Women's and Children's Health Network

South Australian Cervix Screening Registry Statistical Report 2013

VCS

Government of South Australia

SA Health

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The South Australian Cervix Screening Registry (SACSR) is responsible for sending reminders to women and following up abnormal cervical screening tests, as well as statistical reporting. The Registry operates under the South Australia (SA) Public Health Act and receives data from laboratories reporting cervical cytology and histology. In 2013, following a review of the registry services by SA Health, an agreement was reached with the Victorian Cytology Service Ltd (VCS) to operate a registry service on behalf of SA Health. VCS has operated the Victorian Cervical Cytology Registry (VCCR) on behalf of the Victorian Department of Health and Human Services for 25 years. The new Registry commenced operations on 30 June 2014 following migration of all data held by the SA Back-up Record System.

This report presents key data from the SACSR on screening participation, cervical abnormality rates and cervical cancer incidence and mortality. For the first time, data on screening participation by area and trends in cervical abnormalities over the last decade are presented. These data are critical for improving participation rates and ensuring appropriate policy formulation. This report presents data for 2013, as well as the last 10 years for key comparisons. Data for 2014 and 2015 will be published in the near future.

During 2013, 165,284 Pap tests were registered and 158,293 women were screened in SA. The two year participation for women aged 20 to 69 years of age was 58.0% for the period 2012–2013. Since 2008–2009, the overall participation declined slightly from 60.5% to 58.0%. In 2013, women aged 40 to 49 years had the highest two year screening rate (62.7%) and women aged 20 to 29 years have the lowest screening rate (48.9%). The three year and five year screening rates for women aged 20 to 69 years were 70.9% and 81.7% respectively. The five year screening rates were lowest for women 60 to 69 years of age suggesting this cohort includes women who are screening less frequently as they age.

Substantial variation in screening rates exist within SA, with two year screening rates for Medicare Locals ranging from 54.7% to 60.4%. Estimated screening rates for Local Health Networks for the 2012–2013 period ranged from 54.5% to 60.8%.

There has been a recent significant decline in histologically confirmed high-grade abnormalities in young women. In women aged < 20 years and those aged 20 to 24 years, rates have declined significantly since the introduction of HPV vaccination in 2007. The rate in women aged < 20 years of age fell from 12.1 per 1,000 in 2007 to 3.7 per 1,000 in 2013 ($p<0.0001$) and in 20 to 24 year old women fell from 23.0 in 2007 to 13.5 per 1,000 in 2013 ($p<0.0001$). As vaccinated women age, the impact of vaccination is likely to increase further and extend to women 25 to 29 years and beyond in the coming years.

Of Pap tests recorded by SACSR during 2013, a definite high-grade squamous abnormality was reported in 0.77% of tests and an endocervical abnormality in 0.1% of tests. Where high-grade cytology was reported 79.3% were subsequently confirmed as high-grade histology on biopsy within six months, representing the positive predictive value of high-grade cytology.

According to 2012 data from the South Australian Cancer Registry, there are low levels of mortality from cervical cancer in SA, with an age-standardised rate of 1.4 per 100,000 women. The incidence of cervical cancer in SA has declined considerably since the 1980s, coinciding with the commencement of the national and South Australian screening programs. Specifically, the most significant impact of the screening program has been seen in squamous cell carcinoma of the cervix. The age-standardised incidence rate of cervical cancer in SA during 2012 was 5.2 per 100,000 women.

1 The South Australian Cervix Screening Program

1. The South Australian Cervix Screening Program

1.1 Background and Register changes

During 2013 the South Australian Cervix Screening Program (SACSP) had been undertaking a review of the cervical screening registry services, known as the Back-up Record System, for several years. The previous Back-up Record System was a legacy ICT system which had not kept pace with technological changes. The system was in need of urgent updating in order to continue to provide effective high quality services to the women of South Australia (SA). A review of the best available options was undertaken, resulting in an agreement with the Victorian Cytology Service Ltd (VCS) to operate a registry service on behalf of SA Health. VCS has operated the Victorian Cervical Cytology Registry (VCCR) on behalf of the Victorian Department of Health and Human Services for 25 years.

The VCS commenced operations of the SA Cervix Screening Registry (SACSR) on behalf of SA Health, under the South Australian Public Health Act on 30 June 2014. Prior to the commencement of operations, all historical records were successfully migrated across to the new database. This report covers the calendar year of 2013, as well as the previous 10 years for comparison.

With the changeover of operations there were very few changes to the Registry that would have been apparent to laboratories, health professionals or to the women of South Australia. Whilst South Australia previously used the laboratory recommendation codes to determine follow up, this is now based strictly on the National Health and Medical Research Council (NHMRC) guidelines taking into account screening histories and current results. This is consistent with all Australian state and territory cervical screening registers. In addition, reminder letters now go directly to women, rather than to the practice. Practices now have the option of signing up for a Practice Based Reminder (PBR) or list of women becoming due for their Pap test.

South Australian laboratories are now routinely reporting electronically to the new Register and reminder letters and follow up are being sent based on the NHMRC guidelines.[1]

A new telephone information service has been established for women and health care providers. The phone number is **1800 901 112**.

1.2 SACSP highlights

Cervical screening has played a critical role in halving the incidence and mortality of cervical cancer since the National Cervical Screening Program commenced in 1991. The national participation rate (crude rate) for the 2012–2013 period was 57.7%.[2] In South Australia, the participation rate (crude rate) for the same period as reported by the AIHW was 58.7%[2], the second highest in Australia. Whilst comparatively this is a good result, there are still many women who are either under-screened or who have never participated in cervical screening. In 2012–2013 , an estimated 50% of cervical cancers occurred in women who have never been screened, with a further 28% in women who are lapsed screeners.[2]

The SA Cervix Screening Program (SACSP) focuses program resources and efforts on increasing participation rates for women who are vulnerable and/or at risk of not participating in screening from a geographical and priority population perspective. There is a clear trend nationally of increasing participation in cervical screening with increasing socioeconomic status and a corresponding understanding that population groups with the lowest participation rates also have the highest incidence rates for cervical cancer[2].

SACSP uses strategies such as social marketing campaigns, strategic partnership grant funding, community development and capacity building, training and education for nurses, provision of information to health service providers and information resources in 89 different languages.

In May 2013, the SA Cervix Screening Program ran the 'It's Pap Time' social marketing campaign. Results from the campaign indicated an overall increase in screening participation rates and in 2013 the team was awarded the 'best strategy outside the box' award from the Government Communications Advice unit.

Results from the 2013 campaign include:

- the state-wide average number of Pap smears per working day during the campaign period saw a 7.03% increase from pre-campaign figures
- percentage change from pre-campaign was strongest in regional South Australia with the average number of smears per working day increasing by 13.58%
- screening activity in the lowest quintiles achieved a significant increase of 15.98% compared to pre-campaign figures
- the successful engagement of women aged 18 to 40 on social media
- the achievement of a high social media response in terms of industry standards.

1 *NHMRC Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities*, 2005. http://www.nhmrc.gov.au/publications/synopses/wh39syn.htm, viewed 14 April 2015.

2 Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no. 93. Cat. no. CAN 91. Canberra: AIHW.

Culturally and Linguistically Diverse Program 2012-2013

As part of a population approach to prevention, the South Australian Cervix Screening Program's Culturally and Linguistically Diverse works in partnership with CALD and newly arrived refugee communities to build capacity within vulnerable population groups, to improve participation rates for under-screened women. The CALD Project Officer provides valuable support for a wide range of community projects and initiatives which focus on improving CALD women's knowledge regarding the value of screening and early detection of cervical cancer, the role and value of preventative health in Australia, and improving women's ability to access health services and navigate the health system. Many community based projects utilise peer education as an effective and sustainable community education and information resource. Community based projects such as these effectively engaged hundreds of vulnerable, non-English speaking women (and their daughters, sisters and friends) who may never have had access to cervical screening and preventative health services previously.

During 2012–2013 cervical screening and health information and education was delivered to over 1700 CALD women through face to face, culturally appropriate groups. The effectiveness of group education sessions has been attributed to the CALD Project Officer working in partnership with 250 CALD community workers and mainstream health and community workers who work with CALD communities in SA. Many of the education sessions achieved outcomes of supporting CALD women to link with accessible GP practices and health services for ongoing cervical screening and primary health care.

Resources including CALD reminder cards, postcards, leaflets and posters in 89 different languages have also been developed during the 2012–2013 period to improve access to screening for CALD women. These have been disseminated through GPs and community organisations. The effectiveness of these resources is reflected in the high number of follow up orders.

Aboriginal and Torres Strait Islander Well Women's Screening Program 2012–2013

Nationally, Aboriginal women have a much higher incidence of cervical cancer*. The Aboriginal Well Women's Screening Program aims to reduce morbidity and deaths from cervical cancer by encouraging Aboriginal women in the target population to have regular well women's checks. This is achieved by:

- developing and distributing Aboriginal specific resources across all relevant age groups
- improving management of screen-detected abnormalities
- increasing the provision of health promotion and education activities to community women in remote, rural and metropolitan regions
- working in partnership with health providers to improve screening participation rates and improve cultural sensitivity
- providing advice at national, state and local levels
- identifying current issues that affect communities in relation to promoting stronger, healthier women for all generations
- engaging in research partnerships, e.g. with the South Australian Health and Medical Research Institute, Royal Flying Doctor Service and the University of South Australia.

The Aboriginal Well Women's Screening Program employs Aboriginal staff to lead and co-ordinate this state-wide program. The team works in active partnership with a range of community organisations, Government and non-Government organisations and health service providers to improve health outcomes for Aboriginal women. Face to face visits are made each year to health services across the state including remote locations, the Royal Flying Doctor Service, Aboriginal Community Controlled Health Services, Country Health SA, General Practitioners and Local Health Networks.

An annual, major grants funding initiative enables the program to support local agencies to provide culturally respectful health promotion, education and clinical services for Aboriginal women.

In the 2012–2013 financial year, three organisations were allocated grant funding; two community controlled, and one government health service. The funding for the community controlled was to assist with the cost of clinical services and the provision of health promotion and education activities for the community. The government organisation was allocated funding for an Aboriginal Health Worker's part time position, which was crucial to addressing the low participation rates in that region. The increased number of well women's screening for these three grant funded programs was 66, with four abnormal results, two referred for rescreening and a further two women referred for a colposcopy and follow up.

**In 2005–2009, the incidence of cervical cancer in Aboriginal and Torres Strait Islander women from New South Wales, Queensland, Western Australia and the Northern Territory was significantly higher than non-Indigenous women from these states and territories, at 21.4 new cases per 100,000 women compared with the non-Indigenous rate of 8.6 new cases per 100,000 women for women aged 20–69 (both age-standardised).*[3]

3 Australian Institute of Health and Welfare 2014. *Cervical screening in Australia 2011–2012.* Cancer series no.82. Cat. no. CAN 79. Canberra: AIHW.

2 Participation

2. Participation

2.1 Number of Pap tests and women screened

Table 2.1 shows the number of Pap tests registered and the number of women screened from 2004 to 2013 as recorded on the SACSR database.

Table 2.1: Number of Pap tests registered and number of women screened in South Australia, 2004–2013.

Year	Number of Pap tests registered	Number of women screened
2004	168,996	161,439
2005	168,285	160,730
2006	168,028	160,767
2007	166,237	159,661
2008	165,549	158,622
2009	165,709	158,721
2010	163,449	156,444
2011	165,897	158,747
2012	162,363	155,438
2013	165,284	158,293

Notes:
1 The number of Pap tests registered and women screened on the Registry as of 5 January 2015.
2 Includes post-hysterectomy tests and women of all ages.

2.2 Participation by age group

Method of calculating participation

The participation of women estimated to be part of the South Australian Cervix Screening Program (SACSP) by age group is expressed as a percentage. This is determined by dividing the number of women screened by the number of women in the general population who are eligible for screening.

The number of women screened (numerator) is determined from the South Australian Cervix Screening Registry (SACSR) database. It is the number of women residing in SA who had at least one Pap test in the time period of interest and have not had a hysterectomy according to information held by the Registry.

The eligible population (denominator) is the number of women in the general population averaged for the time period of interest, and adjusted to include only women with an intact cervix. To determine this, the South Australian female Estimated Resident Population (ERP)[4] calculated by the Australian Bureau of Statistics (ABS) is averaged over two years and then adjusted to exclude the proportion of women estimated to have had a hysterectomy using the known percentage of women who have not had a hysterectomy. Whilst participation statistics for the screening period of 2009–2010 and earlier use hysterectomy fraction estimates from the National Health Survey,[5] the latest screening periods have been adjusted with hysterectomy estimates from analysis conducted by the Australian Institute of Health and Welfare (AIHW) using data from the National Hospital Morbidity Database (NHMD).[6]

It is important to appreciate that changes in the methods used to calculate participation impact upon the actual participation estimates. Hence comparisons in participation over time should be made with caution.

4 Australian Bureau of Statistics. 3101.0 – Australian Demographic Statistics, Dec 2013 (release date 19/6/14).
5 Australian Bureau of Statistics. 4364.0 – National Health Survey: Summary of Results, 2004–2005 (release date 27/2/2006).
6 Australian Institute of Health and Welfare 2014. Cervical screening in Australia 2011–2012. Cancer series no.82. Cat. no. CAN 79. Canberra: AIHW.

Although the method of calculating cervical screening participation rates used by the AIHW for the National Cervical Screening Program is generally the same as used by the SACSR, there is some variation in the two-year participation rates for 2012–2013 due to the following differences in data used.

- Cervical screening participation rates for South Australia reported in this statistical report exclude women who live over the boarder and outside of South Australia but whose Pap test record is recorded on the SACSR.
- The SACSR uses the ABS population data for the denominator that is both available and consistent (i.e. population data released in June) for further comparisons and reports in a given period in time. AIHW tends to access the most up to date population data that is not necessarily widely accessible. AIHW and SACSR reports may use a different release of population data for the denominator, resulting in a small difference in the estimated numbers of women who are eligible for screening.

These minor variations result in slight differences in the reportable two year participation rates for 2012–2013 in South Australia.

Limitations of participation statistics

One limitation to these participation statistics is the imperfect record-linkage between multiple Pap tests from the same woman that could result in an overestimate of the number of women screened. This needs to be considered when looking at participation over a longer time period (such as for three or five years) as this overestimate of women screened will be relatively amplified thereby producing an overestimate in participation.

In addition, where site of specimen information is not reported to the Registry when a Pap test is taken from a woman without a cervix, the woman will be incorrectly included in the numerator.

Participation in cervical screening by age group

Table 2.2 shows the estimated cervical screening rates for South Australian women by age group for one, two, three and five year periods, with data adjusted to exclude women who have had a hysterectomy. It is important to note that the figures do not include women who have opted off the Registry. This figure is not known however, based on estimates from Victoria, it is likely to be lower than 1%.[7]

Table 2.2: Estimated cervical screening rates by age group over one year, two year, three year and five year periods.

Age Group	% screened 2013 (1 year)	% screened 2012–2013 (2 years)	% screened 2011–2013 (3 years)	% screened 2009–2013 (5 years)
20 to 29 years	26.6%	48.9%	62.8%	80.3%
- 20 to 24 years	*24.1%*	*44.3%*	*57.7%*	*77.2%*
- 25 to 29 years	*29.1%*	*53.4%*	*68.0%*	*83.5%*
30 to 39 years	32.5%	59.9%	74.7%	89.0%
40 to 49 years	33.8%	62.7%	76.8%	87.0%
50 to 59 years	33.2%	62.3%	73.8%	79.3%
60 to 69 years	30.1%	57.1%	65.3%	67.4%
20 to 69 years	**31.2%**	**58.0%**	**70.9%**	**81.7%**

Notes
1 The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using hysterectomy fractions derived from the AIHW analysis of the National Hospital Morbidity Database (refer to Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p66).
2 The table provides the percentage of women screened as a proportion of the eligible female population (crude rate). Women screened only includes women who have not had a hysterectomy according to information held by the SACSR.
3 Periods covered apply to calendar years.

The estimated two year cervical screening rate for South Australian women aged 20 to 69 years for the period of 2012–2013 was 58.0%. For comparison the national two year participation rate for the same period was 57.7% (crude rate).[8]

For the period of 2012–2013, women aged 40 to 49 years had the highest two year screening rate (62.7%) and women aged 20 to 29 years had the lowest screening rate (48.9%).

The three year and five year screening rates for women aged 20 to 69 years were 70.9% and 81.7% respectively. The five year screening rates were lowest for women 60 to 69 years of age.

7 Victorian Cervical Cytology Registry, Statistical Report 2013, p9. Available from: http://www.vccr.org/data-research/statistical-reports.
8 Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p5.

Estimated two year participation over time

As seen in table 2.2.1 and figure 2.2.1, the estimated two year screening rate for South Australian women aged 20 to 69 years has dropped slightly since 2008–2009 from 60.5% to 58.0% for 2012–2013. Generally participation rates for each age group declined from 2008–2009 to 2012–2013, with the greatest percentage drop in women 60 to 69 years of age declining from 61.9% to 57.1%. During this time, the estimated screening rate for women aged 20 to 29 years went from 50.6% to 48.9%.

Table 2.2.1: Estimated two year cervical screening rates by age group, 2008–2009 to 2012–2013.

	Participation (%)							
	20 to 24 years	25 to 29 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	20 to 69 years
2008–2009†	45.9%	55.7%	50.6%	62.6%	63.2%	66.4%	61.9%	60.5%
2009–2010†	44.4%	54.0%	49.1%	61.5%	62.4%	65.8%	61.8%	59.5%
2010–2011‡	43.5%	53.3%	48.4%	60.4%	63.3%	62.1%	56.5%	58.0%
2011–2012‡	44.2%	53.6%	48.9%	60.0%	62.8%	61.8%	56.4%	57.8%
2012–2013‡	44.3%	53.4%	48.9%	59.9%	62.7%	62.3%	57.1%	58.0%

Notes
1 †2008–2009 and 2009–2010 population data has been adjusted using the 2004–2005 National Health Survey hysterectomy fractions estimates. ‡2010–2011 to 2012–2013 population data has been adjusted using hysterectomy fraction estimates derived from the AIHW analysis of the National Hospital Morbidity Database (refer to Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p66).
2 The table provides the percentage of women screened as a proportion of the eligible female population (crude rate). Women screened only includes women who have not had a hysterectomy according to information held by the SACSR.
3 Periods covered apply to calendar years.

Figure 2.2.1: Estimated two year cervical screening rates by age group, 2008–2009 to 2012–2013.

Notes
1 The graph provides the percentage of women screened as a proportion of the eligible female population (crude rate). Women screened only includes women who have not had a hysterectomy according to information held by the SACSR. The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using hysterectomy fractions as indicated by the symbols † and ‡; which are outlined in further detail below.
2 Periods covered apply to calendar years.

2.3 Participation by area

Method of calculating participation

The participation rate for age eligible women in cervical screening for Medicare Locals (ML) and Local Health Networks (LHN) is expressed as a percentage.

The numerator is the number of women by postcode who had at least one Pap test in the two year time period and who have not had a hysterectomy according to the information held by the SACSR.

The denominator is the estimated number of women in each Postal Area[9] adjusted to exclude the proportion of women estimated to have had a hysterectomy. The 2012–2013 data are adjusted by the hysterectomy fractions from the AIHW analysis of the NHMD.[10] The average female population over each two year period is used as the denominator.

To calculate the estimated participation rates for areas, data by Australia Post postcodes and Postal Areas were mapped to ML and LHN using conversion files sourced from the Commonwealth Department of Health and the South Australian Department of Health respectively. Mapping of the 2012–2013 participation data to ML is based on the Commonwealth Department of Health postcode to Medicare Local concordance data.[11] LHN data were created based on postcode to LHN concordance data provided by the South Australian Department of Health.

Limitations of participation statistics by area

Small-area data (e.g. ML and LHN) are subject to greater measurement error than the data in sections 2.1 and 2.2. The main source of inaccuracy in the following tables is likely from:

- an overestimate of women screened due to imperfect file matching by the SACSR
- applying the national hysterectomy fractions to the relatively small female population resident in the Postal Areas
- the proportion of South Australian Pap tests reported by laboratories outside of SA which are not reported to the SACSR (this mainly affects areas located on the state border of SA)
- the differences between the Australia Post postcodes used to report screening numbers according to address data given by the woman (used as the numerator in calculating participation) and the ABS Postal Areas for which population statistics are available (used as the denominator). It is important to note that although there are commonalities between postcodes and Postal Areas, they are not exact matches and their boundaries can differ. The underlying reason for the differences in these boundaries is that the ABS Postal Areas were created specifically for Census purposes and disseminating statistics, while postcodes are designed to distribute mail.

When comparing participation rate estimates by geographical area, it should also be noted that these are crude rates i.e. they have not been age-adjusted. Therefore areas with older populations will have apparently higher screening rates than areas with a high population of young women because of the strong correlation between age and screening rates.

Aboriginal and Torres Strait Islander (ATSI) and culturally and linguistically diverse (CALD) identifiers are not yet effectively collected in South Australia and most other state and territory jurisdictions. Consequently, there has been no analysis of participation rates for Aboriginal women or CALD women – therefore no assumptions or inferences can be made on participation rates of these population groups. This is a deficit of the National Cervical Screening Program (NCSP) that will be addressed over time as part of the renewal of the National Cervical Screening Program.

South Australian population density differs greatly from regional and remote areas to urban areas, urban fringes and major regional towns. Populations in some regional and remote areas of SA are too small to be statistically significant, particularly when determining the denominator of eligible women. As a result, there has been no small area analysis modelling that has been included as part of the methodology to present participation rates in Local Government Areas (LGA) with small populations for this report. Ongoing work is being undertaken to present participation rates in LGAs with small populations in future statistical reports.

9 ABS 2014, customised report. Data using 2011 postal boundaries: South Australian Female Estimated Resident Population by Postal Area at 30 June 2012 and 30 June 2013.

10 Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013.* Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p66.

11 Australian Government Medicare Local Statistics, Boundary and Concordance files website. http://www.medicarelocals.gov.au/internet/medicarelocals/publishing.nsf/Content/digital-boundaries#.VBJ4fY09KmQ, viewed 21st April 2015.

2.3.1 Participation by Medicare Locals

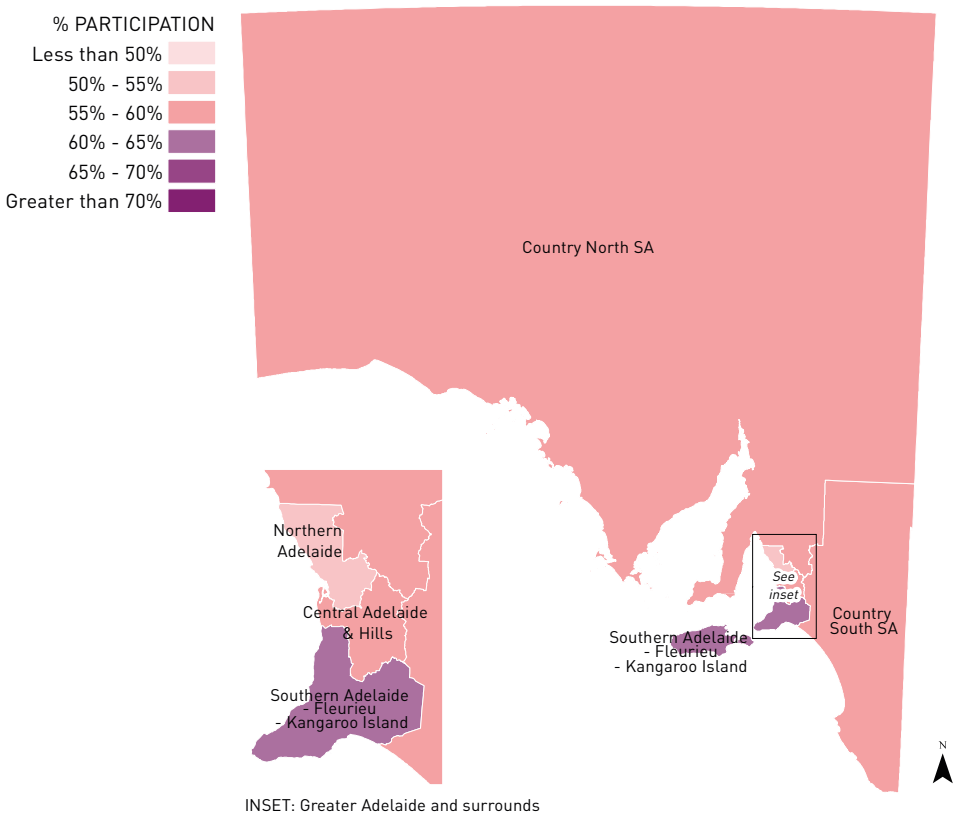
In 2011 the Australian Government established the Medicare Local (ML)[12] area network to replace the previous Divisions of General Practice. Participation rates for 2012–2013[13] have been calculated for the five ML areas in SA, using methods discussed at the beginning of Section 2.3.

Table 2.3.1: Estimated two year cervical screening rates by Medicare Local, for 2012–2013.

Medicare Local Number	Medicare Local Name	2012–2013 % screened (95% CI)
ML401	Northern Adelaide	54.7% (54.4% - 55.0%)
ML402	Central Adelaide and Hills	58.7% (58.5% - 59.0%)
ML403	Southern Adelaide – Fleurieu – Kangaroo Island	60.4% (60.1% - 60.7%)
ML404	Country South SA	57.7% (57.2% - 58.3%)
ML405	Country North SA	58.4% (58.0% - 58.9%)

Notes
1 Postcodes mapped to ML based on the Commonwealth Department of Health Postal Area to ML concordance data. Population data adjusted using estimated hysterectomy fractions from the AIHW NHMD.
2 The table provides the percentage of women screened as a proportion of the eligible female population (crude rate). Women screened only includes women who have not had a hysterectomy according to information held by the SACSR.
3 Periods covered apply to calendar years.

Figure 2.3.1: Estimated two year cervical screening rates by Medicare Local, 2012–2013.



12 www.medicarelocals.gov.au, viewed September 2015
13 MLs have now ceased operating, replaced on 30 June 2015 by Primary Health Networks, however participation by MLs is presented here as it is relevant to the reporting period.

2.3.2 Participation by Local Health Networks

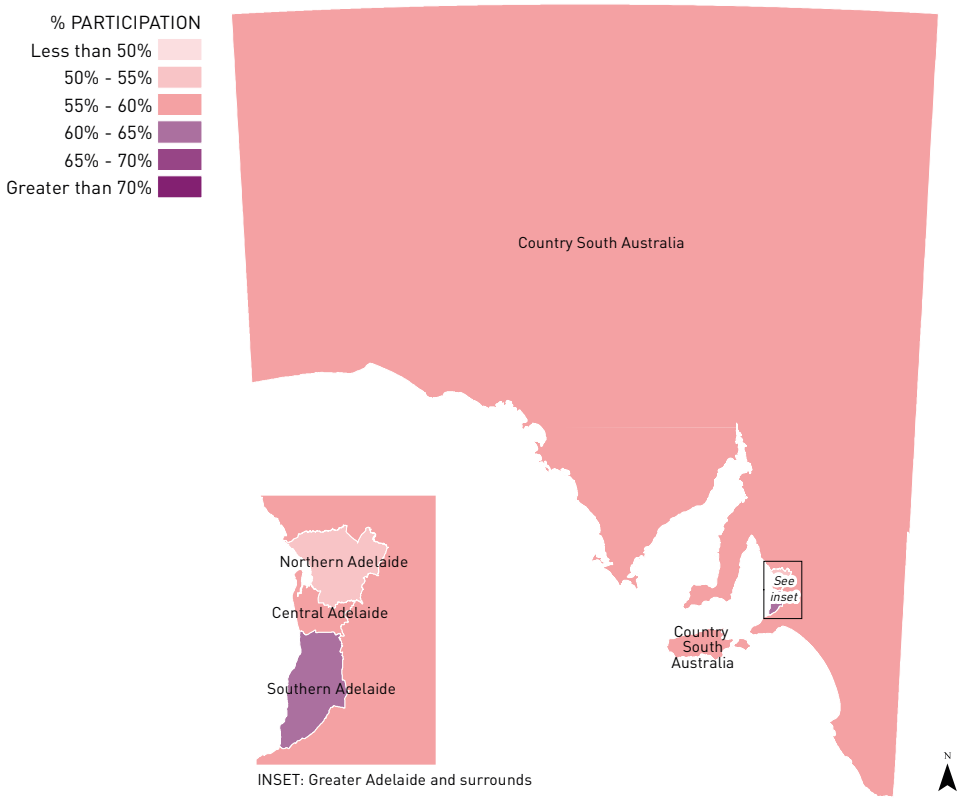
SA is divided into four Local Health Networks (LHN). Using methods discussed at the beginning of Section 2.3, the two year participation rates have been calculated.

Table 2.3.2: Estimated two year cervical screening rates by Local Health Network, for 2012–2013.

Local Health Network Number	Local Health Network	2012–2013 % screened (95% CI)
LHN401	Northern Adelaide	54.5% (54.2% - 54.8%)
LHN402	Central Adelaide	57.7% (57.4% - 57.9%)
LHN403	Southern Adelaide	60.8% (60.5% - 61.1%)
LHN404	Country Health South Australia	59.2% (58.9% - 59.4%)

Notes
1 Postcodes mapped to LHN based on postcode to LHN concordance data. Population data adjusted using estimated hysterectomy fractions from the AIHW NHMD.
2 The table provides the percentage of women screened as a proportion of the eligible female population (crude rate). Women screened only includes women who have not had a hysterectomy according to information held by the SACSR.
3 Periods covered apply to calendar years.

Figure 2.3.2: Estimated two year cervical screening rates by Local Health Network, 2012–2013.



3 Cytology reports

3. Cytology reports

Cytology reports received by the SACSR are coded according to the 2006 Cytology Coding Schedule (refer to Appendix 1). From this coding, Pap test results are categorised into the broader groups of unsatisfactory, negative, having no endocervical component, and having a squamous abnormality or endocervical abnormality. These groupings are consistent with the cytology result types reported to the AIHW for the national program indicators.

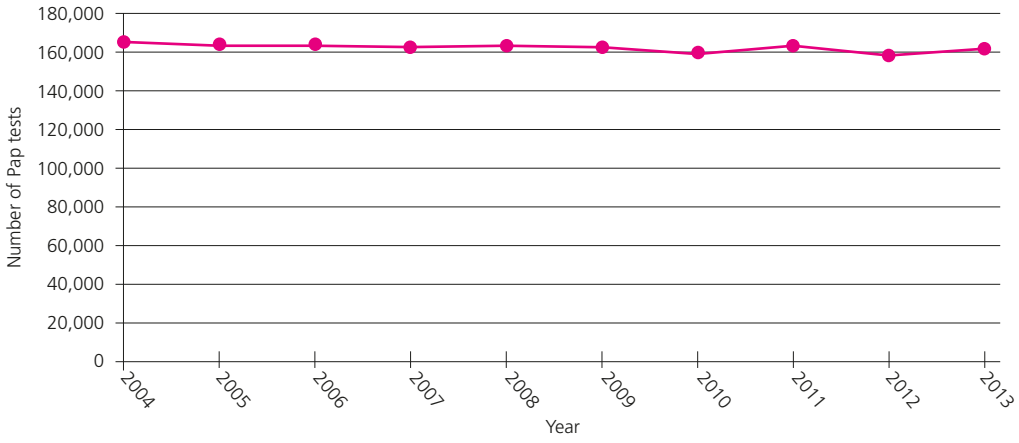
For this analysis, the results of Pap tests from any provider type and from women of any age were considered. Post-hysterectomy smears (also referred to as vault smears) are excluded.

During 2013 the SACSR received notification of 161,757 Pap tests. This number has declined since a peak of 165,037 in 2004.

Table 3: Number of Pap tests received by the SACSR, 2004–2013.

Year	Number of Pap tests
2004	165,037
2005	164,540
2006	164,474
2007	162,104
2008	162,205
2009	162,124
2010	159,990
2011	162,415
2012	158,883
2013	161,757

Figure 3: Number of Pap tests received by the SACSR, 2004–2013.



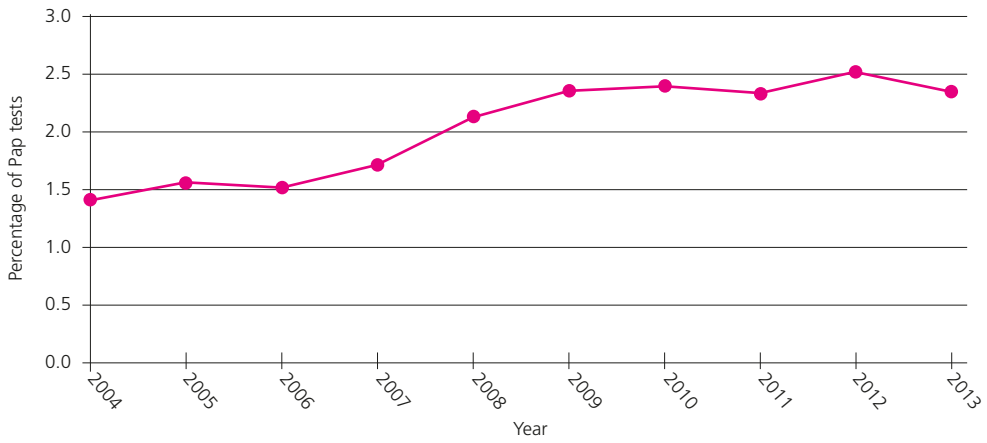
3.1 Unsatisfactory Pap tests

During 2013, the SACSR received notification of 3,797 unsatisfactory Pap tests (2.3%). This is consistent with the latest available national average of 2.2%.[14] As seen in Table 3.1 there has been a slightly higher percentage of unsatisfactory tests since 2004.

Table 3.1: Number and percent of Pap tests with an unsatisfactory result, 2004–2013.

Year	Number of unsatisfactory Pap tests	Percentage of Pap tests with unsatisfactory result
2004	2,315	1.4%
2005	2,536	1.5%
2006	2,519	1.5%
2007	2,797	1.7%
2008	3,448	2.1%
2009	3,803	2.3%
2010	3,819	2.4%
2011	3,769	2.3%
2012	4,012	2.5%
2013	3,797	2.3%

Figure 3.1: Percentage of Pap tests with an unsatisfactory result, 2004–2013.



14 Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p38.

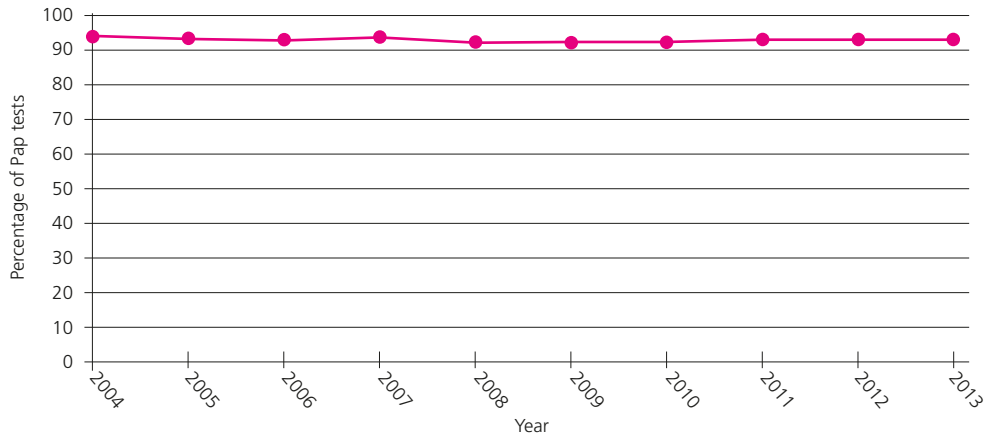
3.2 Negative Pap tests

A negative Pap test is defined as having squamous cells with no abnormality (S1) and no endocervical cells (E0) or no endocervical abnormality (E1). During 2013 the SACSR received notification of 150,373 Pap tests with a negative result (93.0%).

Table 3.2: Number and percent of Pap tests with a negative result, 2004–2013.

Year	Number of negative Pap tests	Percentage of Pap tests with negative result
2004	154,456	93.6%
2005	153,134	93.1%
2006	153,207	93.1%
2007	150,507	92.8%
2008	149,737	92.3%
2009	150,288	92.7%
2010	148,241	92.7%
2011	150,796	92.8%
2012	147,700	93.0%
2013	150,373	93.0%

Figure 3.2: Percentage of Pap tests with a negative result, 2004–2013.



3.3 Pap tests without an endocervical component

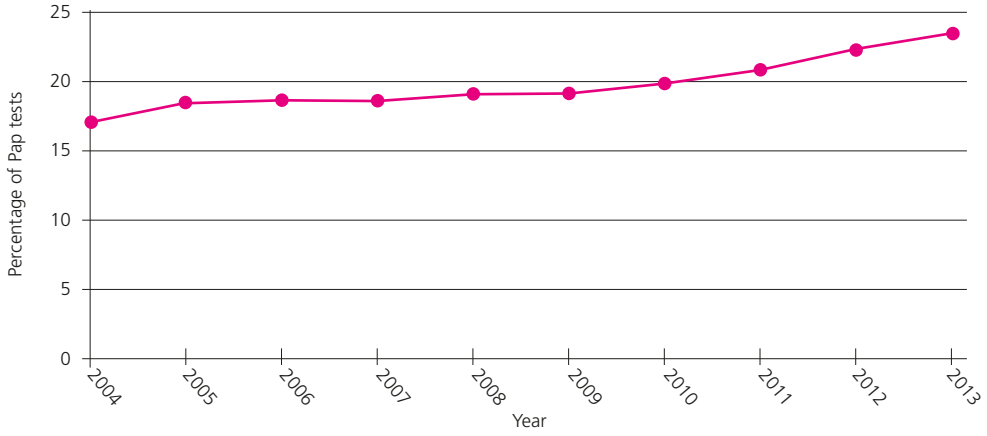
The presence of endocervical cells on a Pap slide is considered to be an indicator of sampling the cervical transformation zone, where most precancerous lesions arise. As shown in Table 3.3 and Figure 3.3, during 2013 the SACSR received notification of 37,864 Pap tests without an endocervical component (23.4%). This proportion has gradually increased over time since 2004, from 16.9% to 23.4% (95%CI 6.22% - 6.76%, p<0.0001).

A similar trend has been occurring at a national level. The reasons for this are unclear but likely to be multifactorial. A recent study by Sultana et al[15] showed that the incidence of histologically confirmed high-grade lesions was lower among women without an endocervical component, supporting that an earlier follow-up interval is not required for smears where an endocervical component is absent.

Table 3.3: Number and percent of Pap tests without an endocervical component, 2004–2013.

Year	Number of Pap tests without endocervical component	Percentage of Pap tests without endocervical component
2004	27,912	16.9%
2005	30,497	18.5%
2006	30,546	18.6%
2007	30,124	18.6%
2008	30,896	19.0%
2009	30,951	19.1%
2010	31,498	19.7%
2011	33,747	20.8%
2012	35,276	22.2%
2013	37,864	23.4%

Figure 3.3: Percentage of Pap tests without an endocervical component, 2004–2013.



15 Sultana F, English DR, Simpson JA, Canfell K, Gertig DM, Saville M. *High-grade cervical abnormalities and cervical cancer in women following a negative Pap smear with and without an endocervical component: A cohort study with 10 years of follow-up*. Int J Cancer 2014 Sept 1;135(5):12139.

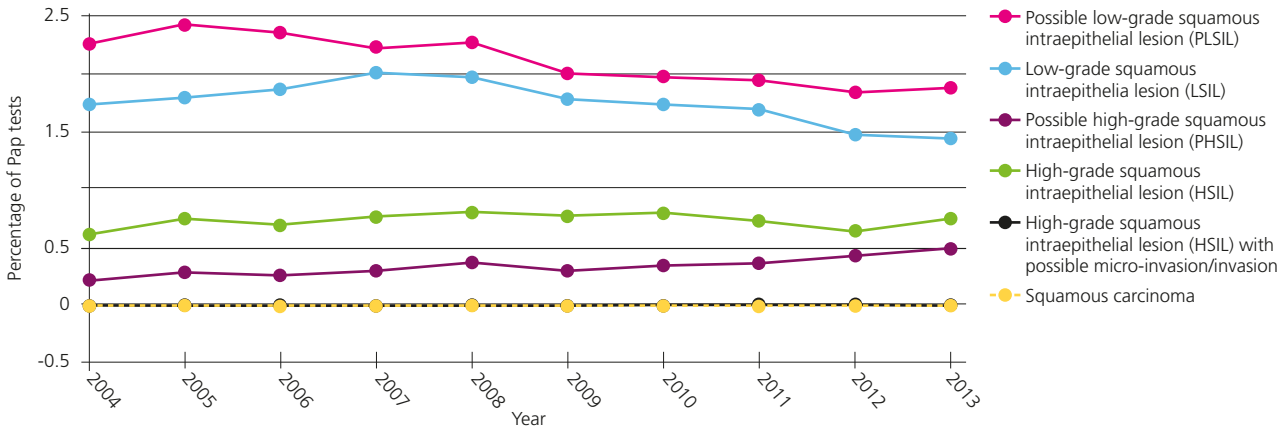
3.4 Pap tests with squamous abnormality

As seen in Table 3.4, during 2013 the number of Pap tests with a squamous abnormality (possible low-grade or worse) was 7,436, equating to 4.6% of all Pap tests for the year. This proportion has declined slightly since 2004 when it was 4.9%. The proportion of Pap tests with definite high-grade abnormality (i.e. high-grade lesions with or without possible micro-invasion or invasion or squamous cell carcinoma) was reported as 0.77% in 2013.

Table 3.4: Number and percent of Pap tests with a squamous abnormality, 2004–2013.

Year	Possible low-grade squamous intraepithelial lesion (PLSIL)		Low-grade squamous intraepithelial lesion (LSIL)		Possible high-grade squamous intraepithelial lesion (PHSIL)		High-grade squamous intraepithelial lesion (HSIL)		High-grade squamous intraepithelial lesion (HSIL) with possible micro-invasion/ invasion		Squamous carcinoma	
2004	3,720	2.25%	2,880	1.75%	377	0.23%	1,033	0.63%	21	0.01%	14	0.01%
2005	3,983	2.42%	2,953	1.79%	480	0.29%	1,260	0.77%	16	0.01%	16	0.01%
2006	3,859	2.35%	3,084	1.88%	443	0.27%	1,158	0.70%	14	0.01%	0	–
2007	3,602	2.22%	3,254	2.01%	503	0.31%	1,260	0.78%	19	0.01%	17	0.01%
2008	3,667	2.26%	3,222	1.99%	622	0.38%	1,305	0.80%	21	0.01%	14	0.01%
2009	3,266	2.01%	2,901	1.79%	498	0.31%	1,257	0.78%	21	0.01%	12	0.01%
2010	3,144	1.97%	2,780	1.74%	555	0.35%	1,285	0.80%	21	0.01%	18	0.01%
2011	3,146	1.94%	2,752	1.69%	593	0.37%	1,207	0.74%	23	0.01%	10	0.01%
2012	2,935	1.85%	2,360	1.49%	679	0.43%	1,027	0.65%	26	0.02%	13	0.01%
2013	3,048	1.88%	2,343	1.45%	799	0.49%	1,206	0.75%	20	0.01%	20	0.01%

Figure 3.4: Percentage of Pap tests with a squamous abnormality, 2004–2013.



3.5 Pap tests with endocervical abnormality

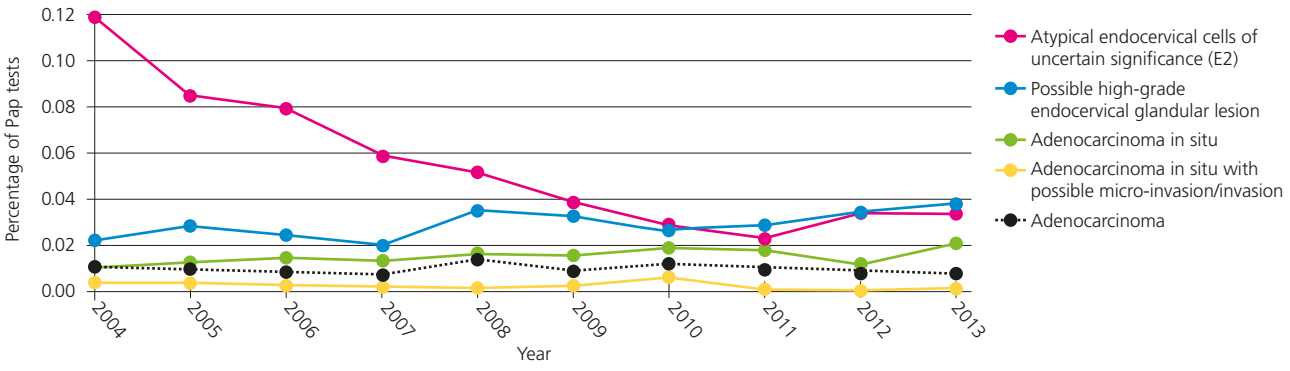
The presence of endocervical cells within a Pap test specimen is necessary for the detection and reporting of glandular abnormalities including atypical cells, possible high-grade lesions, endocervical adenocarcinoma in situ and adenocarcinoma. As seen in Table 3.5, the number of Pap tests for 2013 with an endocervical or glandular cell abnormality was 166 (0.1% of total Pap tests).

Figure 3.5 shows that the proportion of Pap tests in the category 'atypical endocervical cells of uncertain significance' (E2) has declined over the last ten years (from 0.119% to 0.035%), coinciding with the change in recommendations for glandular abnormalities, which are now recommended for referral directly to colposcopy. The use of this category has since declined nationally,[16] as has the variation in use of this coding between jurisdictions.

Table 3.5: Number and percent of Pap tests with an endocervical abnormality, 2004–2013.

Year	Atypical endocervical cells of uncertain significance (E2)		Possible high-grade endocervical glandular lesion		Adenocarcinoma in situ		Adenocarcinoma in situ with possible micro-invasion/invasion		Adenocarcinoma	
2004	197	0.119%	37	0.022%	15	0.009%	5	0.003%	17	0.010%
2005	140	0.085%	47	0.029%	22	0.013%	5	0.003%	15	0.009%
2006	130	0.079%	41	0.025%	23	0.014%	4	0.002%	14	0.009%
2007	95	0.059%	32	0.020%	21	0.013%	3	0.002%	11	0.007%
2008	84	0.052%	57	0.035%	26	0.016%	1	0.001%	22	0.014%
2009	63	0.039%	53	0.033%	24	0.015%	4	0.002%	14	0.009%
2010	47	0.029%	41	0.026%	30	0.019%	9	0.006%	18	0.011%
2011	37	0.023%	47	0.029%	28	0.017%	2	0.001%	16	0.010%
2012	55	0.035%	55	0.035%	19	0.012%	1	0.001%	13	0.008%
2013	56	0.035%	61	0.038%	35	0.022%	1	0.001%	13	0.008%

Figure 3.5: Percentage of Pap tests with an endocervical abnormality, 2004–2013.



16 Australian Institute of Health and Welfare 2015. *Cervical screening in Australia 2012–2013*. Cancer series no.93. Cat. no. CAN 91. Canberra: AIHW, p43.

4 Histology reports

4. Histology reports

The number of histology reports received during 2013 by the SACSR, and the diagnosis code according to the AIHW classification, is shown in Table 4. Reporting of cervical histology by laboratories to the SACSR is required under the *South Australian Public Health Act 2011*.

A total of 5,146 histology reports relating to the cervix were received by SACSR in 2013. The below data include all histology data related to the cervix received by the Registry during 2013. More than one histology report may have been received for a woman.

Table 4: Histology findings reported to the SACSR in 2013.

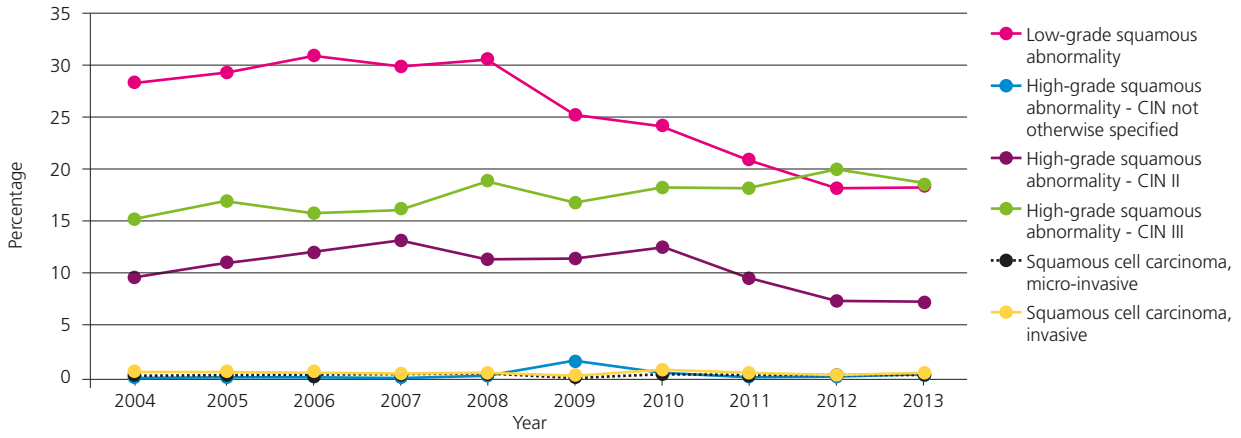
	Histology Finding[1]	Number	%
Squamous Abnormality	Squamous cell carcinoma, invasive	28	0.5%
	Squamous cell carcinoma, micro-invasive	16	0.3%
	High-grade squamous abnormality, CIN III	962	18.7%
	High-grade squamous abnormality, CIN II	381	7.4%
	High-grade squamous abnormality, CIN not otherwise specified	19	0.4%
	Low-grade squamous abnormality	950	18.5%
Endocervical Abnormality	Adenosquamous carcinoma	0	–
	Endocervical adenocarcinoma, invasive	18	0.4%
	Endocervical adenocarcinoma, micro-invasive	7	0.1%
	High-grade carcinoma in situ/adenocarcinoma in situ	12	0.2%
	High-grade endocervical abnormality, adenocarcinoma in situ	28	0.5%
	High-grade endocervical abnormality, endocervical dysplasia	18	0.4%
	Endocervical atypia	20	0.4%
Carcinoma of the cervix – other[2]		0	–
Benign changes/normal		2,599	50.5%
Unsatisfactory		88	1.7%
TOTAL		**5,146**	**100%**

Notes
1 The number of histology reports notified to the SACSR as at 13 February 2015.
2 Carcinoma of the cervix – other: includes small cell carcinoma and other malignant lesions (may include tumours of non-epithelial origin).
3 Due to rounding percentages, there may be some discrepancy in totals not adding up.

Figure 4.1 and 4.2 show the proportion of histology tests with a squamous or endocervical abnormality over the 10 years of 2004 - 2013.

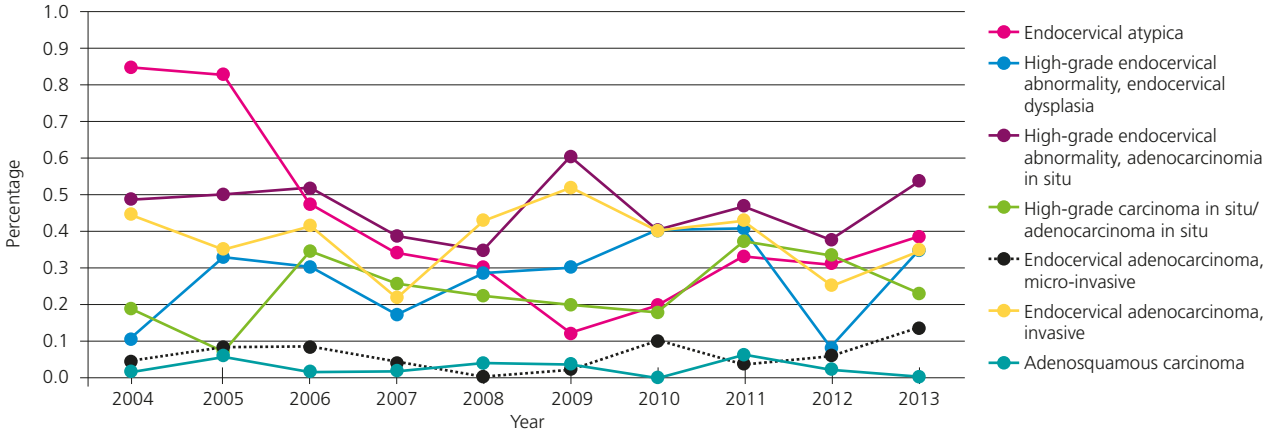
Low-grade squamous and CIN II abnormalities have declined since about 2008, corresponding with the implementation of the HPV vaccination program. A slight increasing trend in CIN III abnormalities is noted over the last 10 years. Further detail for high-grade abnormality with breakdowns by age are provided in Section 5.

Figure 4.1: Proportion of histology tests received by SACSR with a squamous cell abnormality, 2004–2013.



Due to the low proportion of endocervical abnormalities, there is significant fluctuation over time within categories. A declining trend in endocervical atypia is noted over the last decade, consistent with the decline observed in cytological abnormalities of 'atypical endocervical cells of uncertain significance' (E2).

Figure 4.2: Proportion of histology tests received by SACSR with an endocervical cell abnormality, 2004–2013.



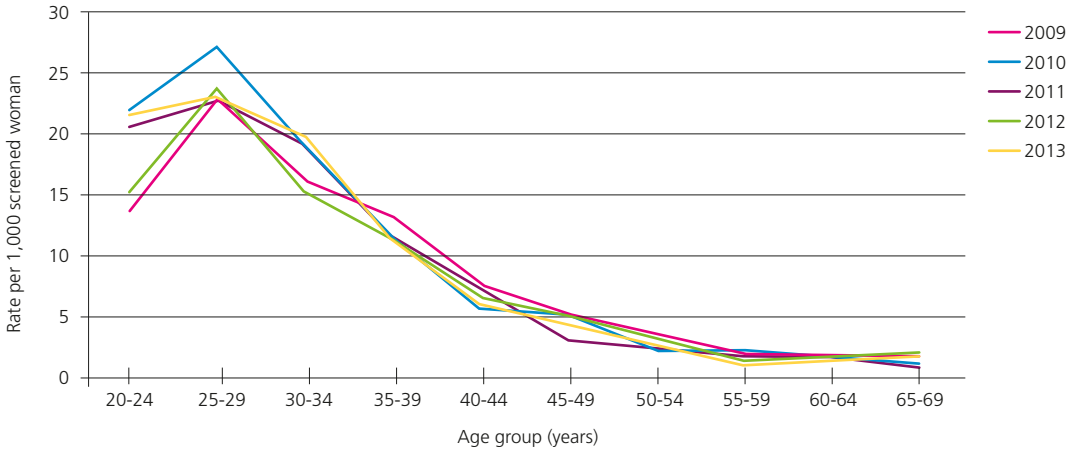
5 High-grade detection rates

5. High-grade detection rates

HPV vaccination can prevent high-grade lesions through prevention of infection with targeted HPV types (primarily HPV 16 and HPV 18, which cause at least 50% of high-grade lesions and 70% of cervical cancers). In 2013 the overall crude rate of histologically-confirmed high-grade abnormalities detected in South Australian women aged 20 to 69 years was 9.4 per 1,000 women screened.

Figure 5.1 illustrates the detection rate of histologically-confirmed high-grade intraepithelial abnormalities per 1,000 screened women for each year from 2009–2013 by five year age group. The graph clearly illustrates that younger women have a much higher rate of high-grade abnormalities than older women but the rate for women aged 20 to 24 years has been declining in recent years. The National HPV Vaccination Program commenced in 2007 and provided free quadrivalent HPV vaccine to females aged 12 to 26 years until the end of 2009, with an ongoing school based program in the first year of high school. Since 2013 both females and males have been eligible for vaccination. Estimates from the National HPV Vaccination Program Register indicate that coverage for females aged 12 to 17 years that was achieved in the catch up program in SA was 82/77/67% for doses 1/2/3 respectively[17] and for females aged 18 to 26 years was 59/48/34% for dose 1/2/3[18] (although noting under-notification of doses given in adult women of approximately 5-15%).[19]

Figure 5.1: Detection rate of high-grade intraepithelial abnormalities (histologically-confirmed) from 2009–2013 per 1,000 screened women.



Notes
1 Rate is crude rate and is not age-adjusted.

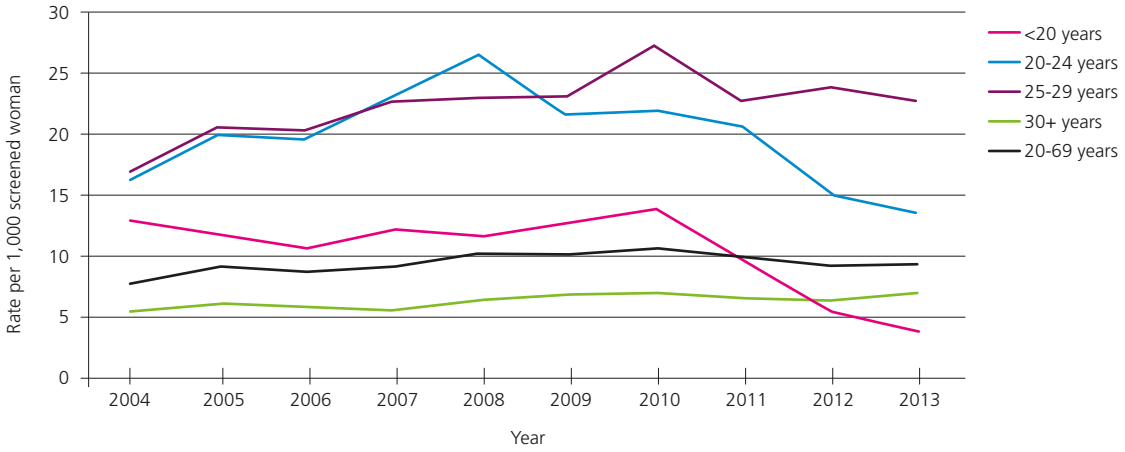
17 Brotherton JML, Murray SL, Hall MA, Andrewartha LK, Banks CA, Meijer D, Pitcher HC, Scully MM, Molchanoff L. *Human papillomavirus vaccine coverage among female Australian adolescents: success of the school-based approach.* Med J Aust 2013; 199: 614–617 doi: 10.5694/mja13.10272.

18 Brotherton J, Gertig D, Chappell G, Rowlands L, Saville M. *Catching up with the catch-up*: *HPV vaccination coverage data for Australian women aged 18-26 years from the National HPV Vaccination Program Register.* Commun Dis Intell 2011;35(2):197–201.

19 Brotherton JML, Liu B, Donovan B, Kaldor JM, Saville M. *Human papillomavirus (HPV) vaccination coverage in young Australian women is higher than previously estimated: independent estimates from a nationally representative mobile phone survey.* Vaccine 2014;32: 592– 597.

Figure 5.2 shows the rate of histologically-confirmed high-grade cervical abnormalities by year since 2004, for young women (< 20 years, 20 to 24 years, 25 to 29 years) and those 30+ years of age. In women aged < 20 years and those aged 20 to 24 years, rates have declined since the introduction of HPV vaccination in 2007. For women aged 20 to 24 years this seems to have forestalled an underlying trend of rising rates in this age group. The rate in women aged < 20 years fell from 12.1 per 1,000 in 2007 to 3.7 per 1,000 in 2013 ($p<0.0001$) and in 20 to 24 year old women fell from 23.0 in 2007 to 13.5 per 1,000 in 2013 ($p<0.0001$). As vaccinated women age, the impact of vaccination is likely to increase further and extend to women 25 to 29 years and beyond in the coming years.

Figure 5.2: Trends in high-grade cervical abnormalities (histologically-confirmed) by age, 2004–2013, as recorded on the SACSR.



Notes
1 Rate is crude rate and is not age-adjusted.

6 Correlation between cytology and histology reports

6. Correlation between cytology and histology reports

Tables 6.1 and 6.2 show the correlation between cytology results and histology findings. The correlation is restricted to cytology performed in 2012 where a subsequent histology test was reported within six months. Colposcopy reports, without histological confirmation, have been excluded from this analysis.

In interpreting this information, it is important to consider that only a minority of low-grade cytology (atypia and CIN I) is further investigated by colposcopy or biopsy, and an even smaller percentage of negative cytology reports are followed by colposcopy or biopsy. Women who have a biopsy are likely to be an atypical subset of the whole group of women with negative or low-grade cytology reports.

The correlation data presented uses the Cytology Coding Schedule (refer to Appendix 1) implemented in July 2006, which is based on the Australian Modified Bethesda System of 2004. The following correlation tables compare the cytology result with the most severe histology finding within a six month period, for squamous and endocervical abnormalities. The histology classification and method of correlation presented is consistent with the AIHW national reporting indicators. It is based on the test, not the woman, and these data include women aged 20 to 69 years. They also include the records of women who reside outside of South Australia but have data recorded on the SACSR.

Where a definite high-grade squamous cytology result was reported, 79.3% (647/816) of women were subsequently diagnosed with high-grade histology at biopsy (including high-grade CIN not otherwise specified, CIN II, CIN III and micro-invasive and invasive squamous carcinoma). This figure represents the positive predictive value of a high-grade cytology report for high-grade squamous histology. The National Pathology Accreditation Advisory Council (NPAAC) performance standards require that not less than 65% of cytology specimens with a definite high-grade epithelial abnormality must be confirmed on histology within six months as having a high-grade abnormality or cancer.[20]

There were no cases of micro-invasive or invasive cervical cancer reported on histology within six months of a low-grade squamous cytology result in 2012 (Table 6.1). There was one case of micro-invasive cancer following a negative cytology report although no information is available on symptom status or past screening history.

Table 6.1: Correlation of squamous cytology to the most serious squamous histology within six months, women aged 20 to 69 years, for cytology tests performed in 2012

Histology finding[1]	Cytology prediction (based on squamous cell code)													
	Negative[2]		Possible low-grade squamous intraepithelial lesion (PLSIL)		Low-grade squamous intraepithelial lesion (LSIL)		Possible high-grade squamous intraepithelial lesion (PHSIL)		High-grade squamous intraepithelial lesion (HSIL)		High-grade squamous intraepithelial lesion (HSIL) with possible micro-invasion/ invasion		Squamous carcinoma	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Negative	975	(80.8)	136	(37.5)	103	(30.2)	96	(19.8)	63	(7.7)	1	(5.9)	1	(11.1)
Low-grade squamous abnormality	179	(14.8)	157	(43.3)	170	(49.9)	94	(19.4)	106	(13.0)	2	(11.8)	0	–
High-grade squamous abnormality, CIN not otherwise specified	2	(0.2)	1	(0.3)	1	(0.3)	4	(0.8)	4	(0.5)	0	–	0	–
High-grade squamous abnormality, CIN II	24	(2.0)	39	(10.7)	27	(7.9)	50	(10.3)	114	(14.0)	1	(5.9)	0	–
High-grade squamous abnormality, CIN III	25	(2.1)	30	(8.3)	40	(11.7)	236	(48.8)	517	(63.4)	10	(58.8)	2	(22.2)
Squamous cell carcinoma, micro-invasive	1	(0.1)	0	–	0	–	2	(0.4)	9	(1.1)	0	–	1	(11.1)
Squamous cell carcinoma, invasive	0	–	0	–	0	–	2	(0.4)	3	(0.4)	3	(17.6)	5	(55.6)
Totals[3]	**1,206**	**(100%)**	**363**	**(100%)**	**341**	**(100%)**	**484**	**(100%)**	**816**	**(100%)**	**17**	**(100%)**	**9**	**(100%)**

Notes
1 The correlation excludes diagnosis based on colposcopic impression alone.
2 Negative cytology: no abnormal squamous cells or only reactive changes.
3 Due to rounding percentages, there may be some discrepancy in totals not adding up.

20 National Pathology Accreditation Advisory Council (NPAAC) 2006. *Performance Measures for Australian Laboratories Reporting Cervical Cytology*, Canberra: Department of Health and Ageing.

Women with a Pap test report of 'atypical endocervical or glandular cells of uncertain significance' (E2, as shown in Table 6.2) have glandular (or endocervical) cells on their smear which, in the opinion of the reporting pathologist, appear unusual but are not sufficiently abnormal to justify a more significant diagnosis. Unfortunately there is overlap in the cellular features caused by benign, inflammatory changes (by far the most common cause) and more significant processes such as pre-cancer (occasionally) and cancer (rarely). The NHMRC Guidelines[21] recommend colposcopy as an initial evaluation because of the risk of invasive cancer.[22] Of the seven cytology reports of 'atypical endocervical or glandular cells of undetermined significance' (E2), in only one case there was subsequent diagnosis of micro-invasive cancer (where histology was available within six months after the cytology result), and none with invasive cancer.

Table 6.2: Correlation of endocervical cytology to the most serious endocervical histology within six months, women aged 20 to 69 years, for cytology tests performed in 2012

Histology finding[1]	Cytology prediction (based on endocervical cell code)											
	Negative[4]		Atypical endocervical cells of unknown significance (E2)[5]		Possible high-grade endocervical glandular lesion[6]		Adenocarcinoma in situ		Adenocarcinoma in situ with possible micro-invasion/invasion		Adenocarcinoma	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Benign changes/ normal	44	(67.7)	0	–	0	–	0	–	0	–	0	–
Endocervical atypia	8	(12.3)	2	(28.6)	2	(20.0)	0	–	0	–	0	–
High-grade endocervical abnormality, endocervical dysplasia	1	(1.5)	2	(28.6)	3	(30.0)	0	–	0	–	0	–
High-grade endocervical abnormality, adenocarcinoma in situ	1	(1.5)	1	(14.3)	3	(30.0)	7	(46.7)	0	–	0	–
High-grade carcinoma in situ/ adenocarcinoma in situ	8	(12.3)	1	(14.3)	1	(10.0)	2	(13.3)	0	–	1	(50.0)
Endocervical adenocarcinoma-micro-invasive	1	(1.5)	1	(14.3)	1	(10.0)	4	(26.7)	0	–	0	–
Endocervical adenocarcinoma-invasive[2]	1	(1.5)	0	–	0	–	2	(13.3)	0	–	1	(50.0)
Adenosquamous carcinoma	0	–	0	–	0	–	0	–	0	–	0	–
Carcinoma of the cervix - other[3]	1	1.5	0	–	0	–	0	–	0	–	0	–
Totals[7]	**65**	**(100%)**	**7**	**(100%)**	**10**	**(100%)**	**15**	**(100%)**	**0**	**–**	**2**	**(100%)**

Notes
1 The correlation excludes diagnosis based on colposcopic impression alone.
2 Endocervical adenocarcinoma – invasive: includes adenocarcinoma and embryonal/clear cell carcinoma.
3 Carcinoma of the cervix – other: includes small cell carcinoma and other malignant lesions (may include tumours of non-epithelial origin).
4 Negative cytology: endocervical component present. No abnormality or only reactive changes.
5 Glandular cytology: includes atypical glandular cells of uncertain significance (E2).
6 Possible high-grade cytology: includes possible high-grade endocervical glandular lesion.
7 Due to rounding percentages, there may be some discrepancy in totals not adding up.

21 NHMRC 2005. *Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities.* http://www.nhmrc.gov.au/publications/synopses/wh39syn.htm, viewed 14 April 2015.
22 Mitchell HS. *Outcome after a cytological prediction of glandular abnormality*. Aust NZJ Obstet Gynaecol. 2004 Oct; 44(5):436-40.

7 Cervical cancer incidence and mortality

7. Cervical cancer incidence and mortality

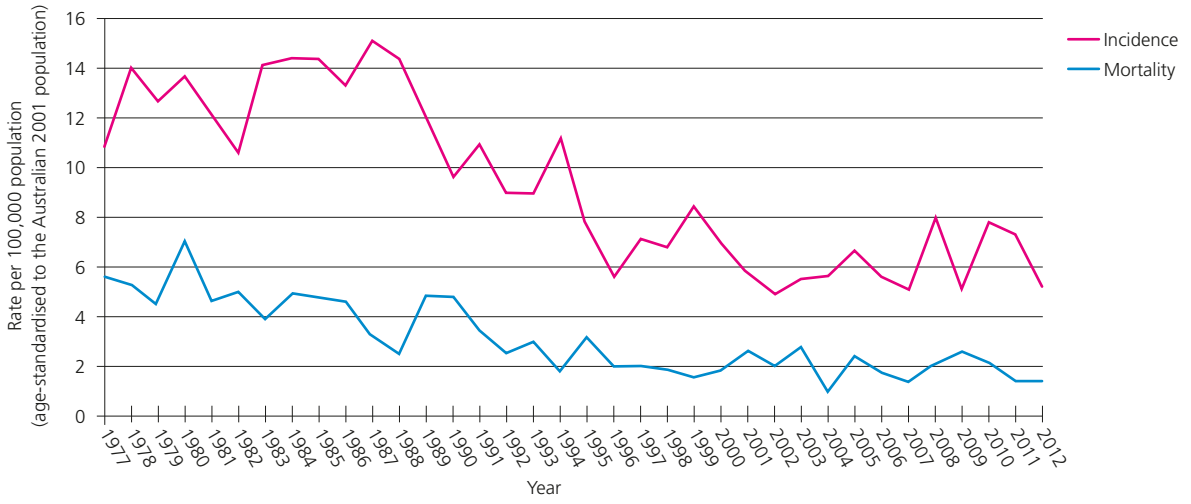
The aim of the Cervical Screening Program is to reduce the incidence of and mortality from cervical cancer. Data on cancer incidence and mortality are collected by the South Australian Cancer Registry and notifications are compulsory from laboratories, hospitals and the SACSR.

During 2012 (latest data available) there were 45 cases of cervical cancer that were reported to the South Australian Cancer Registry, and 15 South Australian women died due to cervical cancer.

Figure 7.1 shows the incidence and mortality rates from cervical cancer in SA from 1977–2012. The incidence of cervical cancer has declined dramatically since the 1980s, with a considerable decline between 1987 and 1996. This coincides with the commencement of the National Cervical Screening Program in 1991 and the South Australian Cervix Screening Program (SACSP) in June 1993. There was a plateau in incidence between 2001 and 2007 where the rate remained relatively stable during that time at between 4.9 and 6.7 per 100,000 women. An increase in incidence was noted in 2008 (8.1 per 100,000 women) followed by some fluctuation in the rate. The incidence rate for cervical cancers for 2012 was 5.2 per 100,000 women.

The mortality from cervical cancer in SA has declined gradually over time. Since 1994 mortality has averaged 2.0 per 100,000 women, as seen in Figure 7.1. The age-standardised mortality rate for cervical cancer in 2012 was 1.4 per 100,000 South Australian women (2011: 1.4 and 2010: 2.1). These rates are among the lowest in the world.[23]

Figure 7.1: Age-standardised incidence and mortality rates for all types of cervical cancer, South Australia 1977–2012.



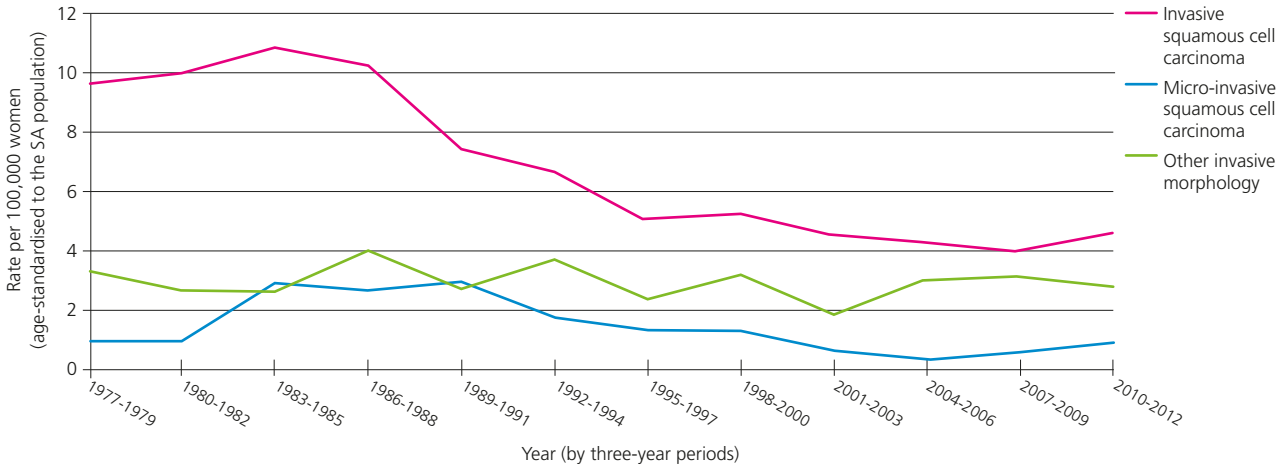
Notes
Source: South Australian Cancer Registry

23 International Agency for Research on Cancer (IARC). *GLOBCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012*, online analysis. http://globocan.iarc.fr/Pages/online.aspx, accessed 19 June 2015

Figure 7.2 shows the age-standardised incidence rates of cervical cancer by histological subtype grouped into three year periods over time. The greatest impact of the cervical screening program has been on squamous cell carcinoma of the cervix, with the incidence rate of invasive squamous cell carcinoma declining from 10.9 per 100,000 women in 1983–1985 to 4.6 per 100,000 women in 2010–2012. The incidence rate for micro-invasive cancer declined from 3.0 per 100,000 women in 1989–1991 to 0.4 during 2004–2006, and has since increased slightly to 0.9 per 100,000 women in 2010–2012.

Cervical screening is less effective for the detection of other invasive cervical cancers, such as adenocarcinomas,[24] which now represent a larger proportion of all cancers due to the success of the program in reducing the incidence of squamous cancers. It is anticipated that the HPV vaccination program will reduce the future incidence of adenocarcinomas. As seen in figure 7.2 the age-standardised rate of other invasive cervical cancers in SA has remained constant over recent decades, ranging between 4.1 and 1.9 per 100,000 women.

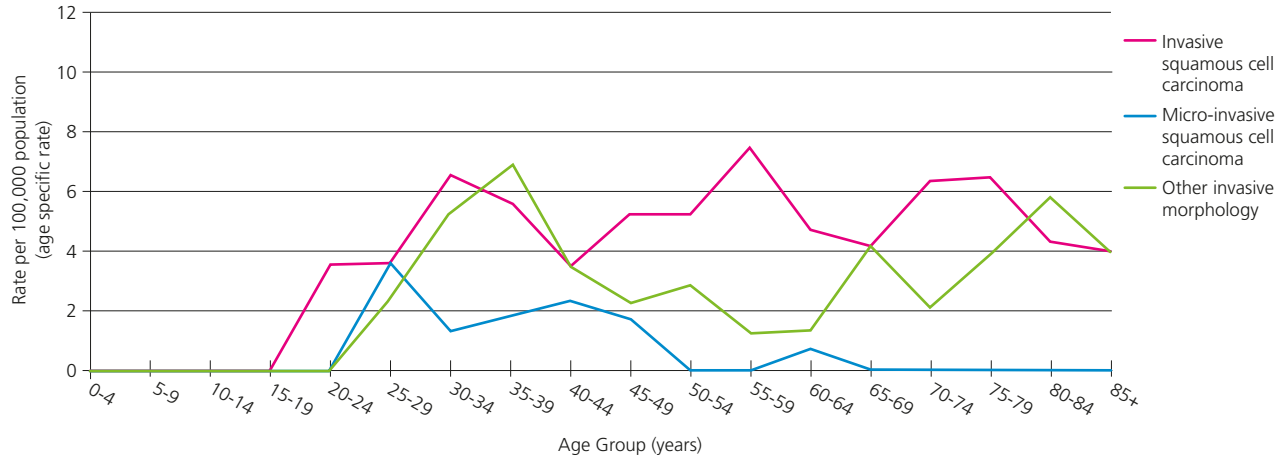
Figure 7.2: Age-standardised incidence rates of cervical cancer by histological subtype, South Australia 1977–2012.



Notes
Other invasive morphology comprises types of adenocarcinomas, and other rare tumours such as sarcomas.
Source: South Australian Cancer Registry

Figure 7.3 shows the age-specific incidence rates for cervical cancer by histological subtype and age, grouped over the three year period of 2010–2012. The age-specific incidence of invasive squamous cervical cancer peaks in the 30 to 34 year old age group, followed by subsequent peaks in women aged in their 50s and 70s. Micro-invasive cervical cancer peaks in the 25 to 29 year old age group and declines thereafter. Other types of invasive cervical cancers peak in women aged 35 to 39 years of age and again in women aged 80 to 84 years.

Figure 7.3: Age-specific incidence rates of cervical cancer by histological subtype, South Australia 2010–2012.



Notes
Other invasive morphology comprises types of adenocarcinomas, and other rare tumours such as sarcomas.
Source: South Australian Cancer Registry

24 NHMRC 2005. *Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities.* http://www.nhmrc.gov.au/publications/synopses/wh39syn.htm, viewed 14 April 2015.

Appendix 1:
Cytology coding schedule

Appendix 1: Cytology Coding Schedule

SPECIMEN	Type	AØ Not stated	A1 Conventional smear	A2 Liquid based specimen	A3 Conventional and liquid based specimen
	Site	BØ Not stated	B1 Cervical	B2 Vaginal	B3 Other gynaecological site

	S	Squamous Cell	E	Endocervical	O	Other/Non-cervical
CYTOLOGY	SU	Unsatisfactory for evaluation e.g. poor cellularity, poor preservation, cell detail obscured by inflammation/ blood/degenerate cells	EU	Due to the unsatisfactory nature of the smear, no assessment has been made	OU	Due to the unsatisfactory nature of the smear, no assessment has been made
	S1	Cell numbers and preservation satisfactory. No abnormality or only reactive changes	E-	Not applicable: vault smear/ previous hysterectomy	O1	No other abnormal cells
	S2	Possible low-grade squamous intraepithelial lesion (LSIL)	EØ	No endocervical component	O2	Atypical endometrial cells of uncertain significance
	S3	Low-grade LSIL (HPV and/or CIN I)	E1	Endocervical component present. No abnormality or only reactive changes	O3	Atypical glandular cells or uncertain significance - site unknown
	S4	Possible high-grade squamous intraepithelial lesion (HSIL)	E2	Atypical endocervical cells of uncertain significance	O4	Possible endometrial adenocarcinoma
	S5	High-grade squamous intraepithelial lesion (HSIL) (CIN II/CIN III)	E3	Possible high-grade endocervical glandular lesion	O5	Possible high-grade lesion - non-cervical
	S6	High-grade squamous intraepithelial lesion (HSIL) with possible micro-invasion/invasion	E4	Adenocarcinoma in situ	O6	Malignant cells - uterine body
	S7	Squamous carcinoma	E5	Adenocarcinoma in situ with possible micro invasion/invasion	O7	Malignant cells - vagina
			E6	Adenocarcinoma	O8	Malignant cells - ovary
					O9	Malignant cells - other

RECOMMENDATION	RØ	No recommendation	R4	Repeat smear 6 months	R8	Referral to specialist
	R1	Repeat smear 3 years	R5	Repeat smear 6 - 12 weeks	R9	Other management recommended
	R2	Repeat smear 2 years	R6	Colposcopy/biopsy recommended	RS	Symptomatic - clinical management required
	R3	Repeat smear 12 months	R7	Already under gynaecological management		

For more information

SA Cervix Screening Program
Women's and Children's Health Network
295 South Terrace
Adelaide SA 5000
Telephone: (08) 8161 7502
www.sahealth.sa.gov.au/papsmear

Interpreter

If you require this information in an alternative language or format please contact SA Health on the details provided above and they will make every effort to assist you.

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