

Cervical Screening in Australia 2002–2003

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Summary

This report is the seventh national report on the performance of the National Cervical Screening Program in Australia. Cervical screening services are provided as part of mainstream health services with general practitioners performing the great majority of Pap smears. The program is funded by the Australian Government and the state and territory governments.

This report presents statistics on the national performance monitoring indicators for the program. These were developed by the National Advisory Committee to the program; in 2004 this committee was replaced by the Australian Screening Advisory Committee.

Overview

The major goals of the Program are to reduce incidence and mortality through screening to detect abnormalities of the cervix early so that medical intervention can avert the possible progression to cervical cancer.

The statistics in this report indicate that the Program is continuing to be very successful in meeting this goal. The treatment of high-grade intraepithelial abnormalities has reduced the incidence of cervical cancer among women aged 20–69 from 17.1 per 100,000 women in 1991 to 9.5 in 2001, and mortality has declined from 3.8 per 100,000 women in 1993 to 2.2 in 2003.

The age-standardised participation rate among women in the target age range of 20–69 years for 2002–2003 was 60.7%; this is a small decline from 61.0% in 2000–2001. This is partly due to improvements in measurement by the screening programs of participation. However, the level of participation suggests that there is room for further improvement in the level of screening. This is of particular importance for Indigenous women whose cervical cancer incidence rate was higher than for other Australian women in the Northern Territory, Queensland, South Australia, Western Australia, the only jurisdictions for which adequate data were available (ABS & AIHW 2005).

The main features in this report are as follows.

Participation

- From January 2002 to December 2003 there were 3,382,825 women screened in Australia for pre-cancerous changes to cervical cells; the target age group, 20–69 years, accounted for 98% of the women screened.
- There was a decline in participation among younger women (20–44 years) and an improvement in participation for older women (45–69 years) in 2002–2003 when compared with 2000–2001; however, these changes were relatively small. Screening is particularly important for older women because they experience a relatively high incidence of cervical cancer.

Early re-screening

The recommended screening interval is 2 years following a negative smear.

- Of a cohort of women screened in February 2002 (except for Queensland where the 21-month period starts in March) who had a negative Pap smear result, 28% had a Pap smear or were screened again within 21 months. It is not known what proportion of this early re-screening is justified on clinical grounds.

- There has been a decline in the proportion of women following a normal Pap smear who are being re-screened within 21 months. For the 2002 cohort the early re-screening rate was 28%, whereas for the 2001 cohort it was 29.3%.

Detection of abnormalities

A low-grade abnormality includes atypia, warty atypia, possible cervical intraepithelial neoplasia (CIN), equivocal CIN, and CIN 1. A high-grade abnormality is defined to include CIN 1/2, CIN 2 and CIN 3 and adenocarcinoma in situ.

- The ratio of histologically confirmed low-grade abnormalities to high-grade abnormalities was 1.24 for Australia in 2003 compared with 1.26 in 2002; the ratio has fluctuated each year between 1.24 and 1.47 since 1997.
- In 2003, the National Cervical Screening Program detected 14,745 women in the target age group 20–69 years with high-grade abnormalities. In 2000, the first year when data for all jurisdictions were included, the rate was 7.5 per 1,000 women screened; the rate was also 7.5 in 2003.
- The number of high-grade abnormalities detected per 1,000 women screened was highest in the younger age groups. For women under 30 years of age, the rate of high-grade abnormalities was over 16 per 1,000 women screened whereas it was less than 2 per 1,000 for women aged 50–69 years.

Incidence and mortality

- The number of new cases of cervical cancer in Australia has continued to decline. There were 735 new cases in Australia in 2001 compared with 1,078 detected in 1990 before the start of the organised screening program.
- In 2001 there were 98 new cases of micro invasive cancer for all women; all but 7 of these women were in the target age group, 20–69 years. The highest detection rates were for women in the 30–34 and 45–49 age groups.
- Cervical cancer is the 18th most common cause of cancer mortality in women, accounting for 227 and 238 deaths in 2002 and 2003 respectively compared with 337 in 1990 before the start of the organised program. Although there was some fluctuation from year to year, the age-standardised mortality rate from cervical cancer declined between 1983 and 2003. For all women there was a decline from 64.0 deaths per 100,000 women in 1983 to 2.2 per 100,000 women in 2003. During the same period, for women in the target age group of 20–69 years, the rate declined from 5.4 per 100,000 to 2.2 per 100,000.
- Women in the target age group from remote locations experienced relatively high incidence and mortality rates from cervical cancer compared with women in major cities. The differences were not statistically significant. However, between the periods 1996–1999 and 2000–2003, the age-standardised cervical cancer mortality rate declined in all regions (major cities, regional and remote).
- Before 1998, only Western Australia, South Australia and the Northern Territory had Indigenous mortality registration data of sufficient quality to be publishable. In 1998, Queensland's coverage of Indigenous deaths reached an acceptable level to be included in the analysis of Indigenous mortality data. For these four jurisdictions, in the period 2000–2003 there were 25 deaths from cervical cancer among Indigenous women in the target age group (an age-standardised mortality rate of 12.0 per 100,000 women). This is almost five times the corresponding rate in other Australian women (2.5 per 100,000 in 2000–2003).

One year to 5 year comparison table for national data for all indicators

| Indicator | Latest reporting period | | Previous reporting period | | Five years ago | |
|---|-------------------------|-------|---------------------------|-------|------------------------------|--------------------|
| | Year | Rate | Year | Rate | Year | Rate |
| Participation in 24-month period (%) | 2002–2003 | 60.7% | 2000–2001 | 61.0% | 1997–1998 | 63.9% |
| Early re-screening within 21 months of negative Pap smear | February 2002 cohort | 28% | February 2001 cohort | 29.2% | Not available ^(a) | |
| Ratio of low- and high-grade abnormalities | 2003 | 1.24 | 2002 | 1.26 | 1998 | 1.35 |
| High-grade abnormalities per 1,000 women screened (age-standardised rate) | 2003 | 7.5 | 2002 | 7.5 | 1998 | 6.7 ^(b) |
| Incidence of cervical cancer per 100,000 women (age-standardised rate) | 2001 | 9.5 | 2000 | 9.7 | 1996 | 13.4 |
| Mortality from cervical cancer per 100,000 women (age-standardised rate) | 2003 | 2.2 | 2002 | 2.1 | 1998 | 2.7 |

(a) The indicator reported on a 24 month period following a negative Pap smear up to and including 1998; in 1999 the indicator was changed to a 21-month interval.

(b) This age-standardised rate is not comparable to those for 2002 and 2003 because in 1998 data were not available for all jurisdictions. In addition, the 1998 age-standardised rate was standardised to the 1991 Australian population whereas the rates for 2002 and 2003 were standardised to the 2001 Australian population.

National cervical screening monitoring indicators

This report monitors the performance of the National Cervical Screening Program using ten 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 deaths from cancer of the cervix.

Screening 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 ten indicators and their definitions follows. The target age group for the National Cervical Screening Program is 20–69 years.

Indicator 1: Participation rate for cervical screening

Percentage of women screened in a 24-month period by 5-year age groups (20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69), for all ages (20–80+) and the target age group (20–69 years).

Indicator 2: Early re-screening

Proportion of women re-screened by number of re-screens during a 21-month period following a negative smear.

Indicator 3: Low-grade abnormality detection

Number of women with a histologically verified low-grade intraepithelial abnormality detected in a 12-month period as a ratio of the number of women with a histologically verified high-grade intraepithelial abnormality detected in the same period.

Indicator 4: High-grade abnormality detection

Detection rate for histologically verified high-grade intraepithelial abnormalities per 1,000 women screened in a 12-month period by 5-year age groups (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+) and for the target age group (20–69 years, age-standardised).

Indicator 5.1: Incidence of micro-invasive squamous cell carcinoma

Incidence rate of micro-invasive squamous cell carcinoma per 100,000 estimated resident female population in a 12-month period by 5-year age groups (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+) and for the target age group (20–69 years, age-standardised).

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

Incidence rate of squamous, adenocarcinoma, adenosquamous and other cervical cancers (micro-invasive and invasive) per 100,000 estimated resident female population in a 12-month period by 5-year age groups (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+) and for the target age group (20–69 years, age-standardised).

Indicator 6.1: Mortality

Death rate from cervical cancer per 100,000 estimated resident female population in a 12-month period by 5-year age groups (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+) and for the target age group (20–69 years, age-standardised).

Periodic indicators

Periodic indicators have been developed to report on issues of importance in monitoring the outcomes of the cervical screening program over a longer period of time than 1 year. This longer period allows for a greater aggregation of information on issues that are subject to wide annual fluctuations and for a more confident and meaningful estimate of the outcomes. The periodic indicators presented in this report are based on a reporting period of 4 years.

Periodic incidence and mortality indicators by location

Geographic region

In reports before 2000–2001, analysis of incidence and mortality data by geographic region used the Rural, Remote and Metropolitan Areas (RRMA) classification. This classification was developed in 1994 by the then Department of Primary Industries and Energy and the then Department of Human Services and Health. It allows geographic regions to be classified into seven zones – two metropolitan, three rural and two remote zones.

This report uses a more recent geographic classification instead of the RRMA classification. The new system, known as the Australian Standard Geographical Classification (ASGC), groups geographic areas into five classes. These classes are based on Census Collection Districts (CDs) and defined using the Accessibility/Remoteness Index for Australia (ARIA). ARIA is a measure of the remoteness of a location from the services provided by large towns or cities. A higher ARIA score denotes a more remote location. The five classes of the ASGC, along with a sixth 'Migratory' class, are listed in Table 1.

Table 1: The remoteness areas for the ASGC

| Region | Collection districts within region |
|---------------------------|--|
| Major cities of Australia | CDs with an average ARIA index value of 0 to 0.2 |
| Inner regional Australia | CDs with an average ARIA index value greater than 0.2 and less than or equal to 2.4 |
| Outer regional Australia | CDs with an average ARIA index value greater than 2.4 and less than or equal to 5.92 |
| Remote Australia | CDs with an average ARIA index value greater than 5.92 and less than or equal to 10.53 |
| Very remote Australia | CDs with an average ARIA index value greater than 10.53 |
| Migratory | Areas composed of off-shore, shipping and migratory CDs |

Source: ABS 2001.

The ASGC is not directly comparable to the RRMA classification. Accessibility is judged purely on distance to one of the metropolitan centres. For example, the ASGC allocates Hobart to its second group (Inner regional Australia) and Darwin to its third group (Outer regional Australia), whereas the RRMA classification grouped them together with the other capital cities.

Indicator 5.3: Incidence by location

Incidence rate of cervical cancer per 100,000 estimated resident female population in a 4-year period by location and 5-year age groups (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+) and for the target age group (20–69 years, age-standardised).

Indicator 6.2: Mortality by location

Death rate from cervical cancer per 100,000 estimated resident female population in a 4-year period by location and 5-year age groups (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+) and for the target age group (20–69 years – age-standardised).

Indicator 6.3: Indigenous mortality

Death rate from cervical cancer per 100,000 estimated resident female population in a 4-year period by Indigenous status and 5-year age groups (20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75+) and for the target age group (20–69 years, age-standardised).

This indicator examines the patterns of mortality among Indigenous women.

Identification of Indigenous status is still very fragmented and generally of poor quality in health data collections, and cervical screening data are no exception. Of the seven cervical screening indicators, only one indicator can be stratified by Indigenous status: mortality. Even for this, coverage is not complete. Only Western Australia, South Australia, the Northern Territory and Queensland are currently considered to have adequate coverage of Indigenous deaths in the registration of deaths. Therefore, only mortality data from these jurisdictions are analysed in this report.

Confidence intervals

Where indicators include a comparison between states and territories, between time periods, between geographic locations or between Indigenous and other Australian women, a 95% confidence interval is presented along with the rates. This is because the observed value of a rate may vary owing to chance even where there is no variation in the underlying value of the rate. The 95% confidence interval represents a range over which variation in the observed rate is consistent with this chance variation. These confidence intervals can be used as an approximate test of whether changes in a particular rate are consistent with chance variation. Where the confidence intervals do not overlap, the change in a rate is greater than that which could be explained by chance.

For example, the participation rate for Tasmania in 2002–2003 was 63.1% with a confidence interval of 62.6% to 63.5%. The corresponding rate for 2000–2001 was 65.2% with a confidence interval of 64.7% to 65.6%. These two intervals do not overlap, so the difference between the 2000–2001 and 2002–2003 rates is larger than we would expect due to chance alone.

Another example is the comparison between cervical mortality rates for women in the target group in the remote areas. In the period 1996 to 1999 there were 5.2 cervical cancer deaths per 100,000 women in living remote areas. This rate had a confidence interval of 3.2 to 7.6. The 2000–2003 rate for women living in remote areas was 2.7 per 100,000, with a confidence interval of 1.5 to 4.4. These confidence intervals overlap, so despite the relatively large difference between the two observed rates they are still consistent with chance variation. This arises from the fact that remote areas of Australia have small populations, resulting in small numbers of deaths from any specific cause, and these rates may fluctuate from year to year over time. This in turn leads to relatively wide confidence intervals for an observed death rate.

It is important to note that this result does not imply that the difference between the two rates is definitely due to chance. Instead, an overlapping confidence interval represents a difference in rates which is too small to differentiate between a real difference and one which is due to chance variation.