

High-grade abnormalities

High-grade lesions 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. This indicator measures the frequency of this type of abnormality in the screened community. A high-grade intraepithelial abnormality is defined in this report as CIN 1/2, CIN 2, CIN 3 or adenocarcinoma in situ.

The National Health and Medical Research Council has produced guidelines to assist in the management of women who have low- and high-grade intraepithelial abnormalities (DHSH 1994b). These are summarised in Appendix F.

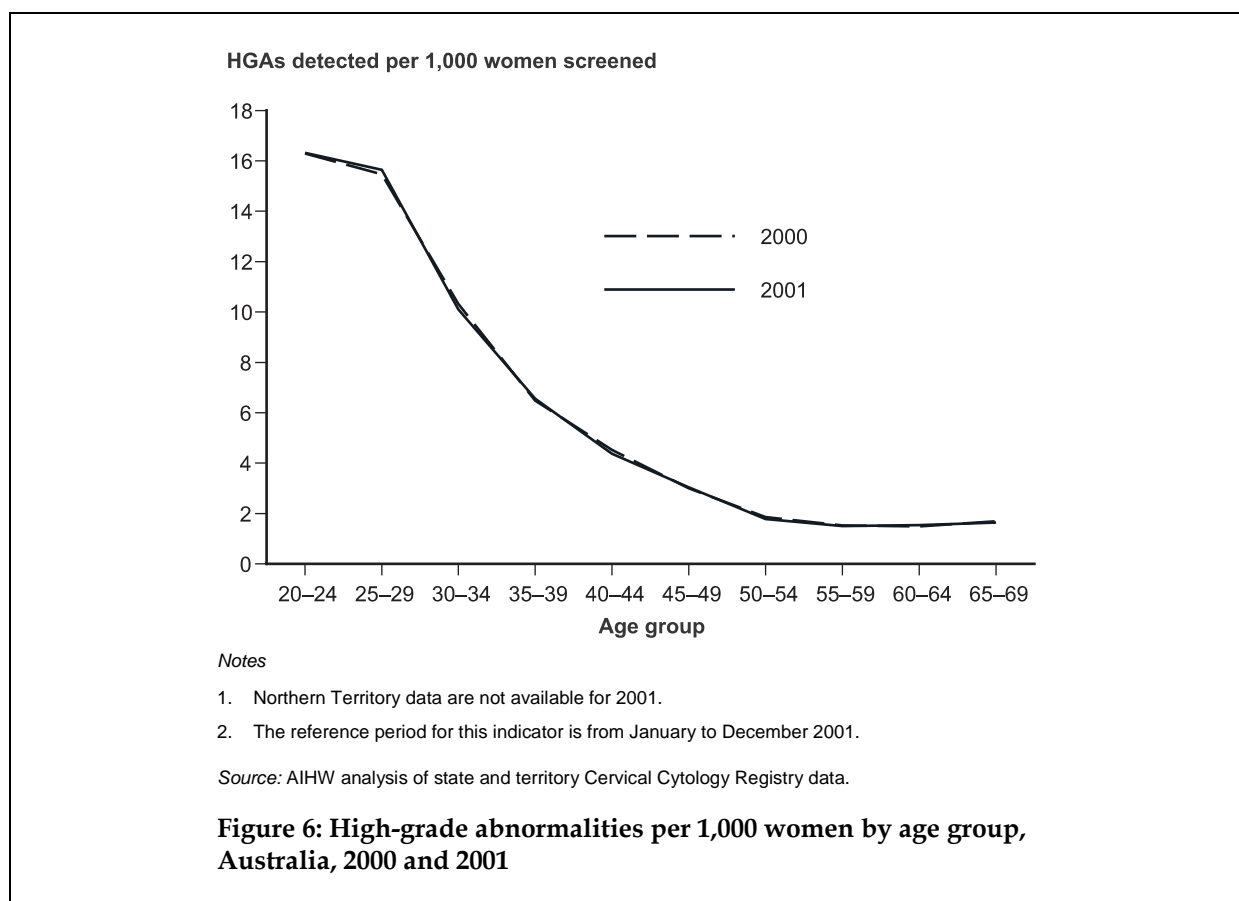
State- and territory-specific issues

- The reference period for Indicator 4 was 12 months from January to December 2001 for all states and territories.

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).

The graph and table below refer to the data for the target age group only. For detailed data refer to Tables 6a and 6b (pages 53 and 54).

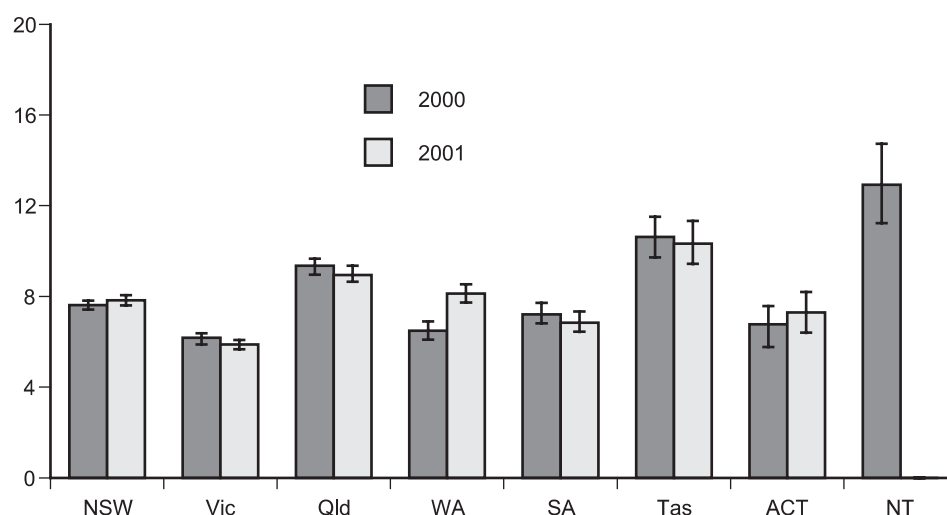


Year	Age group										
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	20–69
	(Number per 1,000 women)										
2000	16.3	15.5	10.3	6.5	4.5	3.0	1.9	1.5	1.5	1.7	7.4
2001	16.3	15.6	10.1	6.6	4.4	3.0	1.8	1.5	1.5	1.6	7.3

Note: Northern Territory data are not available for 2001.

- The age-standardised rate of high-grade abnormalities per 1,000 women screened in the target age group (20–69 years) declined from 7.4 in 2000 to 7.3 in 2001 (Tables 6a and 6b, pages 53 and 54). Northern Territory data are not available for 2001. However, when the Northern Territory data are excluded from the 2000 national data there is no change to the all-Australia rate from 2000 to 2001.
- In 2001, approximately 0.7% of the 1,875,006 women screened in the target age group (20–69 years) were found to have high-grade abnormalities (Tables 7b and 8b, pages 56 and 58).

HGAs detected per 1,000 women screened



Refer to Tables 9a and 9b (page 59).

Notes

1. The reference period for this indicator is from January to December 2001.
2. Rates are standardised to the 1991 Australian total population.
3. Northern Territory data are not available for 2001.
4. Bars on graphs represent 95% confidence intervals.

Source: AIHW analysis of state and territory Cervical Cytology Registry data.

Figure 7: Age-standardised rate of high-grade abnormalities per 1,000 women screened aged 20–69 years, states and territories, 2000 and 2001

AS rate	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2000	7.6	6.2	9.4	6.5	7.2	10.6	6.8	12.9	7.5
95% CI	7.4–7.8	6.0–6.4	9.0–9.7	6.1–6.9	6.8–7.6	9.7–11.6	5.9–7.7	11.4–14.4	7.4–7.6
2001	7.8	5.9	8.9	8.1	6.8	10.3	7.3	..	7.5
95% CI	7.6–8.1	5.7–6.1	8.6–9.3	7.7–8.5	6.4–7.3	9.4–11.3	6.4–8.2	..	7.4–7.6

.. not available.

- In 2001 the age-standardised rate of high-grade abnormalities increased in New South Wales, Western Australia and the Australian Capital Territory and declined in all other jurisdictions – the all-Australia rate did not change between 2000 and 2001 (Tables 9a and 9b, page 59).
- In Western Australia the increase between the two reporting periods from 6.5 to 8.1 per 1,000 women screened is statistically significant (Tables 9a and 9b, page 59).
- There are considerable variations in the age-standardised rates of high-grade abnormalities between the states and territories. They ranged from 5.9 per 1,000 women in Victoria to 10.3 per 1,000 women in Tasmania.

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. However, where these pre-cancerous lesions cannot be detected, diagnosis of cancer at its earliest stage, the micro-invasive stage, is the most desirable alternative. The next two indicators measure the incidence rates of micro-invasive and all cervical cancers in the community.

In 1994 the International Federation of Gynaecology and Obstetrics endorsed the following definition of micro-invasive carcinoma of the cervix:

Stage 1a1. Measured invasion of stroma no greater than 3 mm in depth and no wider than 7 mm.

Stage 1a2. Measured invasion of stroma between 3 mm and 5 mm in depth and no wider than 7 mm. The depth of invasion should be measured from the base of the epithelium, either surface or glandular, from which it originates. Vascular space involvement, either venous or lymphatic, should not alter the staging (Ostor & Mulvany 1996).

Micro-invasive squamous cell carcinoma makes up the largest share of the micro-invasive cancers reported in Indicator 5. There are also other forms of micro-invasive cancers such as adenocarcinoma and adeno-squamous cell carcinoma for which data are not available for inclusion in this indicator.

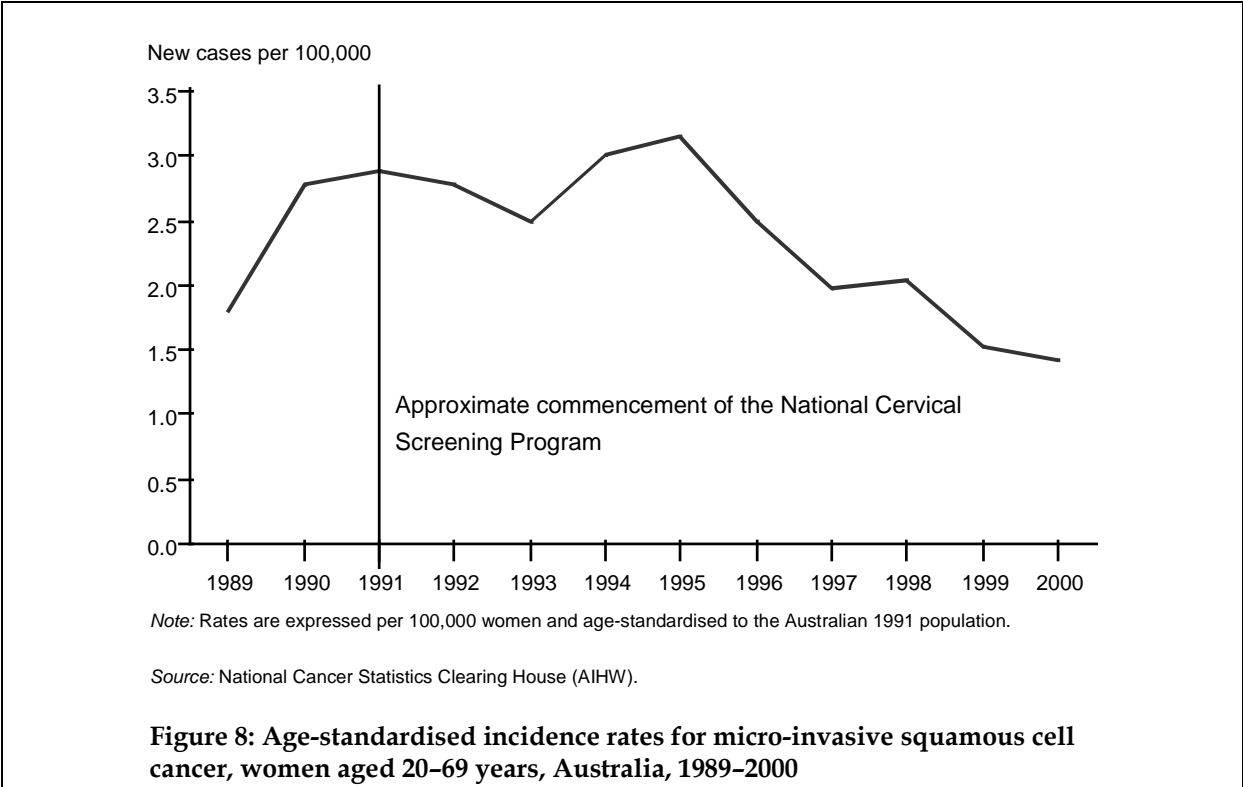
In interpreting cervical cancer incidence statistics, note that cervical screening has been available on an ad hoc basis since the 1960s, but it is only since the late 1980s and early 1990s that there has been an organised national approach to screening at a population level. The introduction of cervical 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, with the rate of more advanced cancers decreasing in the longer term.

For this report the most recent national data available on incidence are for 2000, in contrast to screening data which are available for 2001. This time lag in availability of incidence data is expected to reduce over the next 2 years.

Indicator 5: Incidence of micro-invasive cervical cancer

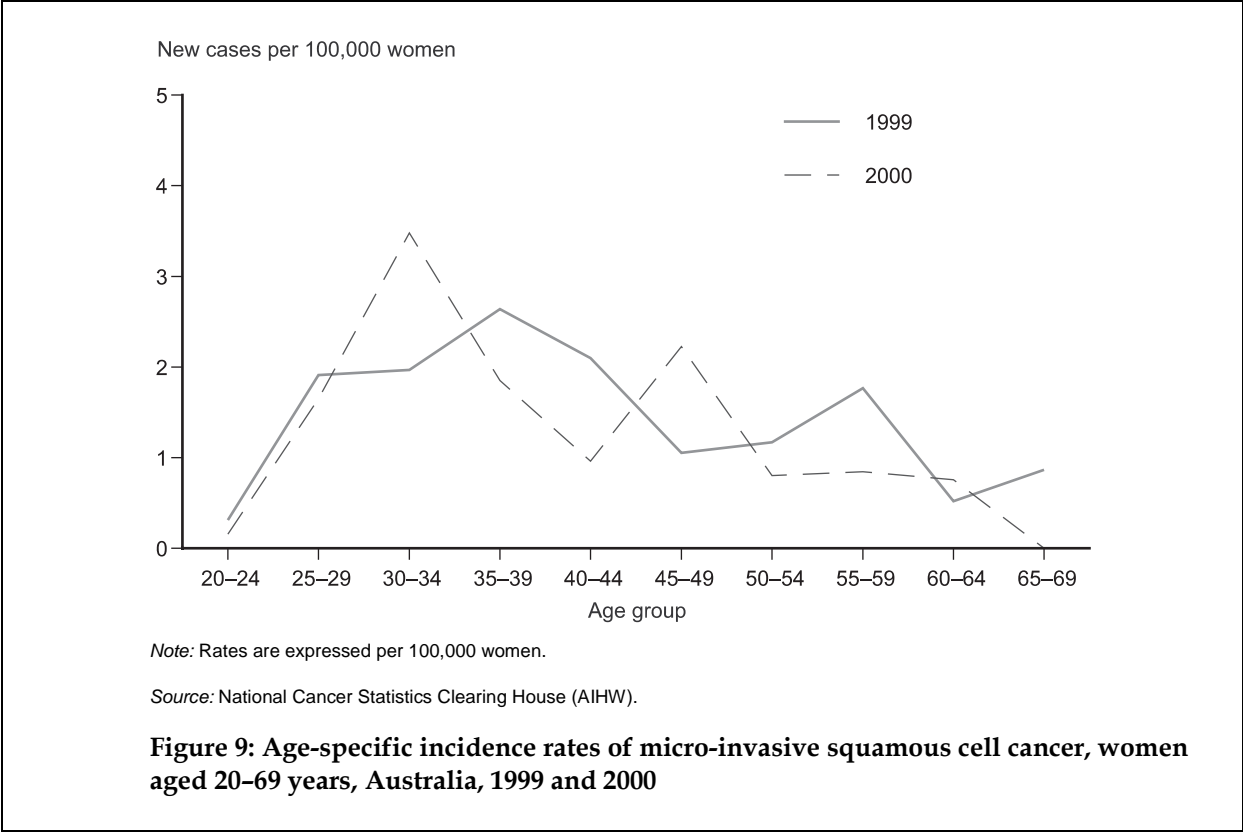
Incidence rates of micro-invasive squamous cell carcinoma per 100,000 estimated resident female population in a 12-month period by 5-year age groups (20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+) and for the target age group (20-69 years, age-standardised).

The graphs and tables below refer to the data for the target age group only. For detailed data refer to Table 11 (page 61).



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	(Number per 100,000 women)											
AS rate	1.8	2.8	2.9	2.8	2.5	3.0	3.1	2.5	2.0	2.0	1.5	1.4

- The age-standardised incidence rate of micro-invasive cervical cancer was 1.4 per 100,000 women in 2000 for women in the target age group of 20-69 years and 0.9 per 100,000 for women of all ages (Table 11, page 61). The rates have been declining rapidly since 1995.
- In 2000 there were 89 new cases of micro-invasive cervical cancers for all women and 86 new cases in women aged 20-69 years (Table 10, page 60).



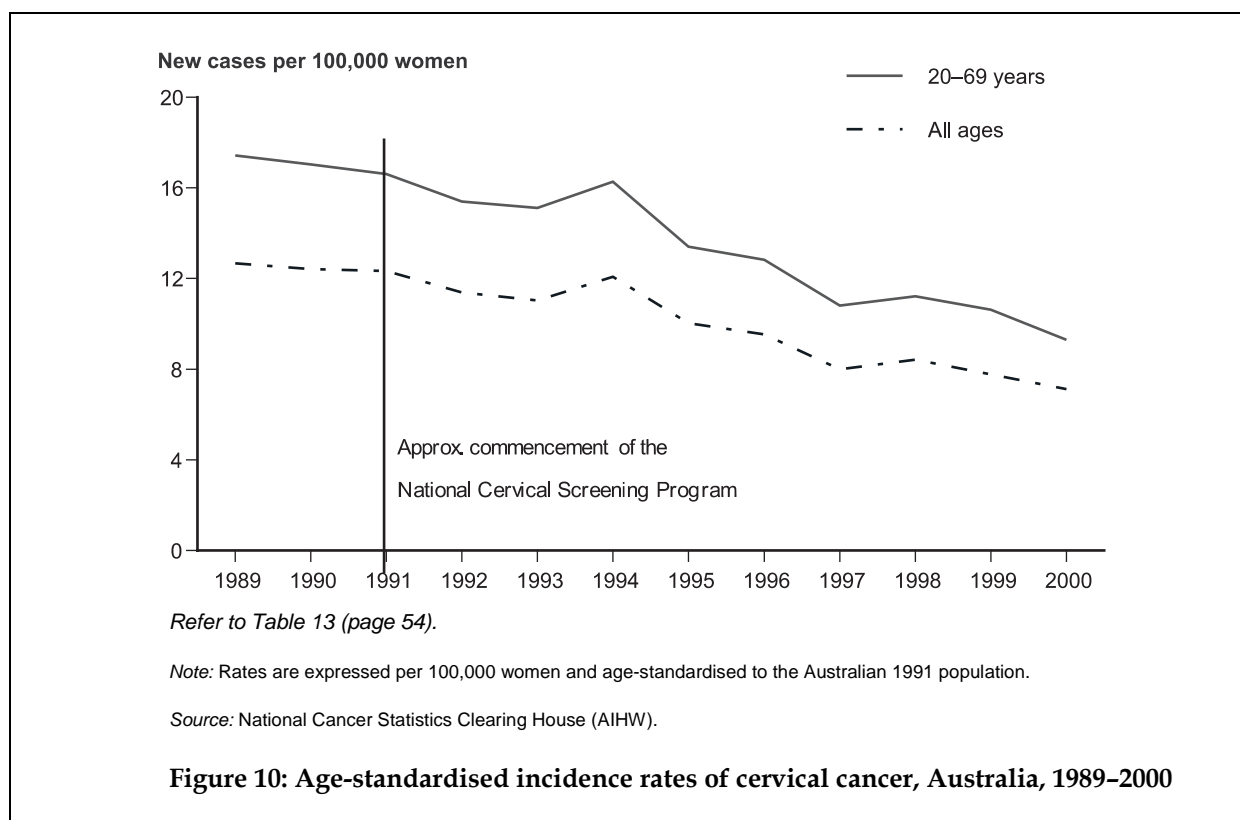
Year	Age group											20-69*
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69		
1999	0.3	1.9	2.0	2.6	2.1	1.1	1.2	1.8	0.5	0.9	1.5 (1.2-1.8)	
2000	0.2	1.7	3.5	1.9	1.0	2.2	0.8	0.8	0.8	0.0	1.4 (1.1-1.7)	

*Age-standardised rates (standardised to the Australian 1991 population) with 95% confidence intervals.

- The age-standardised incidence rate of micro-invasive squamous cell cancer was 1.4 per 100,000 women aged 20-69 years in 2000; this was statistically no different from the 1.5 per 100,000 in 1999. Hence none of the differences between 1999 and 2000 for any 5-year age group can be regarded as significant (Tables 10 and 11, pages 60 and 61).
- The highest detection rates for micro-invasive squamous cell cancer were for women in the 25-29 to 45-49 age groups.

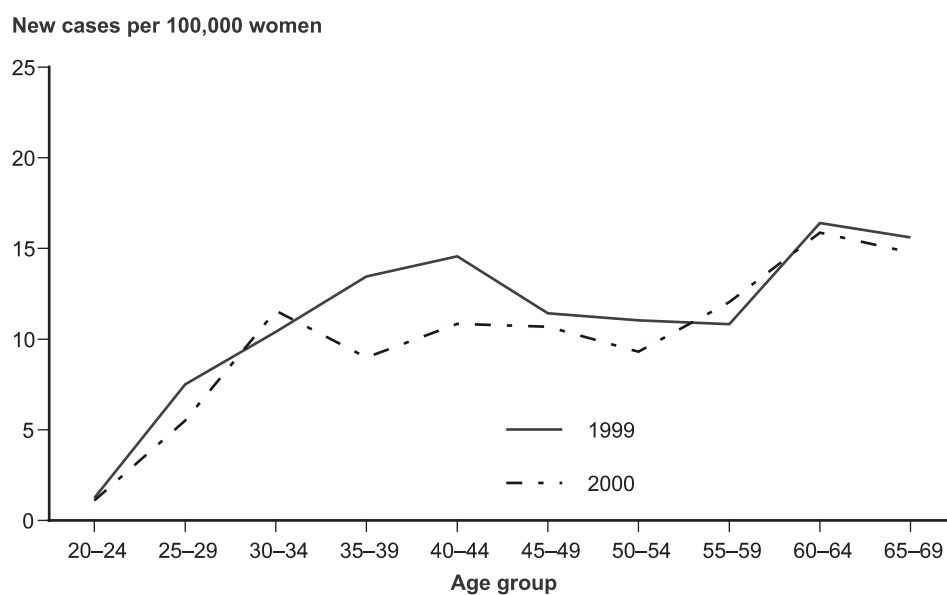
Indicator 6: Incidence of squamous, adenocarcinoma, adeno-squamous and other cervical cancers

Incidence rates of squamous, adenocarcinoma, adeno-squamous and other 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).



Age	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	(Number per 100,000 women)											
All ages	12.7	12.4	12.3	11.4	11.0	12.1	10.0	9.5	8.0	8.4	7.8	7.1
20–69 years	17.4	17.0	16.6	15.4	15.1	16.3	13.4	12.8	10.8	11.2	10.6	9.3

- In 2000, there were 745 new cases of cervical cancer diagnosed in Australia, of these 578 were women in the target age group 20–69 years (Table 12, page 62). All but two cases of the remaining 167 were in women aged 70 years and over.
- The incidence rate of all cervical cancers declined to 7.1 per 100,000 women for all women in Australia, and to 9.3 per 100,000 women in the target group.
- Between 1989 and 2000 the age-standardised incidence rate for cervical cancer for women of all ages declined by 43.9%, and in the target age group by 56.9% (Table 13, page 63).



Refer to Table 13 (page 63).

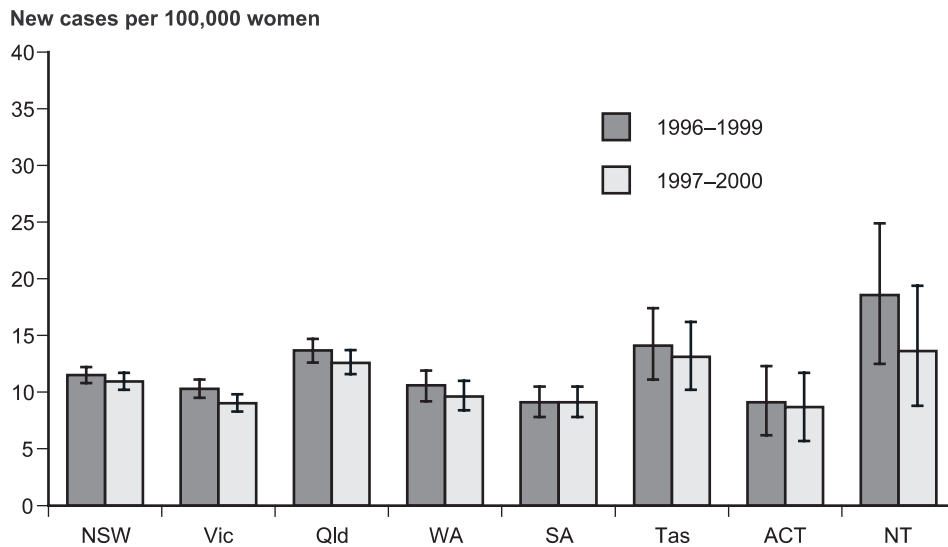
Note: Rates are expressed per 100,000 women.

Source: National Cancer Statistics Clearing House (AIHW).

Figure 11: Age-specific incidence rates of cervical cancer, Australia, 1999 and 2000

Year	Age group										20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
(Number per 100,000 women)											
1999	1.2	7.5	10.4	13.5	14.6	11.4	11.0	10.8	16.4	15.6	10.6
2000	1.1	5.5	11.6	9.0	10.8	10.7	9.3	12.0	15.9	14.8	9.3

- The age-specific rate of cervical cancer incidence rose rapidly in women from age 20-24 through to age 30-34 years in 2000, and stabilised through to the 50-54 age group before rising again.
- In 2000, the age-specific rates of cervical cancer incidence were lower than in 1999 in all 5-year age groups ranging from 20-69, except in the 30-34 and 55-59 age groups.



Refer to Tables 14b and 15b (pages 65 and 67).

Notes

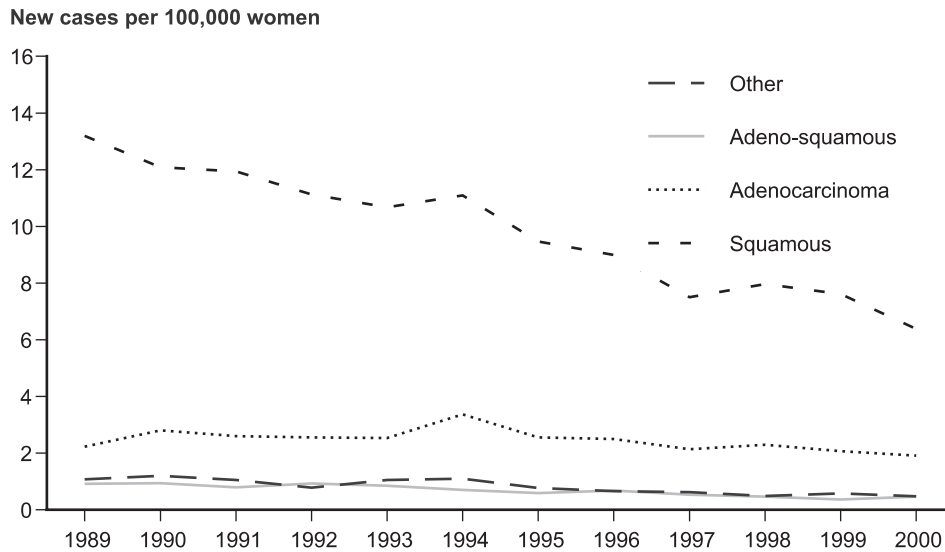
1. Rates are expressed per 100,000 women and age-standardised to the Australian 1991 population.
2. Bars on graphs represent 95% confidence intervals.

Source: National Cancer Statistics Clearing House (AIHW).

Figure 12: Age-standardised cervical cancer incidence rates by women aged 20-69 years, states and territories, 1996-1999 and 1997-2000

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
1996-1999	11.5	10.3	13.7	10.6	9.1	14.1	9.1	18.6	11.4
95% CI	10.8-12.2	9.5-11.1	12.6-14.7	9.2-11.9	7.8-10.5	11.1-17.4	6.2-12.3	12.5-24.9	10.9-11.8
1997-2000	11.0	9.0	12.6	9.6	9.1	13.1	8.7	13.6	10.5
95% CI	10.2-11.7	8.3-9.8	11.6-13.7	8.4-11.0	7.8-10.5	10.2-16.2	5.7-11.7	8.8-19.4	10.1-10.9

- In the period 1997-2000, the Australian Capital Territory had the lowest incidence at 8.0 per 100,000 women and the Northern Territory had the highest rate of cervical cancer incidence of 13.6 per 100,000 women. Queensland (12.6) was significantly above the national average (10.5) and Victoria (9.0) was significantly below.
- The incidence rate declined in all states and territories between the two periods 1996-1999 and 1997-2000 (Tables 14b and 15b, pages 65 and 67.)



Refer to Table 16b (page 68).

Note: Rates are expressed per 100,000 women and age-standardised to the Australian 1991 population.

Source: National Cancer Statistics Clearing House (AIHW).

Figure 13: Age-standardised incidence rates of cervical cancer by histological type, women aged 20–69 years, Australia, 1989–2000

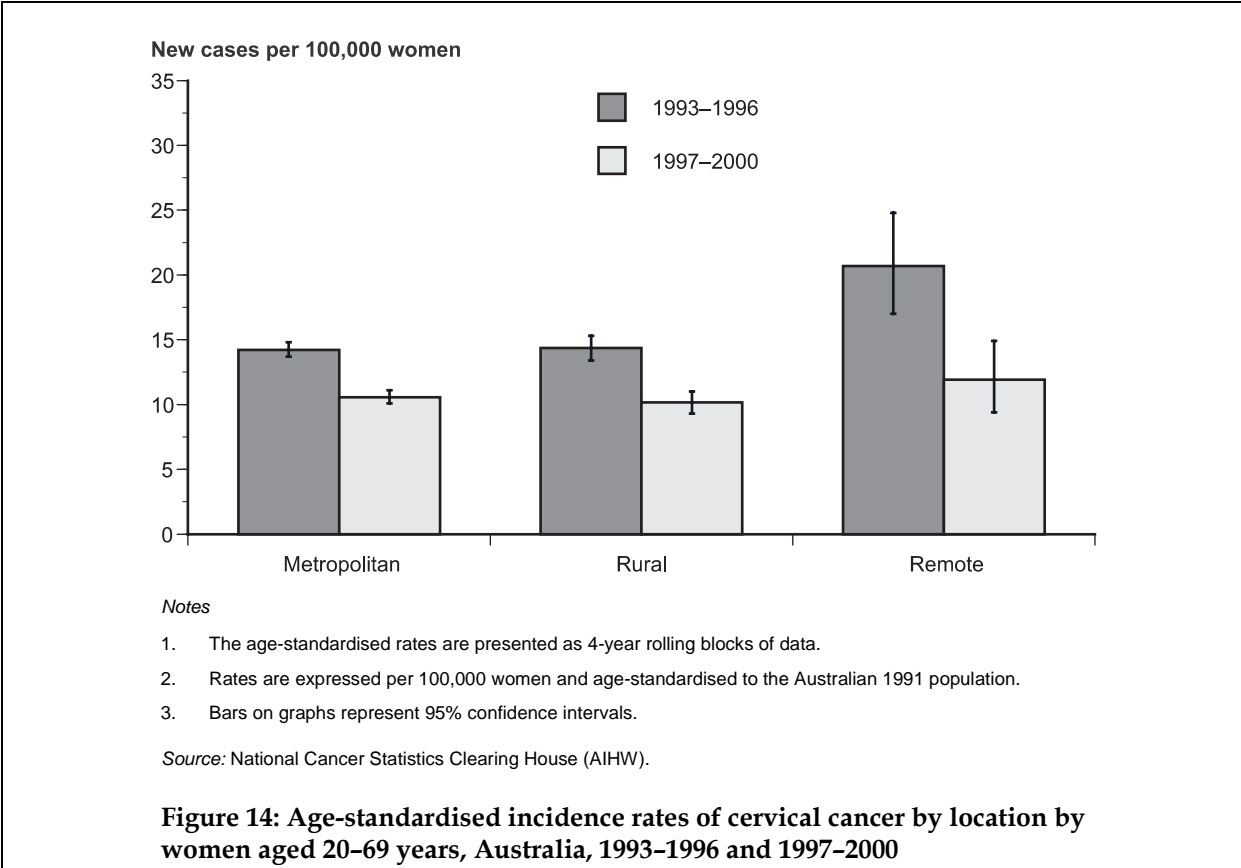
Histological type	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Squamous	13.2	12.1	11.9	11.1	10.7	11.1	9.5	9.0	7.5	8.0	7.6	6.4
Adenocarcinoma	2.2	2.8	2.6	2.6	2.5	3.4	2.6	2.5	2.1	2.3	2.1	1.9
Adeno-squamous	0.9	0.9	0.8	0.9	0.8	0.7	0.6	0.7	0.5	0.5	0.4	0.5
Other	1.1	1.2	1.1	0.8	1.1	1.1	0.8	0.7	0.6	0.5	0.6	0.5

- In 2001, squamous cell carcinomas of the cervix accounted for 69.2% of all new cases of cervical cancer in women aged 20–69 years, adenocarcinomas 20.3%, adeno-squamous 5.3%, and the remaining 5.2% comprised a range of other mixed and unknown histologies (Table 16a, page 68).
- The trend from 1989 to 2000 for all histological types has been a decrease in the age-standardised rates of cervical cancer per 100,000 in women aged 20–69 years. However, this trend is not statistically significant for adenocarcinoma.

Indicator 8: Incidence by location

Incidence rates of cervical cancer per 100,000 estimated resident female population in a 3-year period by location 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).

The graph and table below refer to the data for the target age group only. For detailed data refer to Table 19 (page 71).



	Metropolitan		Rural		Remote	
	1993-1996	1997-2000	1993-1996	1997-2000	1993-1996	1997-2000
AS rate	14.2	10.6	14.4	10.2	20.7	11.9
95% CI	13.7-14.8	10.1-11.1	13.4-15.3	9.3-11.0	17.0-24.8	9.4-14.9

- There were 2,327 new cases (72.9% of all new cases) of cervical cancer in metropolitan locations in the 4-year period 1997-2000, 778 new cases (24.4% of all new cases) in rural locations and 88 new cases (2.4% of all new cases) in remote locations (Table 18, page 70).

- Age-standardised cervical cancer incidence rates in the period 1997–2000, for women in the target age group 20–69 years, were higher in remote locations (11.9 per 100,000 women) than in rural (10.2) and metropolitan (10.6) locations. This difference was not statistically significant (Table 19, page 71).

Age-specific features

(Table 19, page 71)

- Very few cervical cancers occur in women under the age of 20. The incidence rate of cervical cancer increases with age.

Mortality

Cancer of the cervix 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 1998). The objective of the National Cervical Screening Program is to reduce this mortality rate.

The three mortality indicators are mortality (by age and state), mortality by location (metropolitan, rural and remote), and Indigenous mortality (Indigenous and Non-Indigenous). These indicators measure the level of mortality from cervical cancer in the total female population by age and other demographic characteristics. The mortality indicators are important because from them an assessment can be made of changes in mortality in different age groups and particular target groups over time. However, note that changes in the mortality rates may not be evident for a number of years following an improvement in the participation rate. Therefore, the effectiveness of this measure needs to be viewed in the longer rather than the shorter term.

Data issues

- Two major changes that have occurred in the classification and processing of Australian mortality data require some caution when interpreting mortality data over time. They are:
 1. the introduction of the tenth revision of the International Classification of Diseases (ICD-10) for classifying deaths registered from 1 January 1999; and
 2. the introduction by the Australian Bureau of Statistics (ABS) of the Automated Coding System (ACS) for processing deaths registered from 1 January 1997.
- As a result of this there is now a break in the mortality data series. In order to make mortality data coded using ICD-9 and ICD-10 comparable, the ABS has derived comparability factors to adjust data based on ICD-9. These comparability factors are derived from the movements in the underlying causes of death coded in ICD-9 compared with ICD-10 (ABS 2000).
- For cervical cancer deaths, the comparability factor is 0.98, and the pre-1997 mortality data presented in this report have been adjusted accordingly. The effect of this is that the pre-1997 number of deaths appearing in this report are different from figures in previous *Cervical Screening in Australia* reports.
- Prior to 1998, only South Australia, Western Australia and the Northern Territory had a relatively high coverage of Indigenous status identification in the deaths data. In 1998 Queensland's coverage of Indigenous deaths reached an acceptable level following the introduction of a new *Death Information Form* in 1996-97 which included a question on Indigenous status (ABS 1999). Therefore, in this report, cervical cancer deaths for Indigenous Australians include data from Queensland (for 1998 to 2000), South Australia, Western Australia and the Northern Territory.