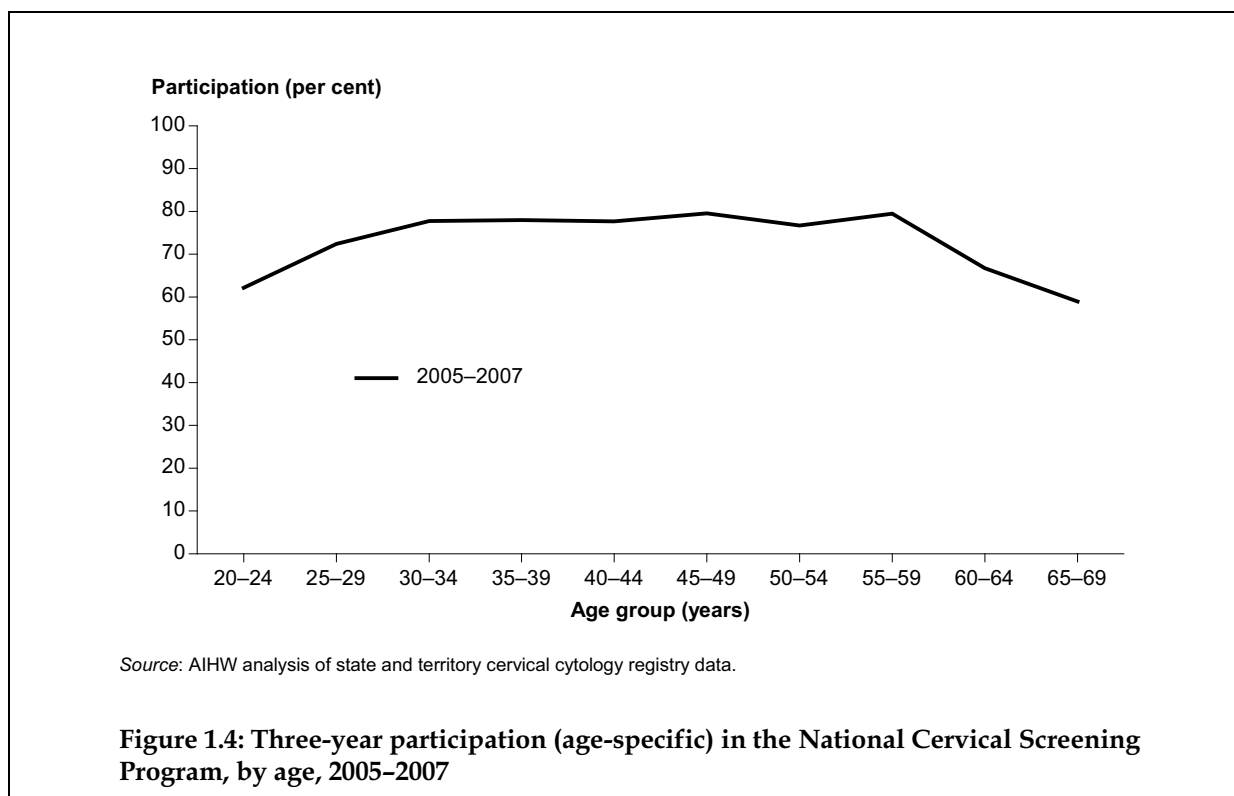


Figure 1.4: Three-year participation (age-specific) in the National Cervical Screening Program, by age, 2005–2007

Table 1.4: Three-year participation (age-specific and age-standardised) in the National Cervical Screening Program, by age, 2005–2007

3-year period	Age group (years)										20–69
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	
	Per cent										
2005–2007	62.2	72.4	77.8	78.0	77.7	79.6	76.7	79.5	66.7	59.0	74.0 (73.9–74.1)

Notes

1. Age-specific rates for 5-year age groups are the number of women screened as a proportion of the eligible female population. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. Age-standardised rates for the target age group 20–69 years are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
3. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
4. These data exclude women who have opted not to be included on a cervical cytology register.
5. Period covers 1 January 2005 to 31 December 2007.

- Over the 3-year period 2005–2007, 4,324,344 women participated in the National Cervical Screening Program. Of these women 4,257,889 (98.5%) were aged 20–69 years.
- Participation for the 3-year period 2005–2007 was 74.0% for women in the target age group 20–69 years.
- Over the 3-year period 2005–2007, participation was highest in women aged 45–49 years (79.6%) and 55–59 years (79.5%), and lowest in women aged 65–69 years (59.0%).
- The Australian 3-year participation rate of 74.0% is comparable with the 3-year participation rates of 73% reported for New Zealand for 2003 (National Cervical Screening Programme 2005), 69.4% for England for 2007 (National Health Service 2007), 63.6% for Wales for 2007 (Cervical Screening Wales 2007), and to the previously reported average for the European Union countries of 75% (van Ballegooijen et al. 2000). Note that while it is useful to compare 3-year participation in Australia to 3-year participation in other countries, direct comparisons are restricted by the different recommended screening intervals and screening frameworks, which impact on these figures.

For more information, see tables A1–A12 beginning on page 60.

Three-year participation by state and territory

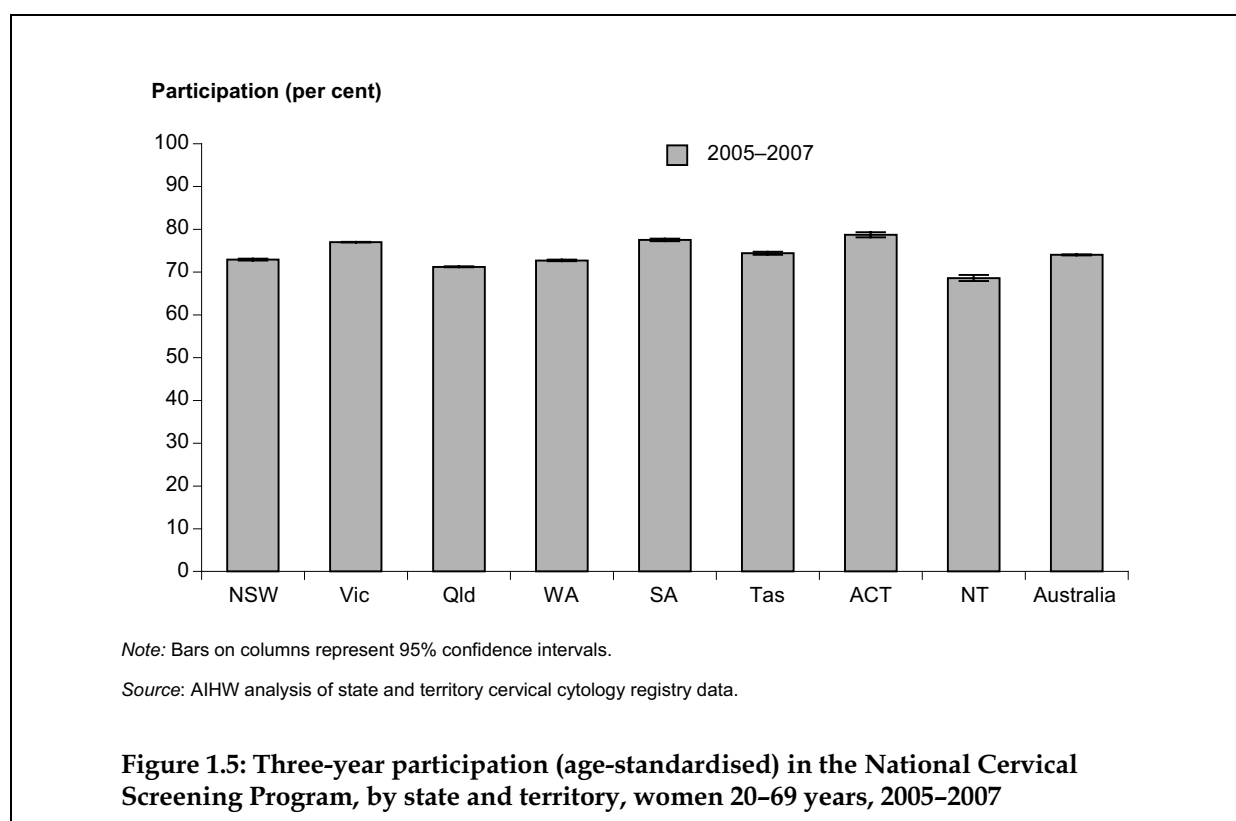


Table 1.5: Three-year participation (age-standardised) in the National Cervical Screening Program, by state and territory, women 20–69 years, 2005–2007

3-year period	States and territories								
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	Per cent								
2005–2007	72.9	77.0	71.2	72.7	77.5	74.4	78.7	68.6	74.0
95% CI	72.8–	76.8–	71.0–	72.4–	77.2–	73.9–	78.2–	67.9–	73.9–
	73.1	77.1	71.3	72.9	77.8	74.8	79.3	69.3	74.1

Notes

- Age-standardised rates are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistics' estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
- With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
- These data exclude women who have opted not to be included on a cervical cytology register.
- Period covers 1 January 2005 to 31 December 2007.

- Over the 3-year period 2005–2007, participation was highest in Victoria (77.0%), South Australia (77.5%) and the Australian Capital Territory (78.7%). Participation was lowest in the Northern Territory (68.6%).

For more information, see tables A1–A12 beginning on page 60.

Indicator 1.1.3 Five-year participation

Five-year participation by age

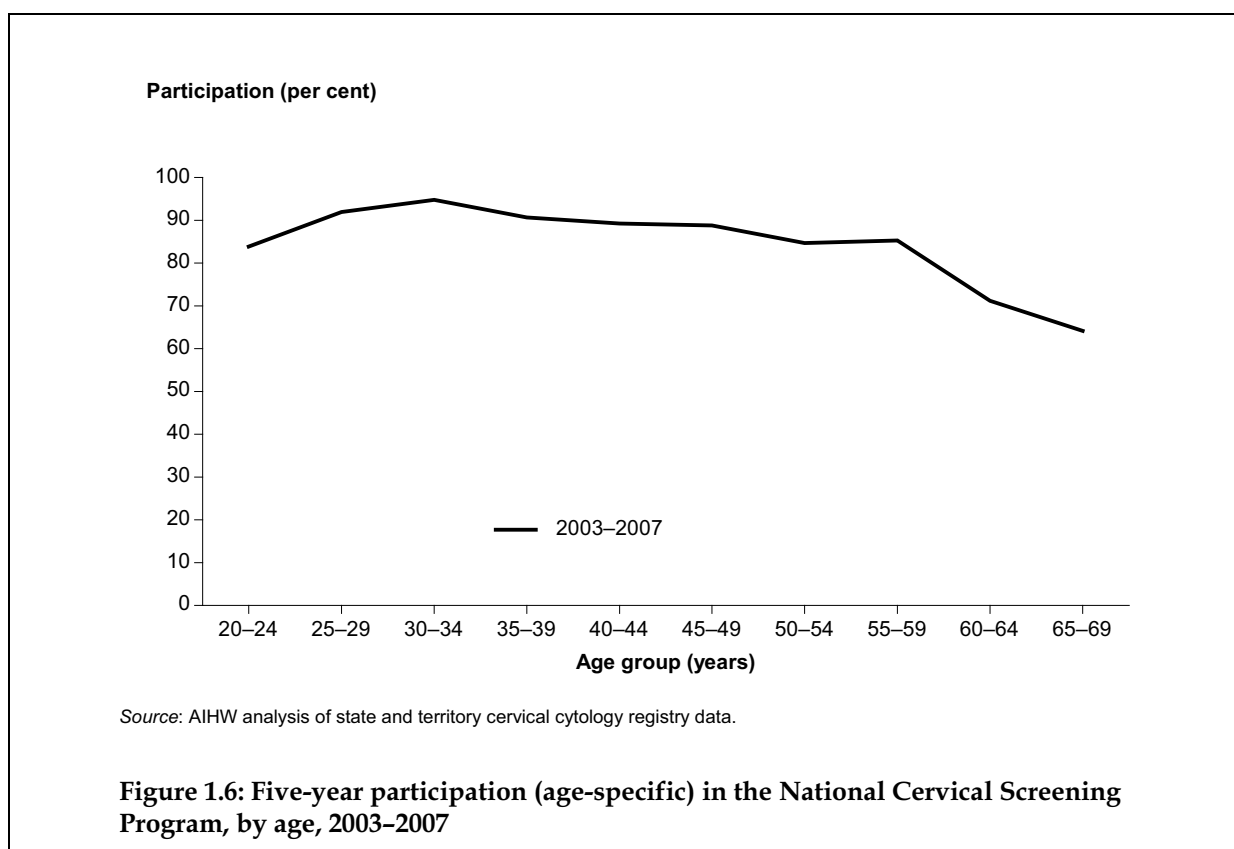


Table 1.6: Five-year participation (age-specific and age-standardised) in the National Cervical Screening Program, by age, 2003-2007

5-year period	Age group (years)										20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
	Per cent										
2003-2007	83.9	92.0	94.8	90.7	89.3	88.8	84.7	85.3	71.2	64.2	86.4 (86.3-86.5)

Notes

1. Age-specific rates for 5-year age groups are the number of women screened as a proportion of the eligible female population. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. Age-standardised rates for the target age group 20-69 years are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
3. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
4. These data exclude women who have opted not to be included on a cervical cytology register.
5. Period covers 1 January 2003 to 31 December 2007.

- Over the 5-year period 2003–2007, 5,023,821 women participated in the National Cervical Screening Program. Of these women 4,936,890 (98.3%) were aged 20–69 years.
- Participation for the 5-year period 2003–2007 was 86.4% for women in the target age group 20–69 years.
- Over the 5-year period 2003–2007, participation was highest in women aged 25–29 years (92.0%) and 30–34 years (94.8%), and lowest in women aged 65–69 years (64.2%).
- The Australian 5-year participation rate of 86.4% also compares favourably with the 5-year participation rates of 79.2% reported for England for 2007 (National Health Service 2007), 74.6% for Wales for 2007 (Cervical Screening Wales 2007), 77% for the Netherlands for 2003 (Rebolj et al. 2006), and the previously estimated participation rate of 90% for Finland (Antilla & Nieminen 2000). Note that while it is useful to compare 5-year participation in Australia to 5-year participation in other countries, direct comparisons are restricted by the different recommended screening intervals and screening frameworks, which impact on these figures.

For more information, see tables A1–A12 beginning on page 60.

Five-year participation by state and territory

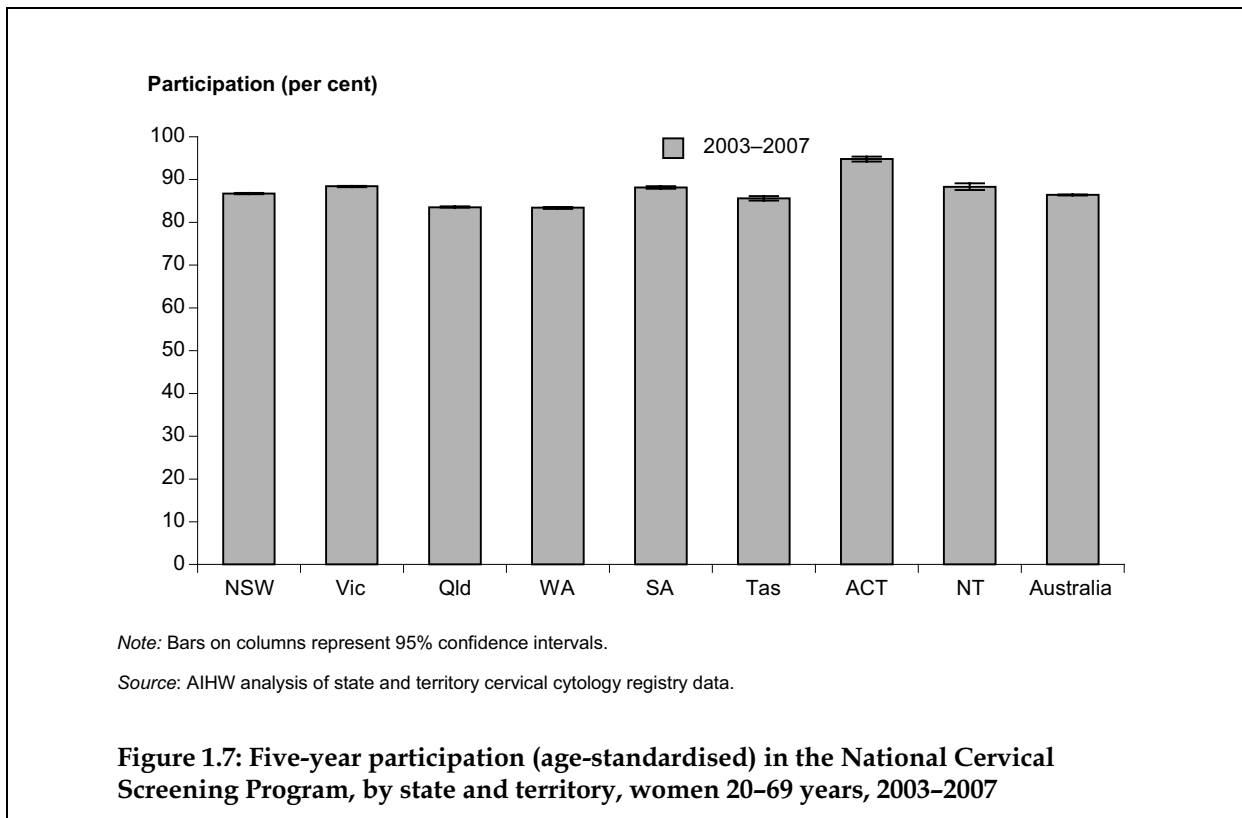


Table 1.7: Five-year participation (age-standardised) in the National Cervical Screening Program, by state and territory, women 20–69 years, 2003–2007

5-year period	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT ^(a)	
	Per cent								
2003–2007	86.7	88.4	83.5	83.4	88.1	85.6	94.8	88.3	86.4
95% CI	86.6– 86.9	88.2– 88.5	83.4– 83.7	83.1– 83.6	87.8– 88.4	85.1– 86.1	94.2– 95.4	87.5– 89.1	86.3– 86.5

(a) Australian Capital Territory and the Northern Territory have populations that are both highly transient and relatively small, which may lead to erroneously high participation rates in some age groups over a 5-year period.

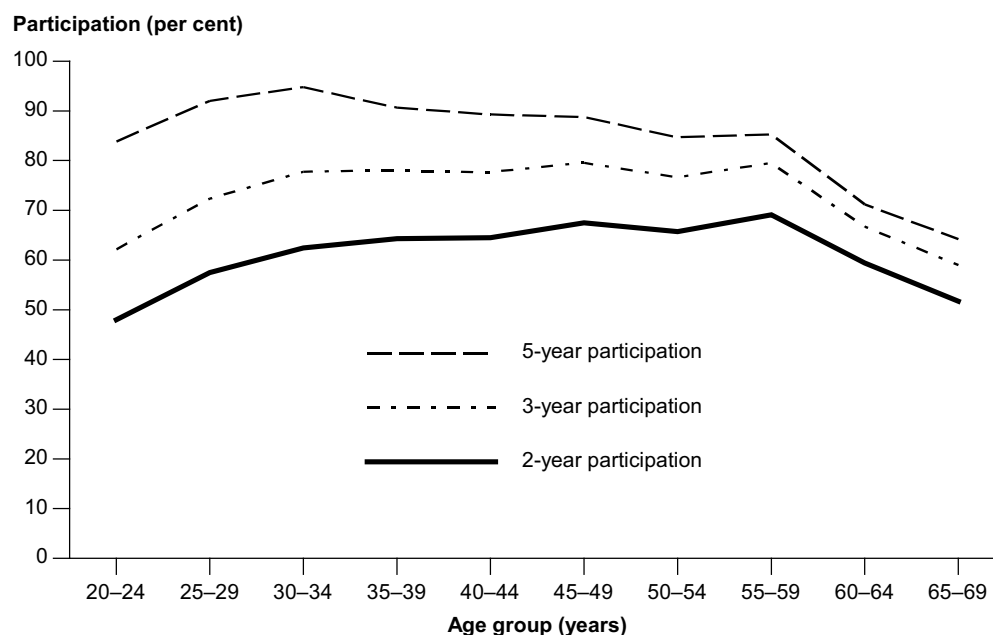
Notes

1. Age-standardised rates are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistics's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
3. These data exclude women who have opted not to be included on a cervical cytology register.
4. Period covers 1 January 2003 to 31 December 2007.

- Over the 5-year period 2003–2007, participation was highest in the Australian Capital Territory (94.8%), and lowest in Queensland (83.5%) and Western Australia (83.4%).

For more information, see tables A1–A12 beginning on page 60.

Two-year, three-year and five-year participation



Source: AIHW analysis of state and territory cervical cytology registry data.

Figure 1.8: Two-year, three-year and five-year participation (age-specific) in the National Cervical Screening Program, by age, women 20–69 years, 2006–2007, 2005–2007 and 2003–2007

Table 1.8: Two-year, three-year and five-year participation (age-specific and age-standardised) in the National Cervical Screening Program, by age, women 20–69 years, 2006–2007, 2005–2007 and 2003–2007

Period	Age group (years)										20–69
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	
	Per cent										
2006–2007	48.0	57.5	62.4	64.3	64.5	67.5	65.7	69.1	59.4	51.7	61.5 (61.4–61.5)
2005–2007	62.2	72.4	77.8	78.0	77.7	79.6	76.7	79.5	66.7	59.0	74.0 (73.9–74.1)
2003–2007	83.9	92.0	94.8	90.7	89.3	88.8	84.7	85.3	71.2	64.2	86.4 (86.3–86.5)

Notes

1. Age-specific rates for 5-year age groups are the number of women screened as a proportion of the eligible female population. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
2. Age-standardised rates for the target age group 20–69 years are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistic's estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
3. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
4. Australian Capital Territory and the Northern Territory have populations that are both highly transient and relatively small, which may lead to erroneously high participation rates in some age groups over a 5-year period.
5. These data exclude women who have opted not to be included on a cervical cytology register.
6. Periods cover 1 January 2006 to 31 December 2007, 1 January 2005 to 31 December 2007, and 1 January 2003 to 31 December 2007.

For more information, see tables A1–A12 beginning on page 60.

Indicator 1.2 Participation by geographic region

Participation by geographic region

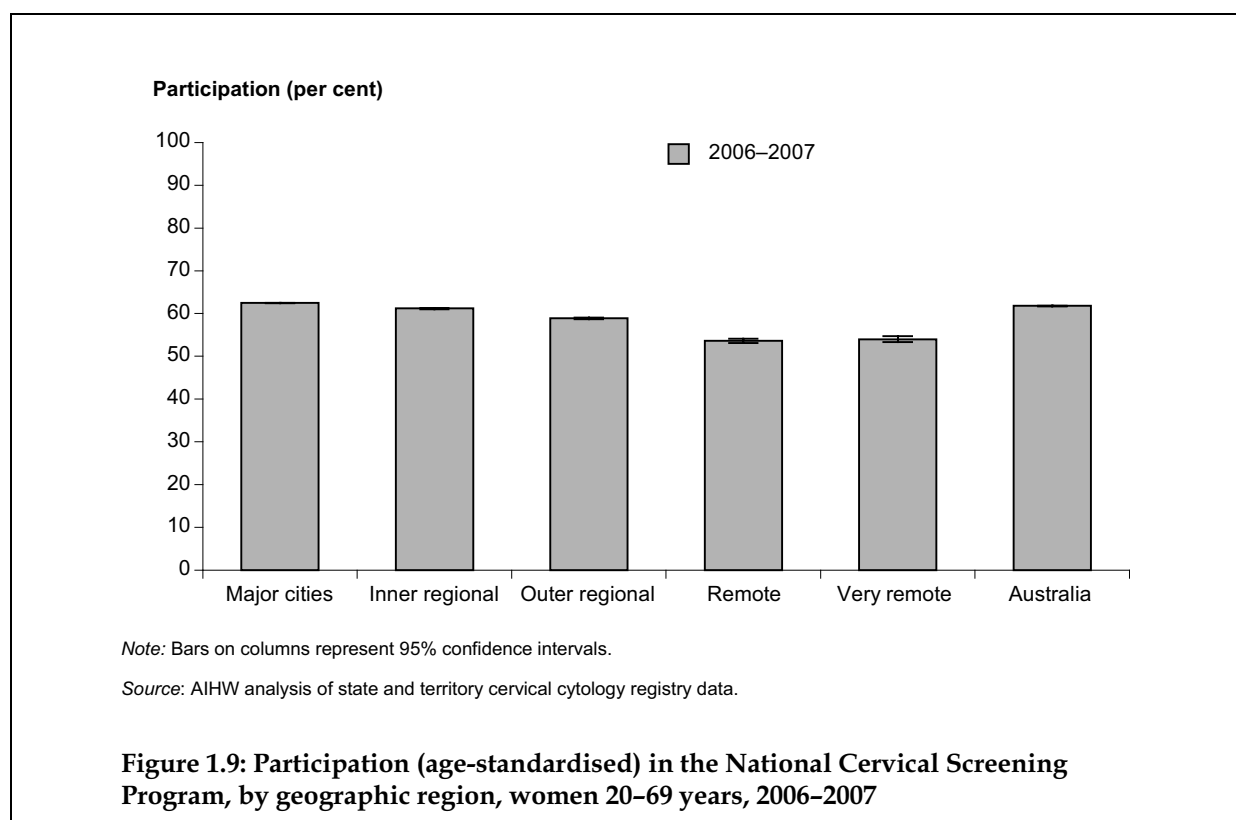


Table 1.9: Participation (age-standardised) in the National Cervical Screening Program, by geographic region, women 20–69 years, 2006–2007

2-year period	Geographic regions					
	Major cities	Inner regional	Outer regional	Remote	Very remote	Australia
	Per cent					
2006–2007	62.5	61.2	58.9	53.6	54.0	61.8
95% CI	62.4–62.5	61.0–61.3	58.7–59.1	53.1–54.1	53.3–54.7	61.7–61.8

Notes

1. Age-standardised rates are the number of women screened as a proportion of the eligible female population and age-standardised to the Australian population at 30 June 2001. The eligible female population is the average of the Australian Bureau of Statistics' estimated resident population, adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2001 National Health Survey.
 2. Only women with a postcode in the jurisdiction in which they were screened have been counted.
 3. These data exclude women who have opted not to be included on a cervical cytology register.
 4. The Australian Standard Geographic Classification (ASGC) was used to create regional categories (ABS 2001).
 5. Women were placed in regional categories based on their postcode of residence, using a postcode to region concordance.
 6. Period covers 1 January 2006 to 31 December 2007.
- In 2006–2007, participation was highest in *Major cities* (62.5%), followed by *Inner regional* areas (61.2%) and *Outer regional* areas (58.9%). Participation was lowest in *Remote* (53.6%) and *Very remote* areas (54.0%).

For more information, see tables A1–A12 beginning on page 60.

Indicator 2 Early re-screening

Proportion of women re-screened, by number of re-screens, during a 21-month period following a normal Pap test for women in the target age group 20–69 years

The National Cervical Screening Program seeks to maximise the reduction in mortality from cervical cancer within a cost-effective framework. The screening Program defines two key parameters for achieving this objective – target populations and screening intervals. Compliance with these parameters is crucial to maintaining the effectiveness of the Program and cost efficiency, so that resources may be used to increase population coverage. For most women who have a negative test, the recommended interval before their next screen is 2 years. An early re-screen is defined as having a repeat Pap test within 21 months of a negative result. Reasons for the choice of 21 months as the timeline for reporting are discussed under ‘Data issues’ below.

This indicator tracks (over a period of 21 months) a cohort of women from all states and territories who had a negative test result in February 2006, to determine the extent of early re-screening within the National Cervical Screening Program. February was selected as the index month nationally because it has been shown to be a relatively stable month in terms of the number of women who are screened. This pattern has been consistent over a number of years, partly because fewer women take holidays at this time. It is also helped by the fact that February is not a month during which public holidays are nationally gazetted. The early re-screening indicator measures the compliance with the recommended screening interval following a negative test, and is important in assessing screening coverage around the recommended interval, as significant differences may reduce Program effectiveness.

This indicator should be interpreted with caution as some early re-screening after a negative Pap test is appropriate and in accordance with the NHMRC Guidelines.

Data issues

The data for Indicator 2 published in reports prior to *Cervical screening in Australia 1999–2000* are not directly comparable with the data in this report, as this indicator has been modified to change the follow-up period from 24 months to 21 months. This change was made because women often have their Pap test performed at a time convenient to them, with some choosing to have their biennial screening immediately before the 2-year anniversary. Also, prescriptions for oral contraceptives lapse at 22 months and some women are then likely to combine their Pap test with their visit to the general practitioner for renewing their prescription.

Key points

The proportion of women who were re-screened early following a normal Pap test has continued to decline since 1999, at which time it was 32.0%. The national figure for the 2006 cohort was 23.1%, which was slightly lower than the 2005 cohort figure of 24.4%. This trend indicates greater compliance with the recommended screening interval of 2-years, which is important for maintaining the cost-effectiveness of the Program.

Trend in early re-screening

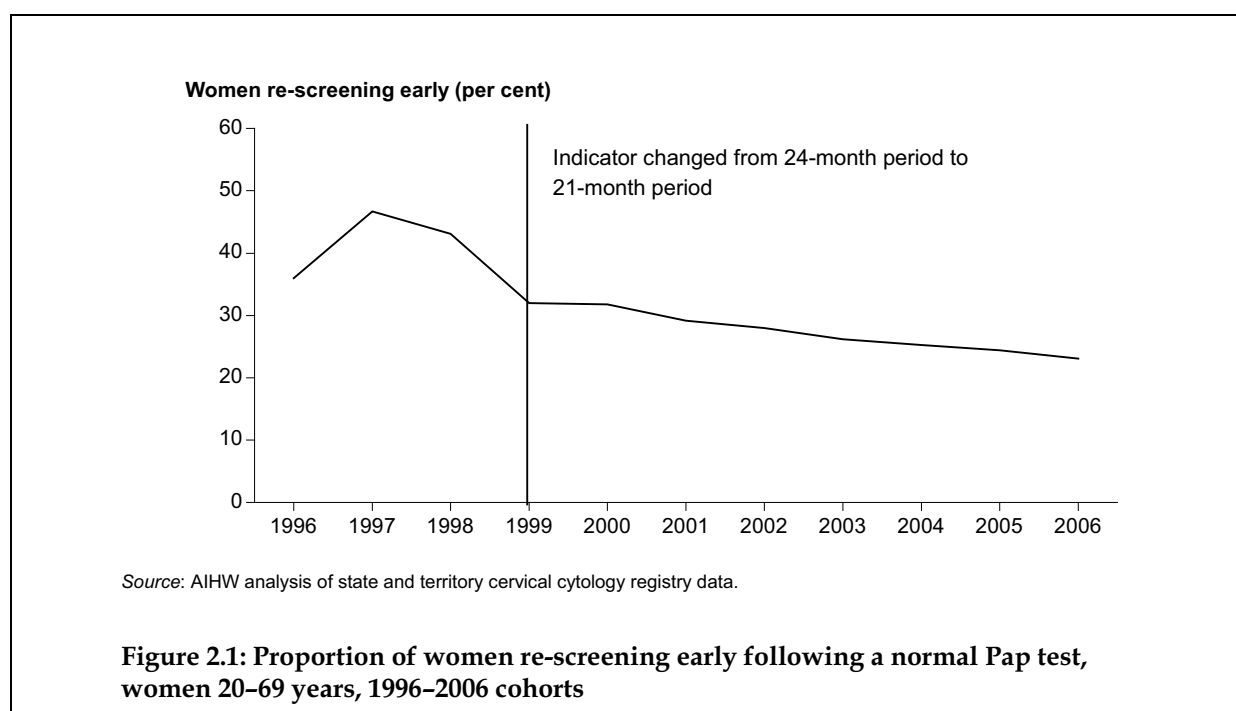


Table 2.1: Proportion of women re-screening early following a normal Pap test, women 20–69 years, 1996–2006 cohorts

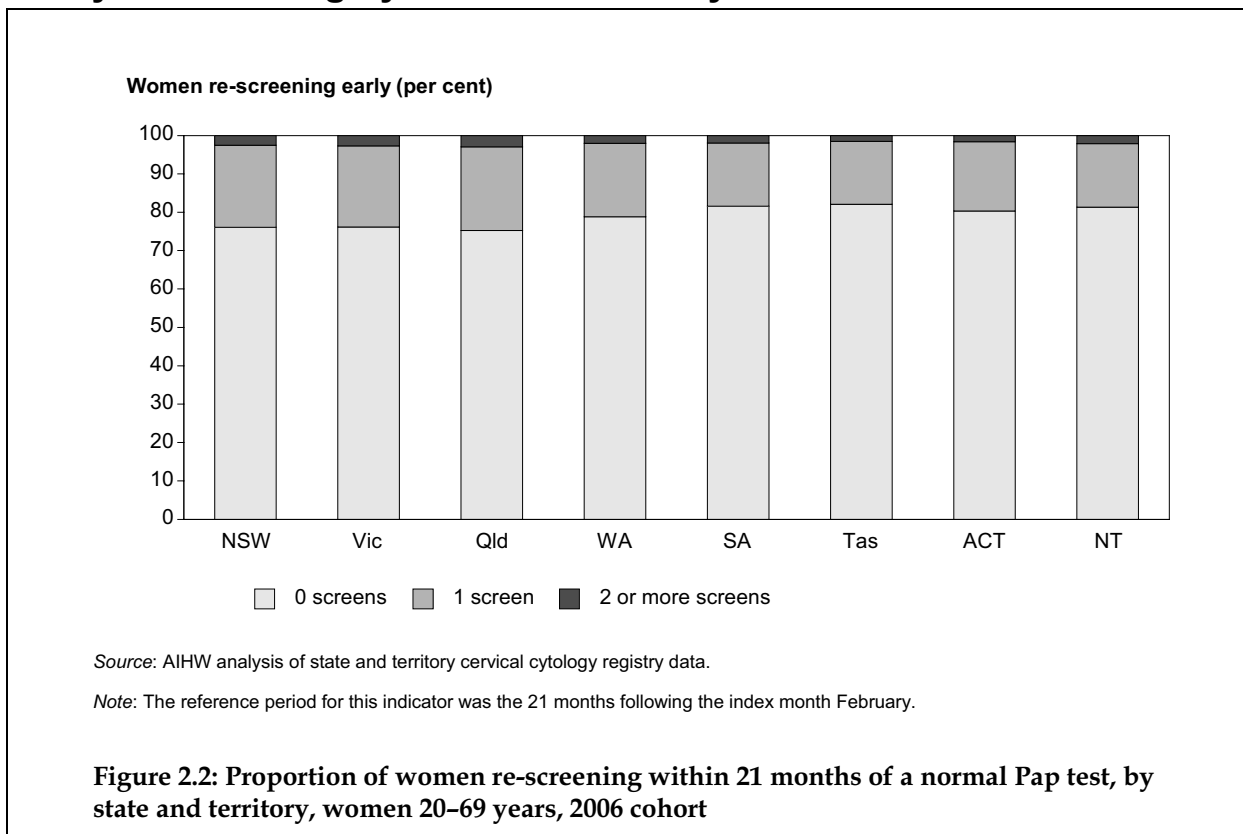
No. of screens	Year										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	Per cent										
1 screen	28.0	37.2	34.7	27.3	27.3	25.3	24.1	22.7	22.1	21.5	20.6
2 screens	6.2	7.6	6.9	3.8	3.6	3.1	3.1	2.8	2.6	2.4	2.2
3+ screens	1.8	1.9	1.5	0.9	0.9	0.8	0.8	0.7	0.6	0.5	0.3
Total	36.0	46.7	43.1	32.0	31.8	29.2	28.0	26.2	25.3	24.4	23.1

Notes

1. This indicator reported on a 2-year period following a normal Pap test up to and including 1998. In 1999 the indicator was changed to a 21-month interval; therefore data up to and including 1998 are not directly comparable with data in subsequent years.
 2. The reference period for the 1996, 1997 and 1998 cohorts was the 24 months following the index month of February.
 3. The reference period for the 1999 to 2006 cohorts was the 21 months following the index month of February (in 1999 the index month for Queensland was March).
 4. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997 and 1998.
 5. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
 6. These data exclude women who have opted not to be included on a cervical cytology register.
- A cohort of 164,585 women screened in February 2006 whose Pap test results were normal was tracked over a 21-month period to measure the extent of early re-screening in Australia. The proportion of women being screened early fell from 32.0% in the 1999 cohort to 23.1% in the 2006 cohort.

For more information, see tables A13–A16 beginning on page 72.

Early re-screening by state and territory



- In the 2006 cohort, South Australia (81.6%), Tasmania (82.1%), the Australian Capital Territory (80.3%) and the Northern Territory (81.3%) had the highest proportions of women who did not screen again within 21 months of a normal Pap test, compared with 76.9% nationally.

For more information, see tables A13–A16 beginning on page 72.

Table 2.2: Proportion of women re-screening within 21 months of a normal Pap test, by state and territory, women 20–69 years, 1999–2006 cohorts

Year	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	Per cent								
1999 cohort									
0 screens	67.5	66.1	70.8	66.8	70.2	68.9	71.3	70.8	68.0
1 screen	28.3	28.3	24.7	29.1	25.4	26.6	24.0	25.0	27.3
2 or more	4.2	5.6	4.5	4.2	4.5	4.5	4.7	4.2	4.7
2000 cohort									
0 screens	68.5	65.0	69.5	67.7	73.9	69.9	70.4	76.2	68.1
1 screen	27.6	29.4	25.6	28.6	22.4	26.4	25.3	18.9	27.3
2 or more	3.9	5.6	4.9	3.7	3.7	3.7	4.4	4.9	4.5
2001 cohort									
0 screens	70.4	67.8	72.3	71.8	76.7	73.1	72.9	76.0	70.8
1 screen	26.1	27.4	23.6	25.1	20.6	23.9	23.1	20.9	25.3
2 or more	3.5	4.8	4.1	3.1	2.7	3.1	4.0	3.1	3.9
2002 cohort									
0 screens	72.0	69.5	73.3	71.9	77.3	74.9	74.1	75.1	72.0
1 screen	24.6	25.8	22.5	24.6	20.1	21.9	22.2	20.5	24.1
2 or more	3.4	4.7	4.2	3.5	2.6	3.2	3.7	4.4	3.9
2003 cohort									
0 screens	73.6	72.7	73.9	72.9	78.5	77.1	74.0	72.8	73.8
1 screen	23.2	23.1	22.1	24.0	19.4	20.3	22.4	23.3	22.7
2 or more	3.1	4.3	4.0	3.0	2.1	2.6	3.6	3.9	3.5
2004 cohort									
0 screens	74.1	74.0	74.0	74.2	80.2	76.4	75.3	77.2	74.7
1 screen	23.0	22.1	22.1	23.4	17.6	20.8	21.4	20.2	22.1
2 or more	2.9	3.9	3.9	2.5	2.1	2.8	3.3	2.6	3.2
2005 cohort									
0 screens	75.3	74.6	75.3	76.3	79.7	77.4	78.6	76.1	75.6
1 screen	22.0	22.0	21.3	21.3	18.2	19.7	18.7	20.9	21.5
2 or more	2.7	3.5	3.4	2.4	2.1	2.9	2.7	3.0	2.9
2006 cohort									
0 screens	76.1	76.2	75.3	78.8	81.6	82.1	80.3	81.3	76.9
1 screen	21.4	21.1	21.8	19.2	16.5	16.4	18.1	16.6	20.6
2 or more	2.5	2.7	2.9	2.0	1.9	1.5	1.6	2.1	2.5

Notes

1. The reference period was the 21 months following the index month of February (in 1999 the index month for Queensland was March).
2. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997 and 1998.
3. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
4. These data exclude women who have opted not to be included on a cervical cytology register.

Indicator 3 Low-grade abnormality detection

The ratio of the number of women with a histologically verified low-grade intraepithelial abnormality detected in a 12-month period to the number of women with a histologically verified high-grade intraepithelial abnormality detected in the same period, for women in the target age group 20–69 years

This ratio is based only on the results for women who were referred for histological follow-up. The numerator represents those that were found to be low-grade abnormalities by follow-up histology. The denominator represents those that were identified as high-grade abnormalities by follow-up histology. The majority of low-grade abnormalities identified at follow-up represent cases where the initial Pap test result was incorrectly identified as high-grade. Therefore, in this indicator, a lower ratio of low-grade abnormalities to high-grade abnormalities is the desired outcome.

In this report, low-grade histological abnormalities include atypia, warty atypia, possible cervical intraepithelial neoplasia (CIN) and CIN 1. High-grade abnormalities include CIN 1/2, CIN 2, CIN 3 and adenocarcinoma in situ.

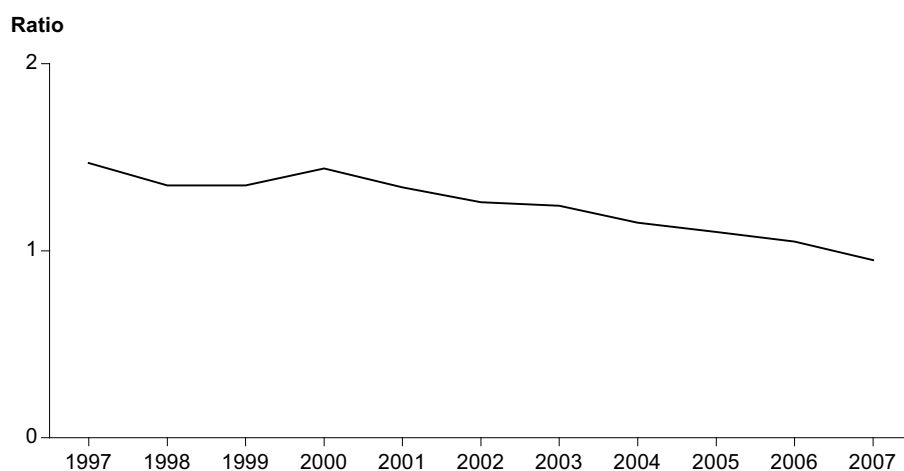
Data issues

NHMRC Guidelines introduced on 1 July 2006 recommend that asymptomatic women with a low-grade abnormality detected on cytology (Pap test) have repeat Pap tests to monitor the abnormality, rather than proceed to colposcopy and biopsy if indicated, as was the management recommended under the previous Guidelines. As a result of the introduction of these new management guidelines, there may be fewer low-grade abnormalities detected by histology, and this needs to be considered when comparing 2007 with previous years, since this indicator is based only on histology.

Key points

The ratio of low-grade to high-grade intraepithelial abnormalities detected by histology decreased from 1.47 in 1997 to 0.95 in 2007. This is the first time that this ratio has fallen below 1.0 nationally. There was a concurrent decline in the number of low-grade abnormalities detected by histology as a percentage of all screens from 1.04% in 1997 to 0.68% in 2007.

Trend in ratio of low- to high-grade abnormalities



Source: AIHW analysis of state and territory cervical cytology registry data.

Figure 3.1: Ratio of low-grade to high-grade abnormalities detected by histology, women 20–69 years, 1997–2007

Table 3.1: Low-grade and high-grade abnormalities detected by histology, women 20–69 years, 1997–2007

Abnormalities	Year										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Number										
Low-grade	15,314	14,411	15,753	19,985	18,126	18,781	18,443	16,627	16,274	15,118	13,709
High-grade	10,392	10,704	11,686	13,851	13,555	14,903	14,840	14,507	14,837	14,414	14,479
Total	25,706	25,115	27,439	33,836	31,681	33,684	33,283	31,134	31,111	29,532	28,188
Ratio	1.47	1.35	1.35	1.44	1.34	1.26	1.24	1.15	1.10	1.05	0.95
95% CI	1.44– 1.51	1.31– 1.38	1.32– 1.38	1.41– 1.47	1.31– 1.37	1.23– 1.29	1.22– 1.27	1.12– 1.17	1.07– 1.12	1.03– 1.07	0.92– 0.97
	Per cent of screens										
Low-grade	1.04	0.93	1.02	1.07	0.98	1.01	0.98	0.88	0.84	0.79	0.68
High-grade	0.71	0.69	0.75	0.74	0.73	0.80	0.79	0.77	0.77	0.75	0.72
Total	1.75	1.61	1.77	1.81	1.71	1.80	1.77	1.64	1.61	1.53	1.39

Notes

- Ratio is the number of women with a low-grade abnormality detected by histology divided by the number of women with a high-grade abnormality detected by histology.
- The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997, 1998 and 1999.
- Australian Capital Territory data were not available for 1997 and 1998.
- Northern Territory data were not available for 2001.
- With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
- These data exclude women who have opted not to be included on a cervical cytology register.

- In 2007, 28,188 abnormalities were detected by histology in women aged 20–69 years, of which 13,709 were low-grade and 14,479 were high-grade. This is the first time that the number of low-grade abnormalities detected was lower than the number of high-grade abnormalities. While there has been a consistent trend of fewer low-grade abnormalities detected by histology, this may also be a reflection of the new NHMRC Guidelines, as these recommend repeat cytology as follow-up for a low-grade Pap test rather than colposcopy and biopsy, which would plausibly result in fewer low-grade abnormalities detected by histology.
- Between 1997 and 2007, the ratio of low-grade to high-grade abnormalities detected in women aged 20–69 years declined from 1.47 to 0.95.
- The total number of abnormalities detected fell from 1.75% of screens in 1997 to 1.39% of screens in 2007.
- The number of low-grade abnormalities detected fell from 1.04% of screens in 1997 to 0.68% of screens in 2007.

For more information, see tables A17 and A18 beginning on page 75.

Ratio of low- to high-grade abnormalities by state and territory

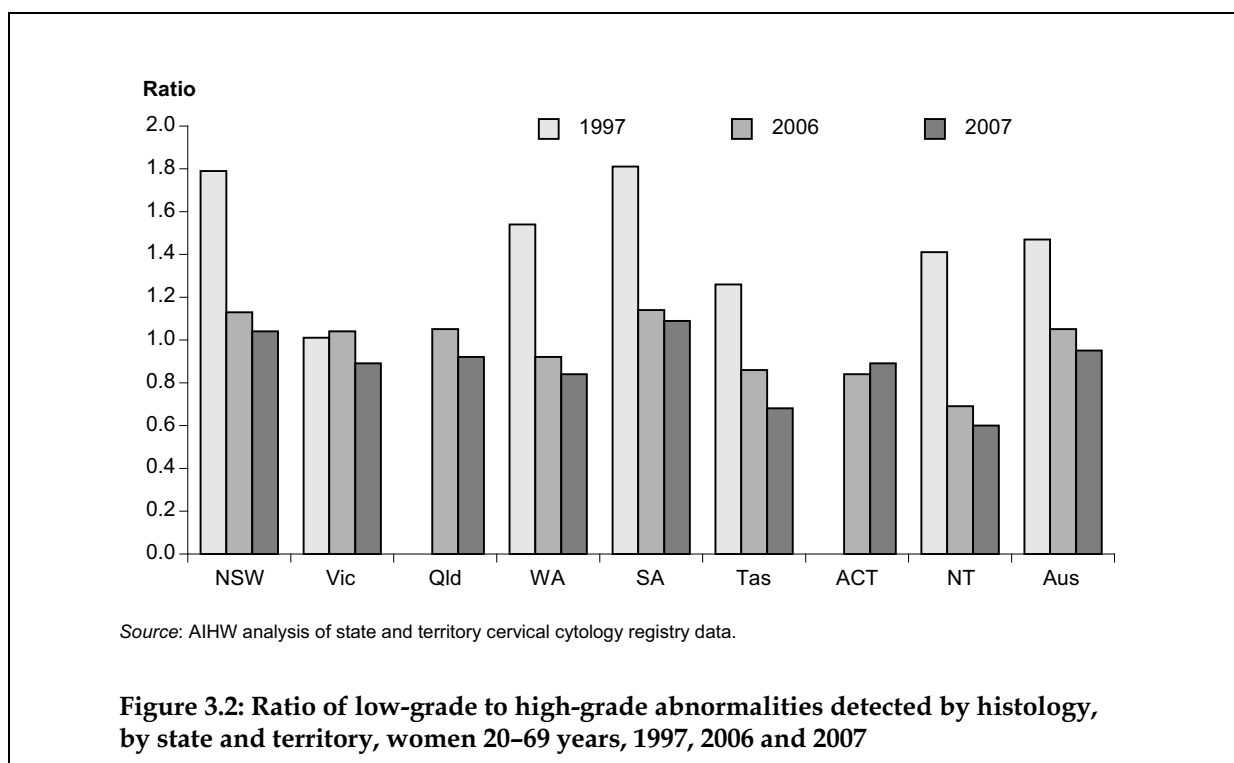


Figure 3.2: Ratio of low-grade to high-grade abnormalities detected by histology, by state and territory, women 20-69 years, 1997, 2006 and 2007

Table 3.2 Ratio of low-grade to high-grade abnormalities detected by histology, by state and territory, women 20-69 years, 1997-2007

Year	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	Ratio								
1997	1.79	1.01	..	1.54	1.81	1.26	..	1.41	1.47
1998	1.46	1.11	..	1.48	1.45	1.42	..	0.87	1.35
1999	1.37	1.18	..	1.70	1.43	1.36	1.24	0.88	1.35
2000	1.42	1.24	1.62	1.67	1.47	1.42	1.24	1.13	1.44
2001	1.39	1.09	1.41	1.52	1.39	1.25	1.17	..	1.34
2002	1.29	0.91	1.40	1.62	1.27	1.13	1.31	1.42	1.26
2003	1.41	0.95	1.11	1.71	1.32	0.96	1.06	1.31	1.24
2004	1.16	1.00	1.20	1.36	1.20	1.01	0.85	1.25	1.15
2005	1.15	0.93	1.24	1.22	1.06	0.93	0.69	0.91	1.10
2006	1.13	1.04	1.05	0.92	1.14	0.86	0.84	0.69	1.05
2007	1.04	0.89	0.92	0.84	1.09	0.68	0.89	0.60	0.95

.. Not applicable.

Notes

- Ratio is the number of women with a low-grade abnormality detected by histology divided by the number of women with a high-grade abnormality detected by histology.
- The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997, 1998 and 1999.
- Australian Capital Territory data were not available for 1997 and 1998.
- Northern Territory data were not available for 2001.
- With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
- These data exclude women who have opted not to be included on a cervical cytology register.

- In 2007, New South Wales and South Australia had the highest ratio of low- to high-grade abnormalities detected by histology at 1.04 and 1.09, respectively, and Tasmania and the Northern Territory had the lowest at 0.68 and 0.60.
- Between 2006 and 2007 all states and territories had a decrease in the ratio of low- to high-grade abnormalities except for the Australian Capital Territory.

For more information, see tables A17 and A18 beginning on page 75.

Indicator 4 High-grade abnormality detection

Detection rate of histologically verified high-grade intraepithelial abnormalities per 1,000 women screened in a 12-month period for women aged 20 years and over and for the target age group 20–69 years

The detection of high-grade abnormalities is an indicator of Program performance. High-grade abnormalities have a greater probability of progressing to invasive cancer than do low-grade lesions. Therefore, one of the aims of the National Cervical Screening Program is to set a screening interval that detects most of these lesions before they progress and become invasive. It should be emphasised, however, that high-grade abnormalities do not always progress to invasive cervical cancer, with a recent study suggesting that at least 80% of high-grade abnormalities regress spontaneously (Raffle et al. 2003). Factors that influence the progression of high-grade abnormalities to invasive cervical cancer include age – with regression more likely in younger women, and extent of high-grade abnormality – with extensive and persistent high-grade abnormalities more likely to progress to invasive cervical cancer (NHMRC 2005).

The rate of detection of high-grade abnormalities is an indicator of how well the Program detects these abnormalities. The best way to interpret this is to look at these rates in combination with cervical cancer incidence and mortality rates, since the aim of detecting high-grade abnormalities is to reduce the incidence and mortality from cervical cancer.

This indicator measures the frequency of histological verified high-grade abnormalities in the screened population. In this report high-grade abnormalities include CIN 1/2, CIN 2, CIN 3 and adenocarcinoma in situ.

Key points

The detection rate of high-grade abnormalities in women aged 20–69 years increased from 6.4 per 1,000 women in 1997 to 7.0 in 2007. The rate of high-grade abnormalities was highest in women aged 20–34 years and lowest in women aged 50–69 years. This is consistent with reported higher prevalence of HPV infection in women younger than 34 years (De Sanjosé et al. 2007), and current understanding of the natural history of high-grade abnormalities, with significant regression of high-grade abnormalities occurring in younger women (NHMRC 2005).

Trend in high-grade abnormalities detected

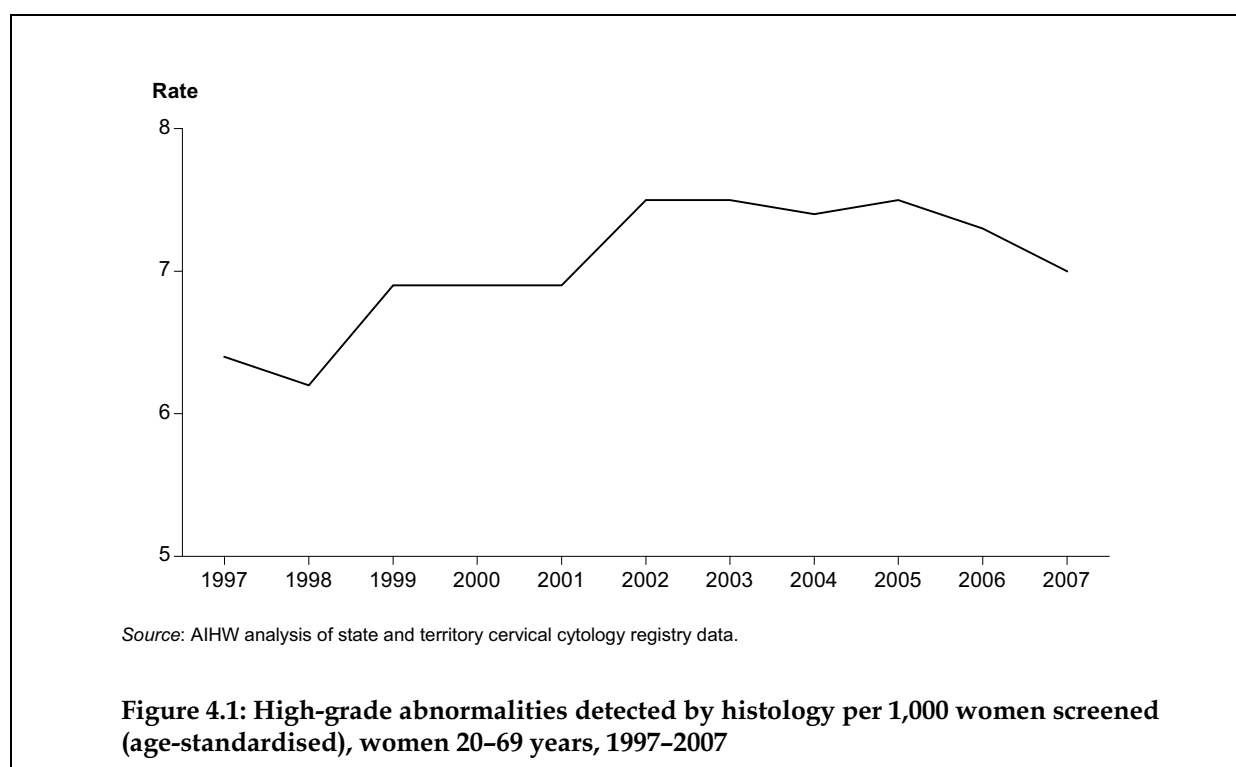


Table 4.1: High-grade abnormalities detected by histology per 1,000 women screened (age-standardised), women 20-69 years, 1997-2007

	Year										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Number detected per 1,000 women screened										
AS rate	6.4	6.2	6.9	6.9	6.9	7.5	7.5	7.4	7.5	7.3	7.0
95% CI	6.2- 6.5	6.1- 6.3	6.8- 7.1	6.8- 7.0	6.8- 7.0	7.4- 7.6	7.4- 7.6	7.3- 7.5	7.3- 7.6	7.2- 7.4	6.9- 7.1

Notes

1. Age-standardised rates are the number of women with a high-grade abnormality detected by histology per 1,000 women screened and age-standardised to the Australian population at 30 June 2001.
 2. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997, 1998 and 1999.
 3. Australian Capital Territory data were not available for 1997 and 1998.
 4. Northern Territory data were not available for 2001.
 5. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
 6. These data exclude women who have opted not to be included on a cervical cytology register.
- In 2007, there were 14,466 high-grade intraepithelial abnormalities detected by histology in 2,021,751 women screened aged 20-69 years.
 - The age-standardised rate of high-grade intraepithelial abnormalities detected by histology increased significantly over the period 1997-2007, from 6.4 per 1,000 women screened in 1997 to 7.0 in 2007, for women aged 20-69 years.

For more information, see tables A19-A24 beginning on page 77.

High-grade abnormalities detected by age

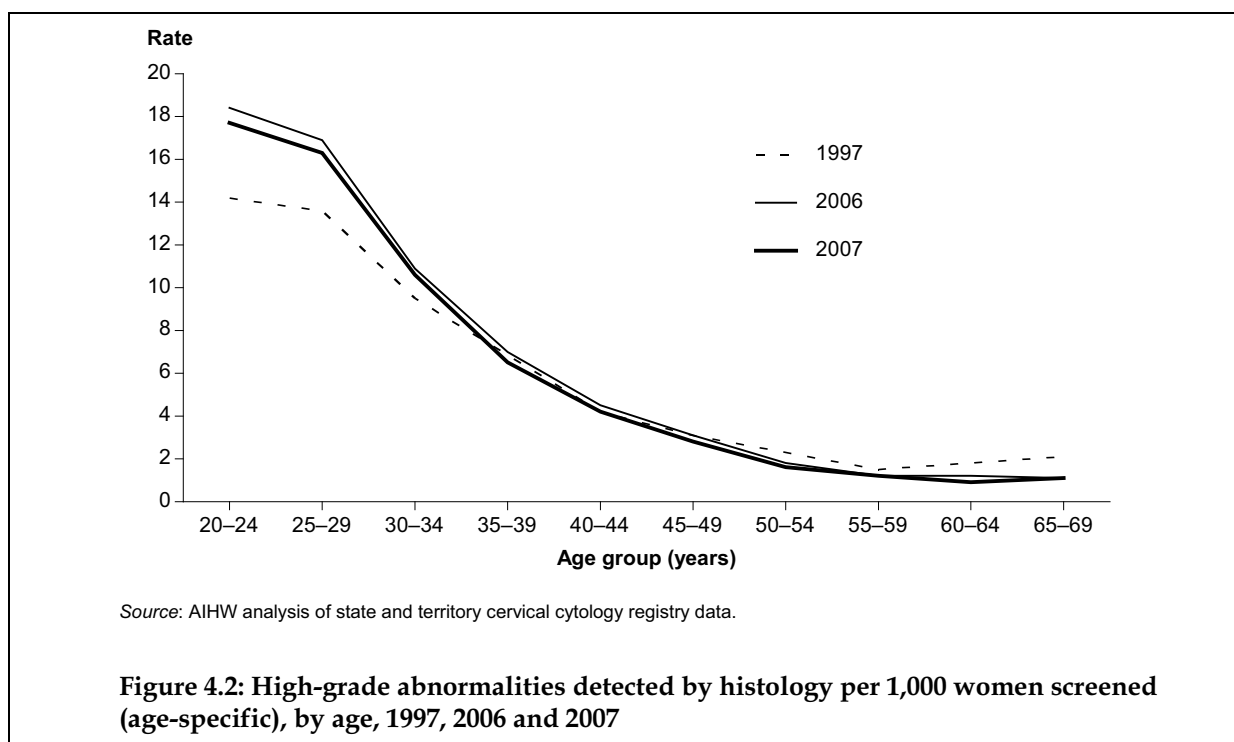


Table 4.2: High-grade abnormalities detected by histology per 1,000 women screened (age-specific and age-standardised), by age, 1997–2007

Year	Age group (years)										20–69
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	
	Number detected per 1,000 women screened										
1997	14.2	13.6	9.5	6.3	4.2	3.1	1.9	1.5	1.7	2.1	6.4 (6.2–6.5)
1998	14.3	13.9	8.8	6.3	4.1	2.6	1.9	1.6	1.7	1.0	6.2 (6.1–6.3)
1999	16.8	15.0	10.0	6.7	4.4	3.2	2.0	1.7	1.6	2.0	6.9 (6.8–7.1)
2000	16.3	15.5	10.3	6.5	4.5	3.0	1.9	1.5	1.5	1.7	6.9 (6.8–7.0)
2001	16.3	15.6	10.1	6.6	4.4	3.0	1.8	1.5	1.5	1.6	6.9 (6.8–7.0)
2002	18.9	16.7	11.3	6.9	4.8	3.0	2.0	1.7	1.3	1.4	7.5 (7.4–7.6)
2003	18.5	16.9	11.0	6.9	5.0	3.2	1.8	1.5	1.6	1.4	7.5 (7.4–7.6)
2004	19.4	16.8	11.3	6.8	4.4	2.9	1.7	1.4	1.2	1.0	7.4 (7.3–7.5)
2005	19.2	17.3	11.3	6.9	4.3	2.9	1.6	1.5	1.3	1.0	7.5 (7.3–7.6)
2006	18.4	16.9	10.9	7.0	4.5	3.1	1.8	1.2	1.2	1.1	7.3 (7.2–7.4)
2007	17.7	16.3	10.6	6.5	4.2	2.8	1.6	1.2	0.9	1.1	7.0 (6.9–7.1)

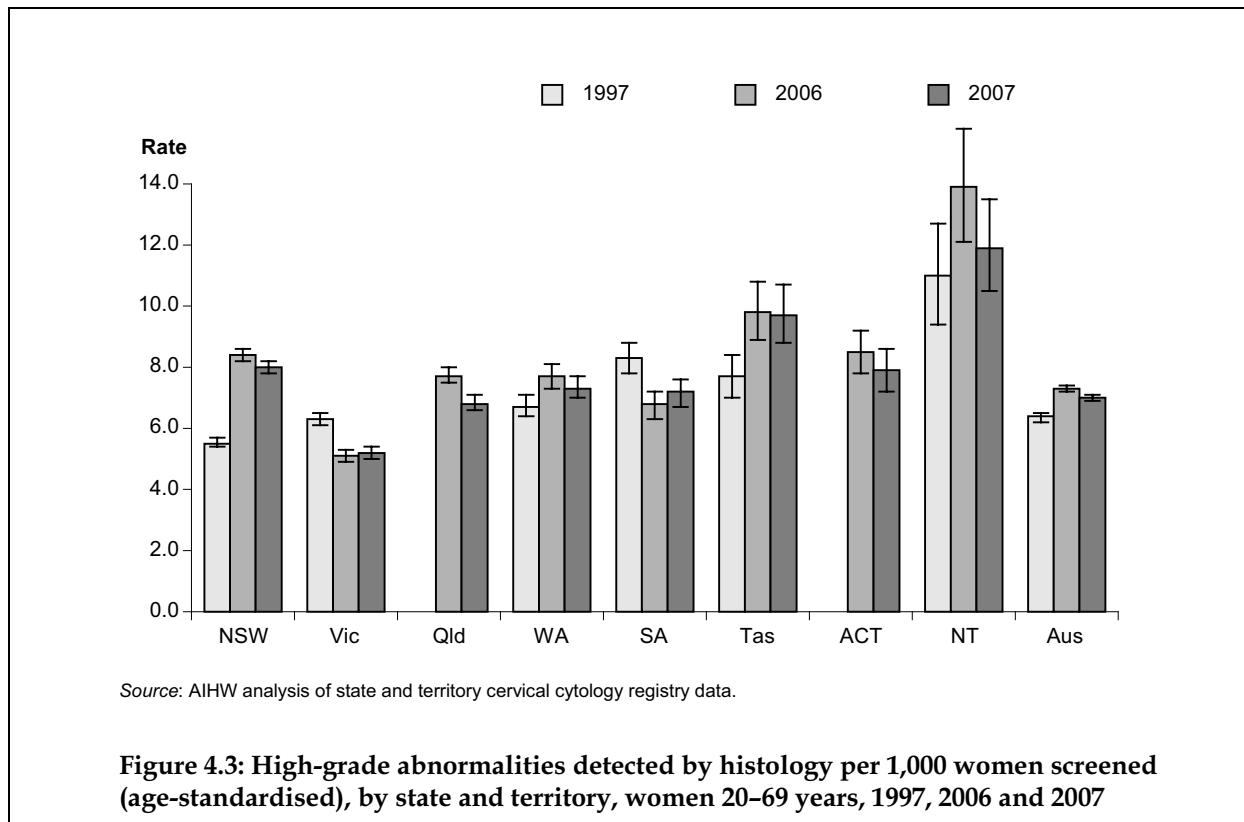
Notes

1. Age-specific rates for 5-year age groups are the number of women with a high-grade abnormality detected by histology per 1,000 women screened.
2. Age-standardised rates for the target age group 20–69 years are the number of women with a high-grade abnormality detected by histology per 1,000 women screened, age-standardised to the Australian population at 30 June 2001.
3. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997, 1998 and 1999.
4. Australian Capital Territory data were not available for 1997 and 1998.
5. Northern Territory data were not available for 2001.
6. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
7. These data exclude women who have opted not to be included on a cervical cytology register.

- The detection rate for high-grade abnormalities was much higher in the younger age groups. In 2007, the rate for women aged 20–24 years was 17.7 per 1,000 women screened compared with less than 2.0 per 1,000 women screened in women aged 50–69 years.

For more information, see tables A19–A24 beginning on page 77.

High-grade abnormalities detected by state and territory



- The only jurisdiction to have a significantly different rate of detection of high-grade abnormalities in 2007 compared with 2006 was Queensland, with a decrease from 7.7 per 1,000 women screened in 2006 to 6.8 per 1,000 women screened in 2007.
- In New South Wales there was an overall increase in the rate of high-grade abnormalities detected from 5.5 per 1,000 women screened in 1997 to 8.0 in 2007. Western Australia has a smaller increase in the rate of high-grade abnormality detection from 6.7 per 1,000 women screened in 1997 to 7.3 in 2007. Tasmania also had an increase in the detection rate, from 7.7 in 1997 to 9.7 in 2007.
- In Victoria, there was an overall decrease in the rate of high-grade abnormalities detected from 6.3 per 1,000 women screened in 1997 to 5.2 in 2007. Queensland had a decrease in the rate of high-grade abnormalities detected from 8.6 in 2000 (the first year for which these data are available) to 6.8 per 1,000 women screened in 2007. Similarly in South Australia there was a decrease in the detection rate from 8.3 per 1,000 women screened in 1997 to 7.2 in 2007.
- The Northern Territory had the highest rates of high-grade abnormalities detected for most years there data were available between 1997 and 2007.

For more information, see tables A19–A24 beginning on page 77.

Table 4.3: High-grade abnormalities detected by histology per 1,000 women screened (age-standardised), by state and territory, women 20–69 years, 1997–2007

Year	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
Number detected per 1,000 women screened									
1997	5.5	6.3	..	6.7	8.3	7.7	..	11.0	6.4
95% CI	5.4–5.7	6.1–6.5	..	6.4–7.1	7.8–8.8	7.0–8.5	..	9.4–12.7	6.2–6.5
1998	5.8	5.3	..	6.2	8.9	9.6	..	12.5	6.2
95% CI	5.6–6.0	5.1–5.5	..	5.9–6.5	8.4–9.4	8.8–10.5	..	11.0–14.1	6.1–6.3
1999	7.0	6.3	..	7.1	7.9	9.1	6.4	8.3	6.9
95% CI	6.8–7.2	6.1–6.6	..	6.7–7.5	7.5–8.3	8.3–10.0	5.6–7.4	6.9–9.8	6.8–7.1
2000	7.0	5.6	8.6	5.9	6.7	9.7	6.4	12.0	6.9
95% CI	6.8–7.2	5.4–5.8	8.3–8.9	5.6–6.3	6.3–7.1	8.9–10.7	5.5–7.3	10.4–13.6	6.8–7.0
2001	7.1	5.4	8.2	7.4	6.3	9.5	7.0	..	6.9
95% CI	6.9–7.3	5.2–5.6	7.9–8.6	7.0–7.8	5.9–6.8	8.6–10.4	6.2–8.0	..	6.8–7.0
2002	7.9	6.3	8.7	7.9	6.2	8.9	7.1	10.6	7.5
95% CI	7.7–8.1	6.1–6.5	8.4–9.0	7.5–8.3	5.8–6.6	8.1–9.8	6.3–8.1	9.1–12.1	7.4–7.6
2003	7.2	7.1	8.5	7.8	6.3	7.5	9.3	10.7	7.5
95% CI	7.0–7.4	6.8–7.3	8.2–8.8	7.4–8.2	5.9–6.7	6.7–8.3	8.3–10.5	9.3–12.3	7.4–7.6
2004	8.3	6.2	7.8	7.7	5.8	9.4	8.5	9.0	7.4
95% CI	8.0–8.5	6.0–6.5	7.5–8.1	7.3–8.1	5.4–6.2	8.5–10.3	7.5–9.5	7.7–10.4	7.3–7.5
2005	8.3	6.2	7.5	7.1	7.1	10.5	9.3	11.5	7.5
95% CI	8.1–8.5	5.6–6.4	7.3–7.8	6.7–7.4	6.6–7.5	9.6–11.5	8.4–10.4	10.0–13.2	7.3–7.6
2006	8.4	5.1	7.7	7.7	6.8	9.8	8.5	13.9	7.3
95% CI	8.2–8.6	4.9–5.3	7.5–8.0	7.3–8.1	6.3–7.2	8.9–10.8	7.8–9.2	12.1–15.8	7.2–7.4
2007	8.0	5.2	6.8	7.3	7.2	9.7	7.9	11.9	7.0
95% CI	7.8–8.2	5.0–5.4	6.6–7.1	7.0–7.7	6.7–7.6	8.8–10.7	7.2–8.6	10.5–13.5	6.9–7.1

.. Not applicable.

Notes

1. Age-standardised rates are the number of women with a high-grade abnormality detected by histology per 1,000 women screened and age-standardised to the Australian population at 30 June 2001.
2. The Queensland Health Pap smear register began operations in February 1999; therefore no data are available for 1997, 1998 and 1999.
3. Australian Capital Territory data were not available for 1997 and 1998.
4. Northern Territory data were not available for 2001.
5. With the exception of Victoria and the Australian Capital Territory, number of women screened includes all women screened in each jurisdiction, not just those women resident in each jurisdiction.
6. These data exclude women who have opted not to be included on a cervical cytology register.

Indicator 5 Incidence

A major objective of the National Cervical Screening Program is to minimise the incidence of cervical cancer by detecting treatable pre-cancerous lesions before their progression to cancer. But where these pre-cancerous lesions cannot be detected, diagnosis of cancer at its earliest stage, the micro-invasive stage, is the most desirable outcome. The incidence indicators measure the incidence rates of micro-invasive and all cervical cancers. Incidence by geographic region is also measured.

Data issues

In interpreting cervical cancer incidence statistics, note that cervical screening has been available on an ad hoc basis since the 1960s, but it is only since the late 1980s and early 1990s that there has been an organised national approach to screening at a population level. The introduction of cervical screening programs which achieve higher participation rates may result in the paradox whereby, in the short term, the number of new cases of micro-invasive cancer increases because cancers are found earlier than they would have been without screening, but the rate of more advanced cancers decreases in the longer term.

For this report the most recent national data available on incidence are for 2005, in contrast to screening data which are available for 2006–2007 and mortality data which are available for 2006. This time lag in the availability of incidence data is due to the time taken for cancer registries to consolidate and confirm cancer cases.

Key points

In 2005, the age-standardised incidence rate of micro-invasive squamous cervical cancer was 1.5 per 100,000 women in the target age group 20–69 years, down from the peak incidence rate in 1995 of 3.2 per 100,000 women, and significantly lower than the rate of 2.9 new cases per 100,000 women in 1991 at the commencement of the cervical screening program.

Incidence rate of all cervical cancer in 2005 was 9.2 per 100,000 women in the target age group 20–69 years, significantly lower than the rate of 17.1 new cases per 100,000 women in 1991 at the commencement of the cervical screening program.

In 2005, within the target age group 20–69 years, women in 40–44 year age group had the highest incidence rates of micro-invasive squamous cervical cancer (3.0 per 100,000 women) and all cervical cancer (13.6 per 100,000 women). For women of all ages, incidence rate of micro-invasive squamous cervical cancer remained highest in the 40–44 year age group (3.0 per 100,000 women), but incidence rate of all cervical cancer was highest in the 85 years and over age group (15.4 per 100,000 women).

In 2005, the incidence rate of adenocarcinoma was 1.8 per 100,000 women, down from the peak incidence rate in 1994 of 3.5 per 100,000 women, and significantly lower than the rate of 2.8 per 100,000 women at the commencement of cervical screening program in 1991. Despite this significance, the decrease in incidence of adenocarcinoma is not as marked as the decrease in squamous cervical cancer, a trend which has been attributed to difficulties in cytological sampling of endocervical cells using the Pap test, diverse appearance and less well defined characteristics of adenocarcinoma, and a poorer understanding of the natural history of how glandular abnormalities give rise to adenocarcinoma (NHMRC 2005; Wang et al. 2006).

Identification of Aboriginal and Torres Strait Islander people in cancer registry records of new cases is not complete as Indigenous status is not yet included in pathology forms and reporting of Indigenous status is primarily sourced from hospital records.

In 2000–2004, despite under-reporting, cervical cancer incidence in Aboriginal and Torres Strait Islander women was 16.9 new cases per 100,000 women for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory combined, more than double the non-indigenous rate of 7.1 new cases per 100,000 women (ABS & AIHW 2008).

Indicator 5.1 Incidence of micro-invasive squamous cervical cancer

Incidence of micro-invasive squamous cell carcinoma per 100,000 estimated resident population in a 12-month period for women of all ages and for the target age group 20–69 years

Trend in incidence of micro-invasive squamous cervical cancer

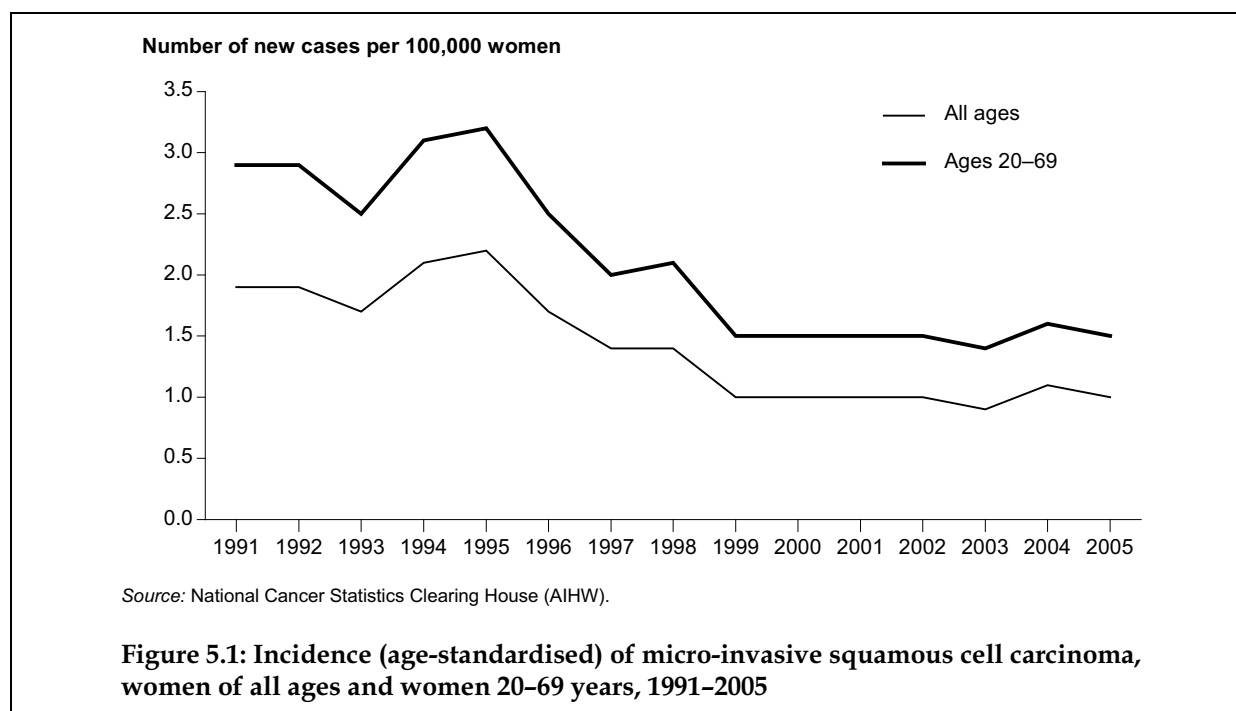


Table 5.1: Incidence (age-standardised) of micro-invasive squamous cell carcinoma, women of all ages and women 20–69 years, 1991–2005

Age	Year														
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Number of new cases per 100,000 women														
All ages	1.9	1.9	1.7	2.1	2.2	1.7	1.4	1.4	1.0	1.0	1.0	1.0	0.9	1.1	1.0
Ages 20–69 years	2.9	2.9	2.5	3.1	3.2	2.5	2.0	2.1	1.5	1.5	1.5	1.5	1.4	1.6	1.5

Note: Age-standardised rates are the number of micro-invasive squamous cell carcinomas detected per 100,000 women and age-standardised to the Australian population at 30 June 2001.

- In 1991, when the Program commenced, 167 new cases of micro-invasive squamous cell carcinoma were diagnosed, 156 of which were in the 20–69 years age group. By 2005, this number had declined to 97 new cases, with 94 of these in the 20–69 years age group.
- In 1991, the age-standardised incidence rate of micro-invasive squamous cell carcinoma was 1.9 per 100,000 women for women of all ages and 2.9 per 100,000 women for women aged 20–69 years. By 2005, these rates had decreased to 1.0 per 100,000 women of all ages and 1.5 per 100,000 women in the target age group of 20–69 years.

For more information, see tables A25 and A26 beginning on page 84.

Incidence of micro-invasive squamous cervical cancer by age

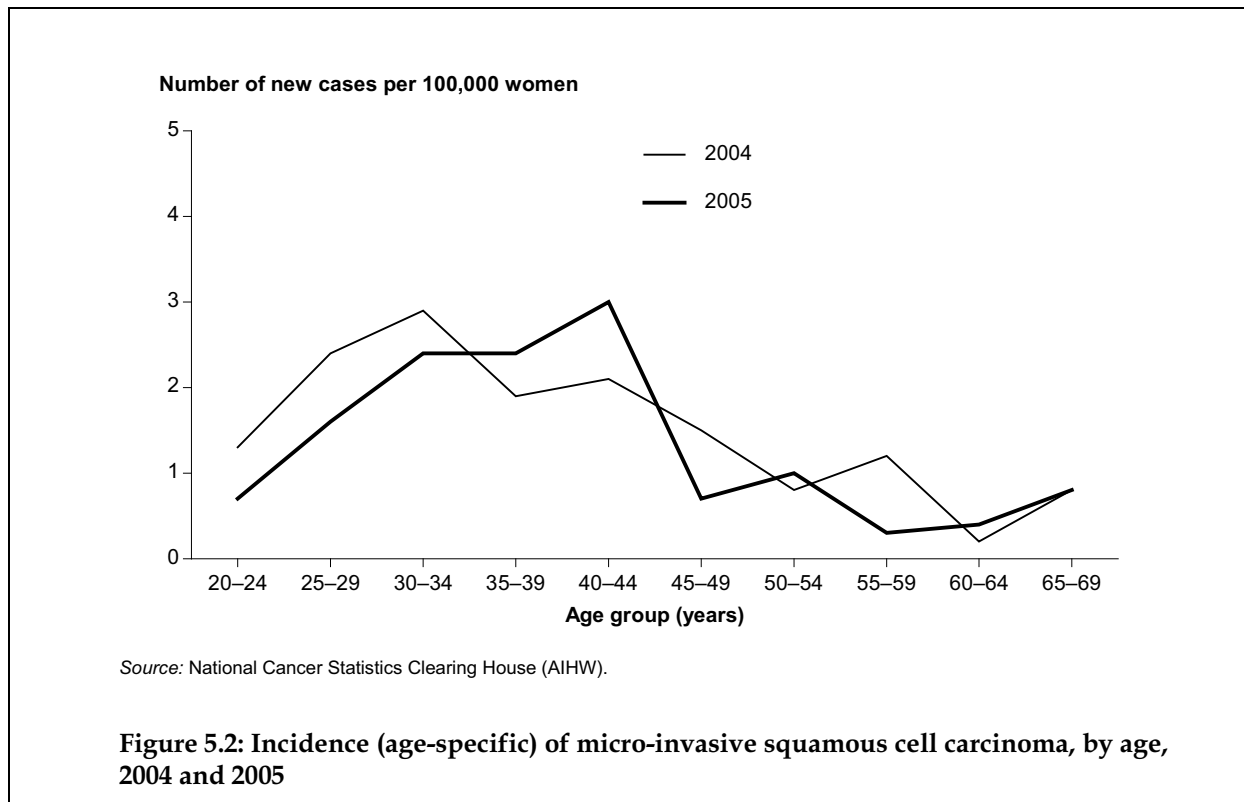


Table 5.2: Incidence (age-specific and age-standardised) of micro-invasive squamous cell carcinoma, by age, 2004 and 2005

Year	Age group (years)										20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
	Number of new cases per 100,000 women										
2004	1.3	2.4	2.9	1.9	2.1	1.5	0.8	1.2	0.2	0.8	1.6 (1.3-2.0)
2005	0.7	1.6	2.4	2.4	3.0	0.7	1.0	0.3	0.4	0.8	1.5 (1.2-1.8)

Notes

- Age-specific rates for 5-year age groups are the number of micro-invasive squamous cell carcinomas detected per 100,000 women.
 - Age-standardised rates for the target age group 20-69 years are the number of micro-invasive squamous cell carcinomas detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.
- In 2005, the highest incidence rates for micro-invasive squamous cell carcinoma were for women aged 40-44 years, 35-39 years and 30-34 years, at 3.0, 2.4, and 2.4 cases per 100,000 women, respectively. The rate declined to 1.0 or below per 100,000 women for women aged 45 years and over.
 - The incidence of micro-invasive squamous cell carcinoma increased in women aged 35-44 years between 2004 and 2005. This was from 1.9 per 100,000 women to 2.4 per 100,000 women in the 30-34 year age group, and from 2.1 to 3.0 in women aged 40-44 years.
 - The incidence of micro-invasive squamous cell carcinoma decreased in women aged 20-34 years between 2004 and 2005. This was from 1.3 per 100,000 women to 0.7 per 100,000 women in the 20-24 year age group, from 2.4 to 1.6 in women aged 25-29 years, and from 2.9 to 2.4 in women aged 30-34 years.

- The age-standardised incidence rates of micro-invasive cell carcinoma for women in the target age group 20–69 years did not differ significantly between 2004 and 2005.

For more information, see tables A25 and A26 beginning on page 84.

Indicator 5.2 Incidence of squamous, adenocarcinoma, adenosquamous and other cervical cancer

Incidence of squamous, adenocarcinoma, adenosquamous and other cervical cancer (micro-invasive and invasive) per 100,000 estimated resident female population in a 12-month period for women of all ages and for the target age group 20–69 years

Trend in incidence of all cervical cancer

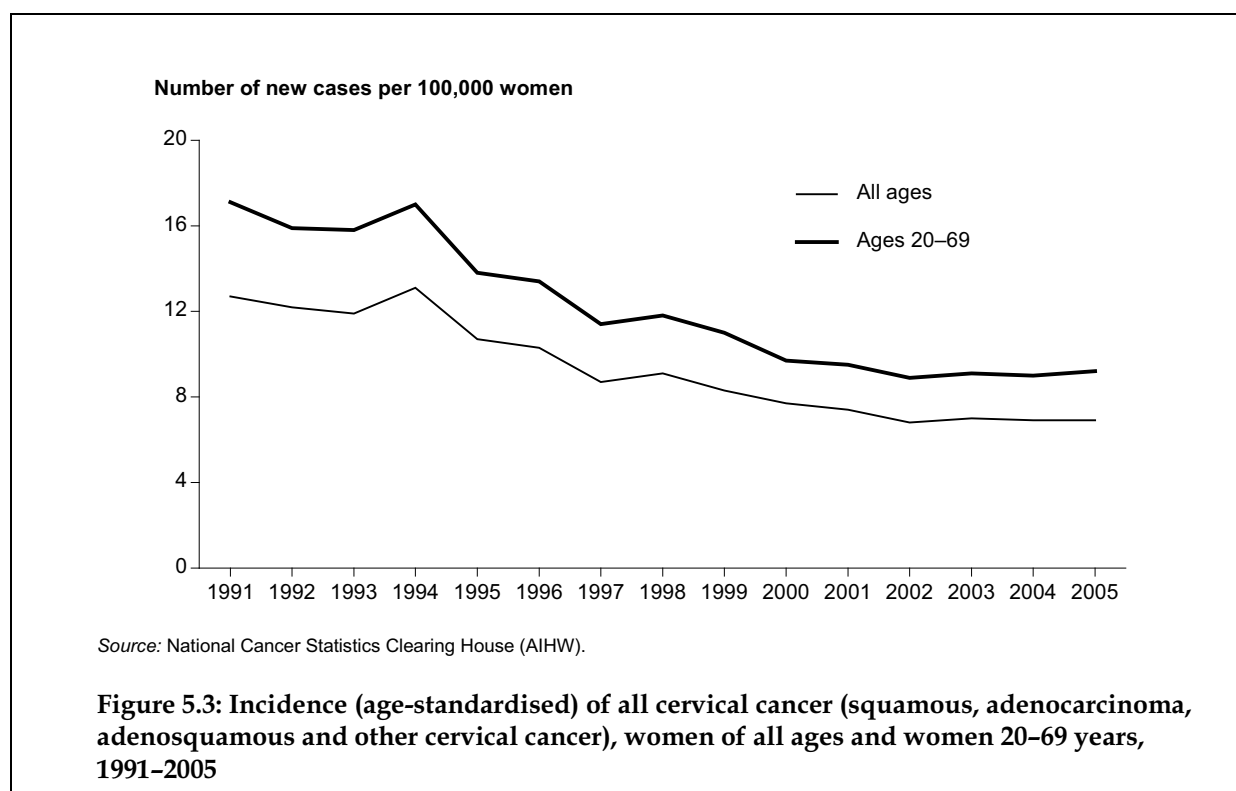


Table 5.3: Incidence (age-standardised) of all cervical cancer (squamous, adenocarcinoma, adenosquamous and other cervical cancer), women of all ages and women 20–69 years, 1991–2005

Age	Year														
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Number of new cases per 100,000 women														
All ages	12.7	12.2	11.9	13.1	10.7	10.3	8.7	9.1	8.3	7.7	7.4	6.8	7.0	6.9	6.9
Ages 20–69 years	17.1	15.9	15.8	17.0	13.8	13.4	11.4	11.8	11.0	9.7	9.5	8.9	9.1	9.0	9.2

Note: Age-standardised rates are the number of cervical cancers detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- In 1991, when the Program commenced, there were 1,092 new cases of cervical cancer diagnosed in Australia, 893 of these in women aged 20–69 years. In 2005, there were 734 new cases diagnosed, with 601 in the 20–69 years age group.

- In 1991, the age-standardised incidence rate of all cervical cancer was 12.7 per 100,000 women for women of all ages and 17.1 per 100,000 women for women aged 20–69 years. In 2005, these decreased to 6.9 per 100,000 women for women of all ages and 9.2 per 100,000 women for women aged 20–69 years.

For more information, see tables A27 and A28 beginning on page 86.

Incidence by age

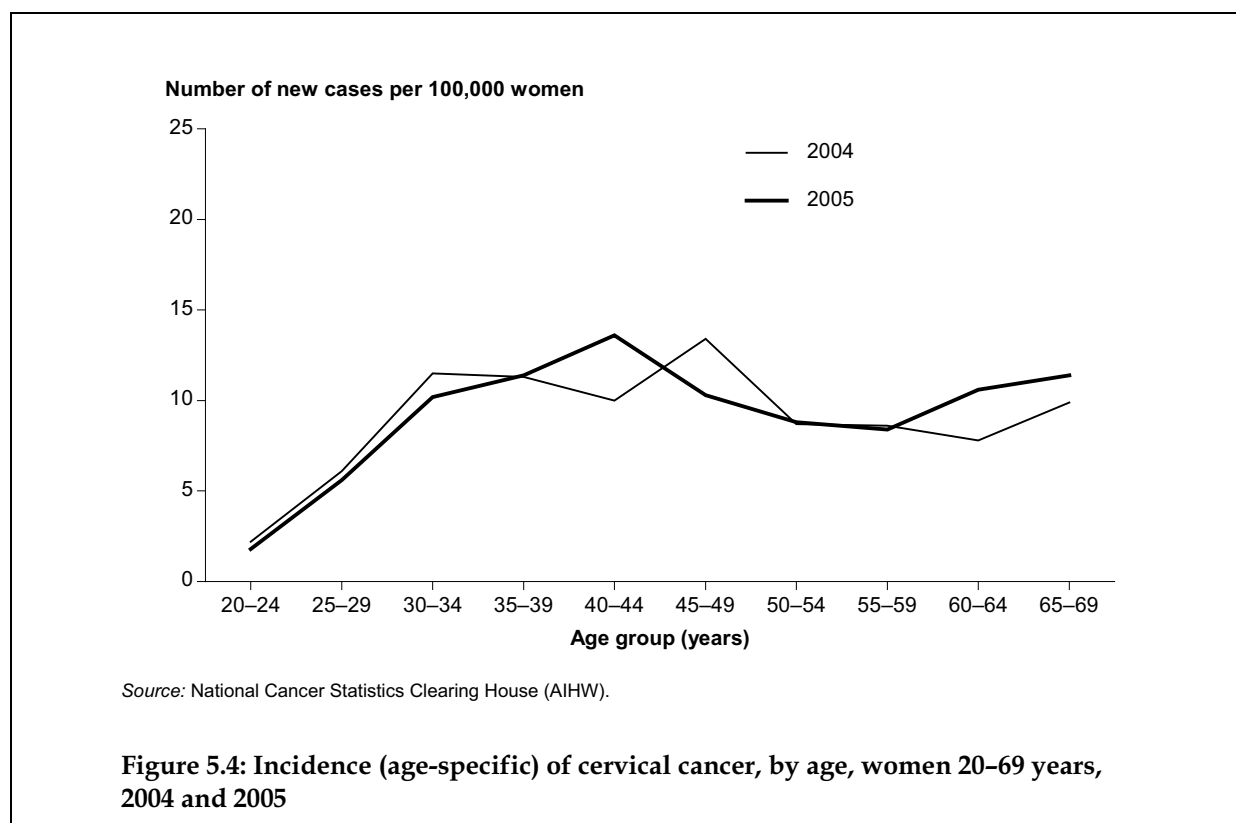


Table 5.4: Incidence (age-specific and age-standardised) of cervical cancer, by age, women 20–69 years, 2004 and 2005

Year	Age group (years)										20–69
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	
	Number of new cases per 100,000 women										
2004	2.2	6.1	11.5	11.3	10.0	13.4	8.7	8.6	7.8	9.9	9.0 (8.3–9.8)
2005	1.8	5.6	10.2	11.4	13.6	10.3	8.8	8.4	10.6	11.4	9.2 (8.4–9.9)

Notes

- Age-specific rates for 5-year age groups are the number of cervical cancers detected per 100,000 women.
 - Age-standardised rates for the target age group 20–69 years are the number of cervical cancers detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.
- For women in the target age group 20–69 years, the highest incidence rate of cervical cancer in 2005 was for women aged 40–44 years with 13.6 new cases per 100,000 women, and the lowest incidence rate was for women aged 20–24 years with 1.8 new cases per 100,000 women.
 - For women of all ages, the highest incidence rate of cervical cancer in 2005 was for women aged 85 years and over with 15.4 new cases per 100,000 women.
 - The age-standardised incidence rates of cervical cancer for women in the target age group 20–69 years did not differ significantly between 2004 and 2005.

For more information, see tables A27 and A28 beginning on page 86.

Incidence by state and territory

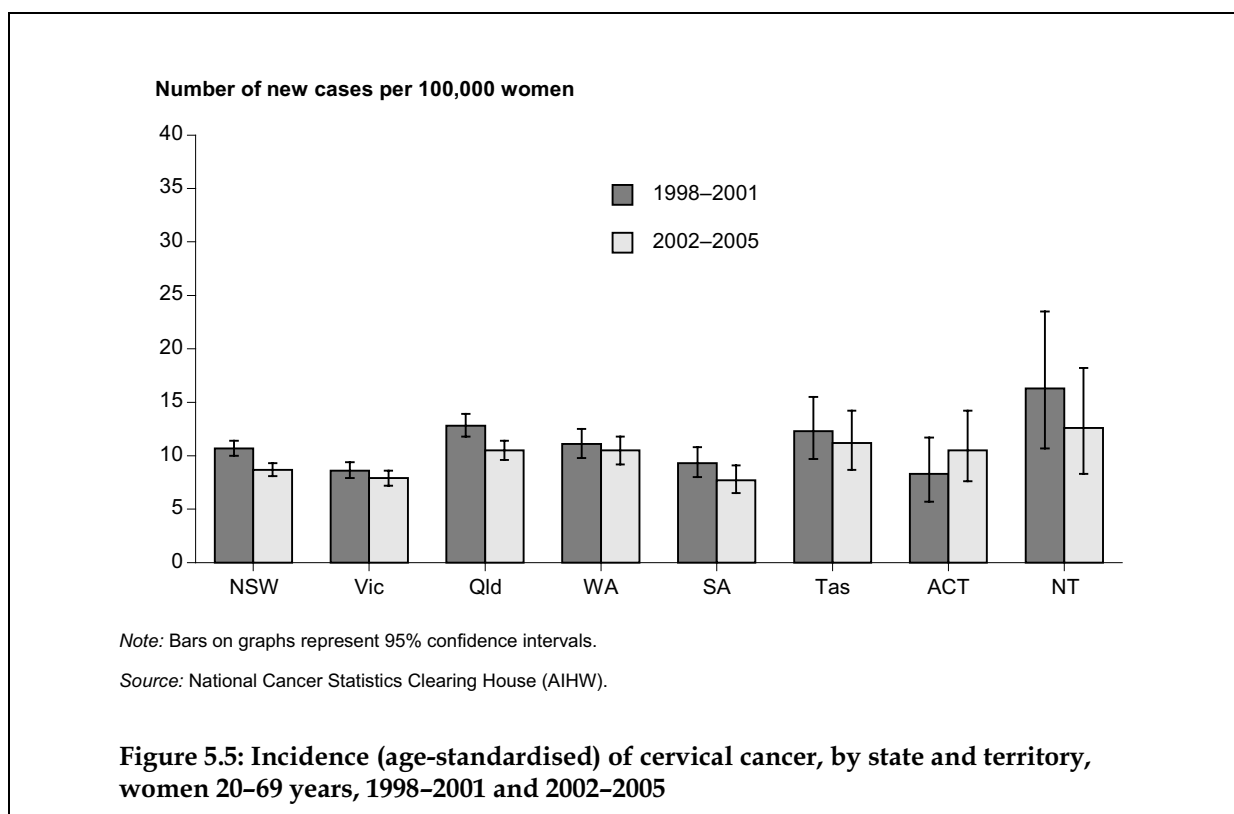


Table 5.5: Incidence (age-standardised) of cervical cancer, by state and territory, women 20-69 years, 1998-2001 and 2002-2005

	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
Number of new cases per 100,000 women									
1998-2001	10.7	8.6	12.8	11.1	9.3	12.3	8.3	16.3	10.5
95% CI	10.0-11.4	7.9-9.4	11.8-13.9	9.8-12.5	8.0-10.8	9.7-15.5	5.7-11.7	10.7-23.5	10.1-10.9
2002-2005	8.7	7.9	10.5	10.5	7.7	11.2	10.5	12.6	9.0
95% CI	8.1-9.3	7.2-8.6	9.6-11.4	9.2-11.8	6.5-9.1	8.7-14.2	7.6-14.2	8.3-18.2	8.7-9.4

Note: Age-standardised rates are the number of cervical cancers detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- In the period 2002-2005, Victoria and South Australia had the lowest age-standardised incidence rates of cervical cancer, at 7.9 and 7.7 new cases per 100,000 women, respectively, for women aged 20-69 years. The Northern Territory had the highest rate, at 12.6 new cases per 100,000 women.
- The age-standardised incidence rates declined in all states and territories, except for the Australian Capital Territory, between the periods 1998-2001 and 2002-2005. The declines were significant in New South Wales, Queensland and Australia as a whole.

For more information, see tables A29-A32 beginning on page 88.

Incidence by histological type

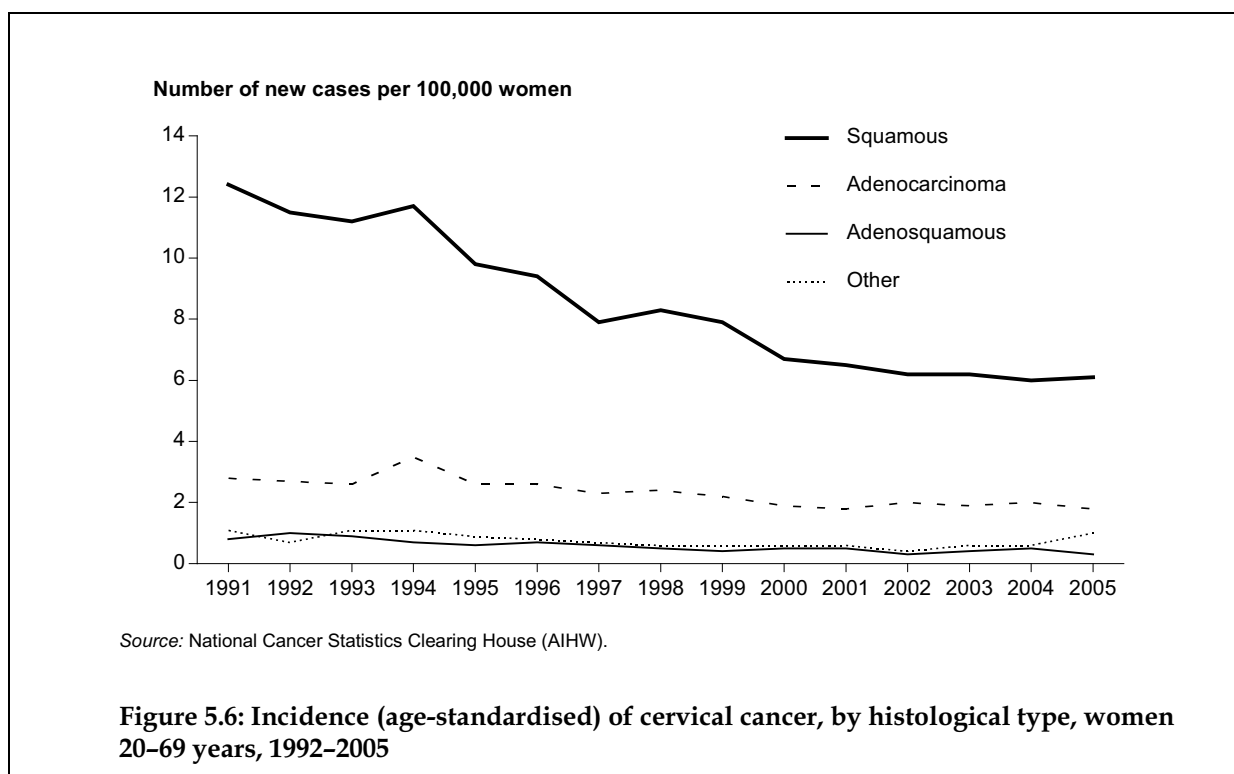


Table 5.6: Incidence (age-standardised) of cervical cancer, by histological type, women 20–69 years, 1992–2005

Histological type	Year														
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Number of new cases per 100,000 women														
Squamous	12.4	11.5	11.2	11.7	9.8	9.4	7.9	8.3	7.9	6.7	6.5	6.2	6.2	6.0	6.1
Adenocarcinoma	2.8	2.7	2.6	3.5	2.6	2.6	2.3	2.4	2.2	1.9	1.8	2.0	1.9	2.0	1.8
Adenosquamous	0.8	1.0	0.9	0.7	0.6	0.7	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.5	0.3
Other	1.1	0.7	1.1	1.1	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.4	0.6	0.6	1.0

Note: Age-standardised rates are the number of cervical cancers detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- In 2005, squamous cell carcinomas of the cervix accounted for 66.1% of all new cases of cervical cancer in women aged 20–69 years, adenocarcinomas 19.8%, adenosquamous 3.2%, and the remaining 11.0% a range of other mixed and unknown histologies.
- The trend from 1991 to 2005 for squamous, adenocarcinoma and adenosquamous histological types has been a significant decrease in the age-standardised rates of cervical cancer per 100,000 women aged 20–69 years.
- Despite cervical screening being less effective in reducing adenocarcinoma incidence rates due to the difficulties in sampling and detecting cells in the endocervical canal with a Pap test (Heley 2007), the incidence rate of adenocarcinoma declined significantly between 1991 and 2005.

For more information, see tables A33–A36 beginning on page 92.

Indicator 5.3 Incidence by geographic region

Incidence of cervical cancer per 100,000 resident female population in a 4-year period by geographic region for women of all ages and for the target age group 20–69 years

Incidence by geographic region

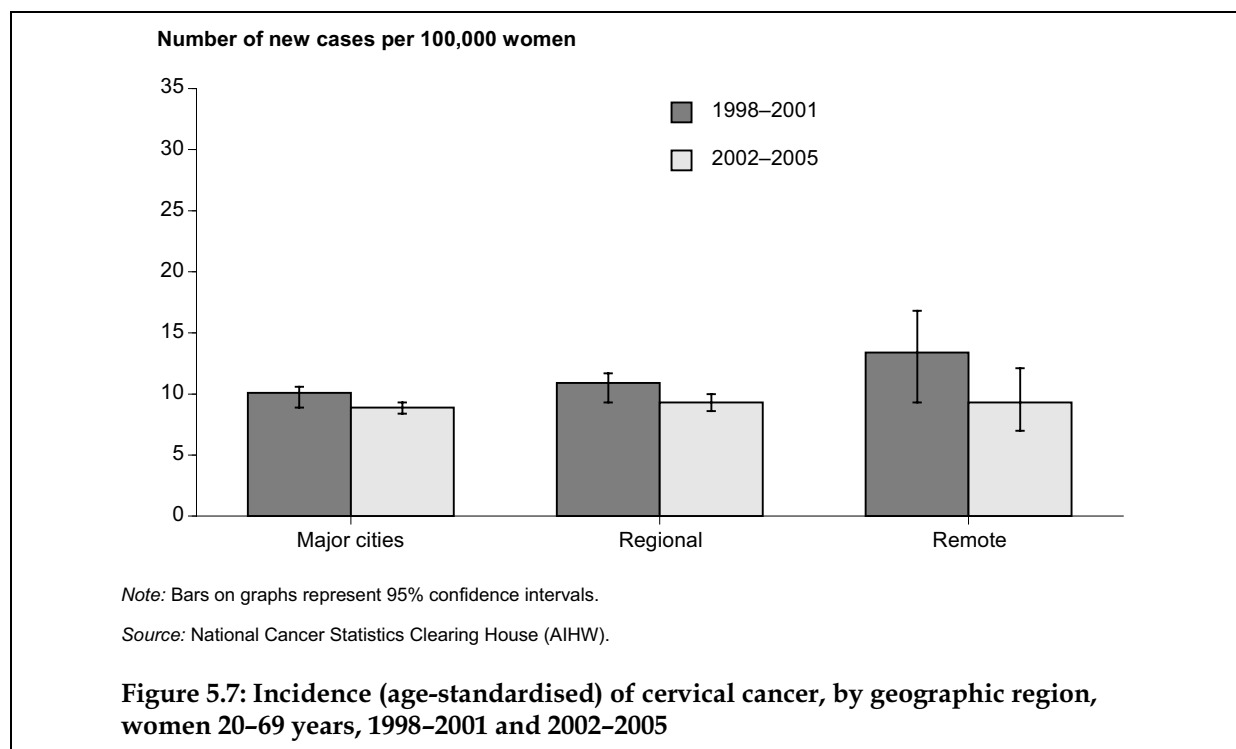


Table 5.7: Incidence (age-standardised) rates of cervical cancer, by geographic region, women 20–69 years, 1998–2001 and 2002–2005

	Geographic regions					
	Major cities		Inner and outer regional		Remote and very remote	
	1998–2001	2002–2005	1998–2001	2002–2005	1998–2001	2002–2005
	Number of new cases per 100,000 women					
AS rate	10.1	8.9	10.9	9.3	13.4	9.3
95% CI	9.6–10.6	8.4–9.3	10.2–11.7	8.6–10.0	10.5–16.8	7.0–12.1

Note: Age-standardised rates are the number of cervical cancers detected per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- In 2002–2005, there were 1,900 new cases of cervical cancer in *Major cities* (66.1% of all new cases), 888 new cases in *Inner and outer regional* areas (30.9% of all new cases) and 69 new cases in *Remote and very remote* areas (2.4% of all new cases).
- The age-standardised cervical cancer incidence rates for women aged 20–69 years were significantly lower in *Major cities* (8.9 per 100,000 women) and *Inner and outer regional* areas (9.3) in 2002–2005 than in 1998–2001 (10.1 and 10.9 respectively). The incidence rate in *Remote and very remote* areas did not change significantly between 1998–2001 (13.4 per 100,000 women) and 2002–2005 (9.3).

For more information, see tables A37 and A38 beginning on page 94.

Indicator 6 Mortality

Cervical cancer is one of the few cancers for which there is an efficacious screening test for detection of precursors of the disease. Most deaths due to cervical cancer are potentially avoidable (Marcus & Crane 1988). The objective of the National Cervical Screening Program is to reduce this mortality rate.

The three mortality indicators for the Program are mortality by age and state, mortality by location (*Major cities, Inner and outer regional and Remote and very remote*), and mortality in Aboriginal and Torres Strait Islander women. However, it should be noted that changes in mortality rates may not be evident for a number of years following an improvement in the participation rates. Therefore, the effectiveness of this measure needs to be viewed in the longer rather than the shorter term.

For this report the most recent national data available on mortality are for 2006.

Key points

In 2006, mortality from cervical cancer was 1.9 deaths per 100,000 women for the target age group 20–69 years and for women of all ages. This is a substantial reduction from mortality in 1991, at the start of the screening program, when it was 4.0 deaths per 100,000 women for the target age group and for women of all ages.

In 2006, the highest mortality from cervical cancer was in women aged 85 years and over, at 13.8 deaths per 100,000 women. Within the target age group, the highest mortality was in women aged 60–64 years, at 5.7 deaths per 100,000 women.

Mortality from cervical cancer in women aged 20–69 years for the period 2003–2006 was 10.3 per 100,000 women for Aboriginal and Torres Strait Islander women, 5.15 times as high as the mortality rate of 2.0 per 100,000 women for other Australian women.

Indicator 6.1 Mortality by age group

Mortality for cervical cancer per 100,000 estimated resident female population in a 12-month period for women of all ages and for the target age group 20–69 years

Trend in mortality from cervical cancer

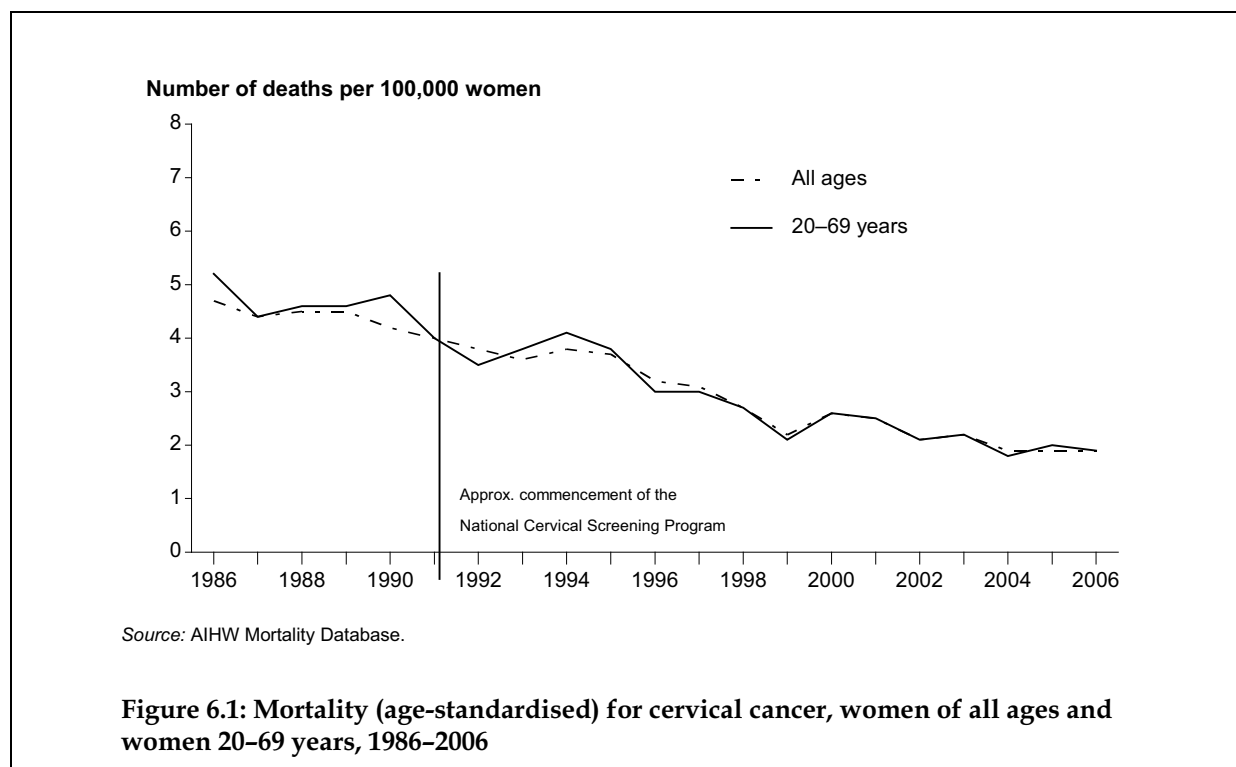


Table 6.1: Mortality (age-standardised) for cervical cancer, women of all ages and women 20–69 years, 1986–2006

Age group (years)	Year																					
	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	
	Number of death per 100,000 women																					
All ages	4.7	4.4	4.5	4.5	4.2	4.0	3.8	3.6	3.8	3.7	3.2	3.1	2.7	2.2	2.6	2.5	2.1	2.2	1.9	1.9	1.9	
Ages 20–69 years	5.2	4.4	4.6	4.6	4.8	4.0	3.5	3.8	4.1	3.8	3.0	3.0	2.7	2.1	2.6	2.5	2.1	2.2	1.8	2.0	1.9	

Note: Age-standardised rates are the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- Cervical cancer was the 19th most common cause of cancer death in Australia women in 2006, accounting for 224 deaths.
- The age-standardised mortality rate from cervical cancer for women of all ages has fallen from 4.0 per 100,000 women in 1991 at the start of the screening program to 1.9 per 100,000 women in 2006.

For more information, see tables A39 and A40 beginning on page 96.

Mortality by age

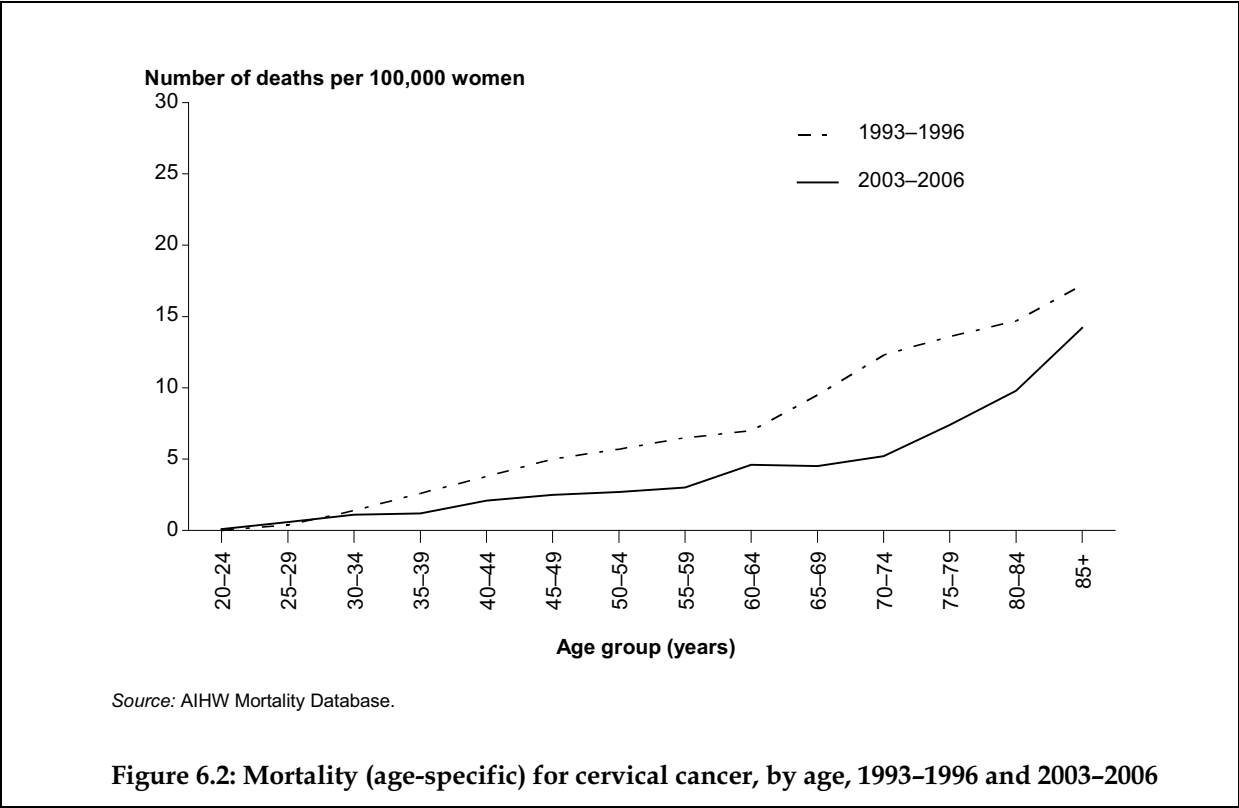


Table 6.2: Mortality (age-specific) for cervical cancer, by age, 1993–1996 and 2003–2006

Period	Age group (years)													
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+
	Number of deaths per 100,000 women													
1993–1996	0.0	0.4	1.4	2.6	3.8	5.0	5.7	6.5	7.0	9.5	12.3	13.6	14.7	17.2
2003–2006	0.1	0.6	1.1	1.2	2.1	2.5	2.7	3.0	4.6	4.5	5.2	7.4	9.8	14.2

Note: Age-specific rates are the number of deaths from cervical cancer per 100,000 women.

- Mortality from cervical cancer declined between the periods 1993–1996 and 2003–2006 in all age groups for women aged 30 years and over.
- Mortality rates of cervical cancer increase with age. The highest mortality rate in 2003–2006 was in women aged 85 years and over with 14.2 deaths per 100,000 women.

For more information, see tables A39 and A40 beginning on page 96.

Mortality by state and territory

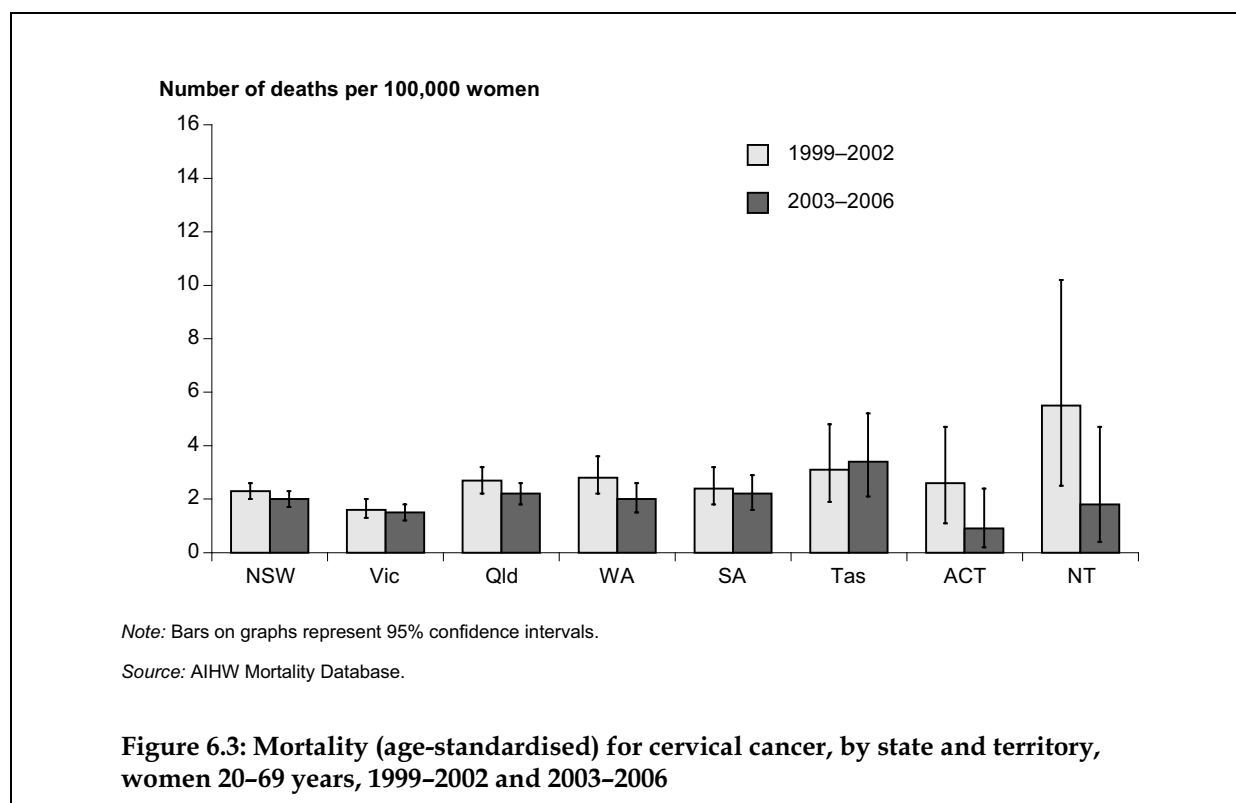


Table 6.3: Mortality (age-standardised) for cervical cancer, by state and territory, women 20–69 years, 1999–2002 and 2003–2006

Period	States and territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
Number of deaths per 100,000 women									
1999–2002	2.3	1.6	2.7	2.8	2.4	3.1	2.6	5.5	2.3
95% CI	2.0–2.6	1.3–2.0	2.3–3.3	2.1–3.5	1.7–3.2	1.8–4.7	1.2–4.8	2.5–10.2	2.1–2.5
2003–2006	2.0	1.5	2.2	2.0	2.2	3.4	0.9	1.8	2.0
95% CI	1.8–2.4	1.2–1.8	1.8–2.7	1.5–2.7	1.6–2.9	2.1–5.1	0.3–2.4	0.5–4.7	1.8–2.2

Note: Age-standardised rates are the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- In the 4-year period 2003–2006, there were 890 deaths from cervical cancer in Australia compared with 976 in 1999–2002.
- In 2003–2006, age-standardised mortality rates for women in the age group 20–69 years ranged between 0.9 deaths per 100,000 women in the Australian Capital Territory to 3.4 deaths per 100,000 women in Tasmania.
- In women aged 20–69 years, the age-standardised mortality rates decreased in all jurisdictions between the periods 1999–2002 and 2003–2006, except in Tasmania where the rate increased from 3.1 to 3.4 deaths per 100,000 women. However, there was no significant decline in each jurisdiction or at the national level between the two periods.

For more information, see tables A41–A44 beginning on page 98.

Indicator 6.2 Mortality by geographic region

Mortality for cervical cancer per 100,000 estimated resident female population in a 4-year period by geographic region for women of all ages and for the target age group 20–69 years

Mortality by geographic region

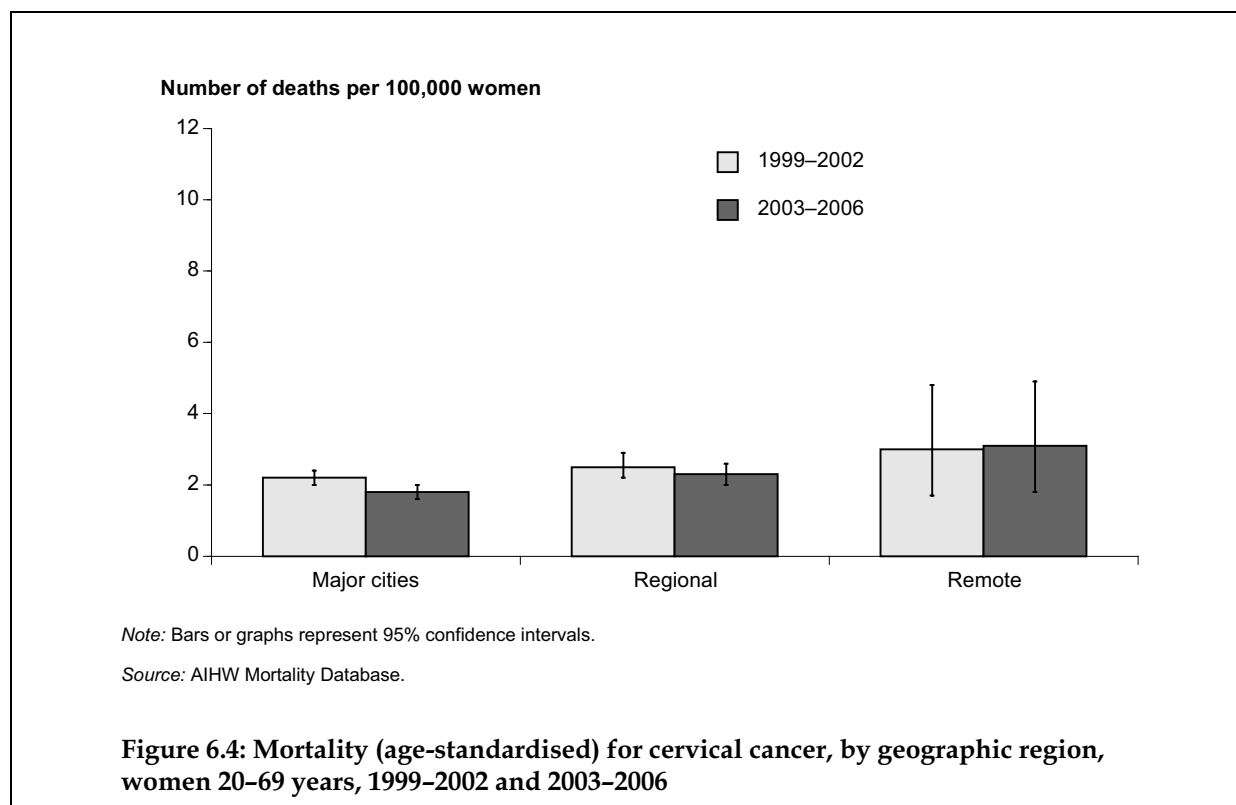


Table 6.4: Mortality (age-standardised) for cervical cancer, by geographic region, women 20–69 years, 1999–2002 and 2003–2006

	Geographic regions					
	Major cities		Inner and outer regional		Remote and very remote	
	1999–2002	2003–2006	1999–2002	2003–2006	1999–2002	2003–2006
Number of deaths per 100,000 women						
AS rate	2.2	1.8	2.5	2.3	3.0	3.1
95% CI	2.0–2.4	1.6–2.0	2.1–2.9	2.0–2.6	1.7–4.9	1.8–4.9

Note: Age-standardised rates are the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.

- During the 4-year period 2003–2006, there were 565 deaths in *Major cities* (63.5% of all cervical cancer deaths in that period), 299 deaths in *Inner and outer regional* areas (33.6% of all cervical cancer deaths) and 25 deaths in *Remote and very remote* (2.8% of all cervical cancer deaths) areas.

- In women aged 20–69 years during the 4-year period 2003–2006, age-standardised mortality rates from cervical cancer were 1.8 per 100,000 women in *Major cities*, 2.3 deaths per 100,000 women in *Inner and outer regional* areas, and 3.1 in *Remote and very remote* areas. These were not significantly different.

For more information, see tables A45 and A46 beginning on page 102.

Indicator 6.3 Mortality in Aboriginal and Torres Strait Islander women

Mortality for cervical cancer per 100,000 estimated resident female population in a 4-year period for Aboriginal and Torres Strait Islander women and for other Australian women for women of all ages and for the target age group 20–69 years

Mortality in Aboriginal and Torres Strait Islander women

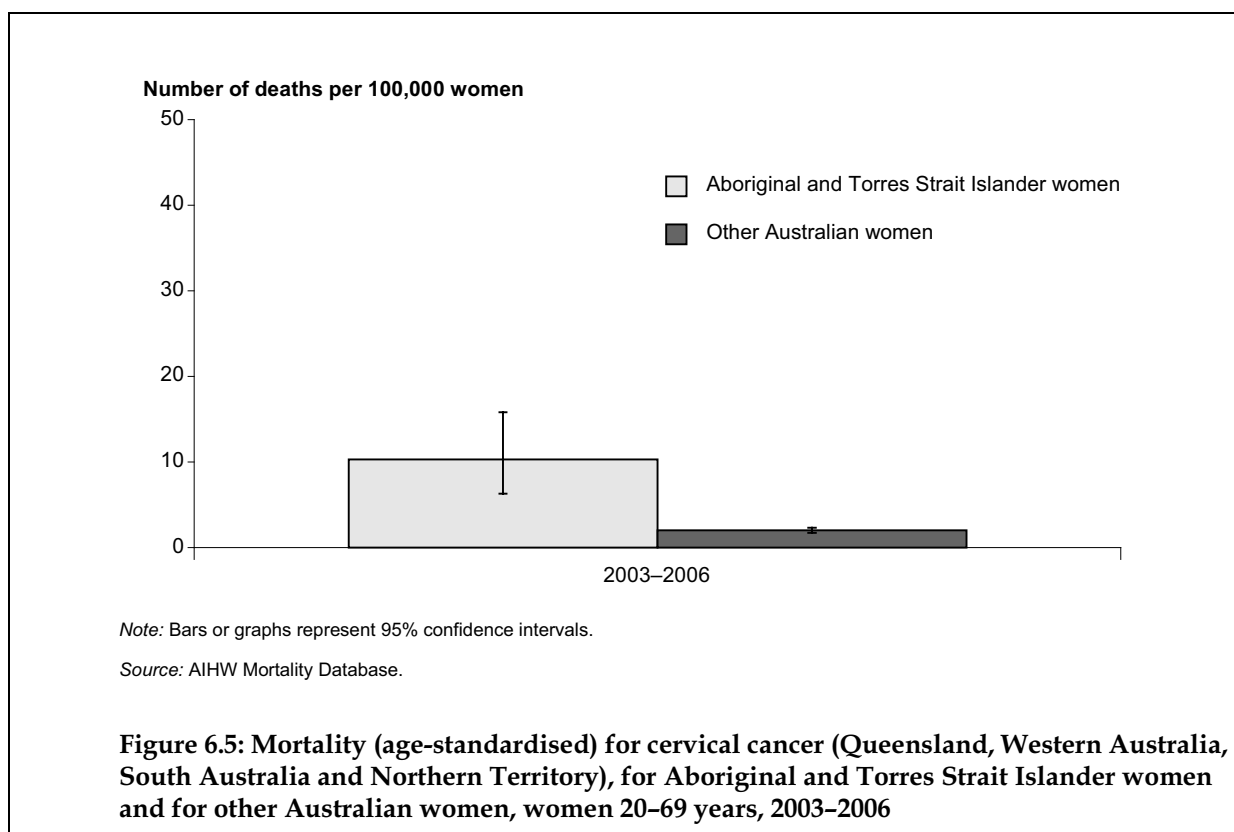


Table 6.5: Mortality (age-standardised) for cervical cancer (Queensland, Western Australia, South Australia and Northern Territory), for Aboriginal and Torres Strait Islander women and for other Australian women, women 20–69 years, 2003–2006

	Aboriginal and Torres Strait Islander women	Other Australian women
	Number of deaths per 100,000 women	
AS rate	10.3	2.0
95% CI	6.3–15.8	1.7–2.3

Notes

1. Age-standardised rates are the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.
2. Only Indigenous mortality data from Queensland, Western Australia, South Australia and the Northern Territory are considered to be statistically reliable; therefore, cervical cancer mortality data used in this analysis are confined to these jurisdictions.

- The age-standardised mortality rate attributable to cervical cancer among Aboriginal and Torres Strait Islander women aged 20–69 years in the 2003–2006 period was 10.3 per 100,000 women, compared with 2.0 deaths per 100,000 women for other Australian women in the same age range. This difference was significant.

For more information, see Table A47 on page 104.