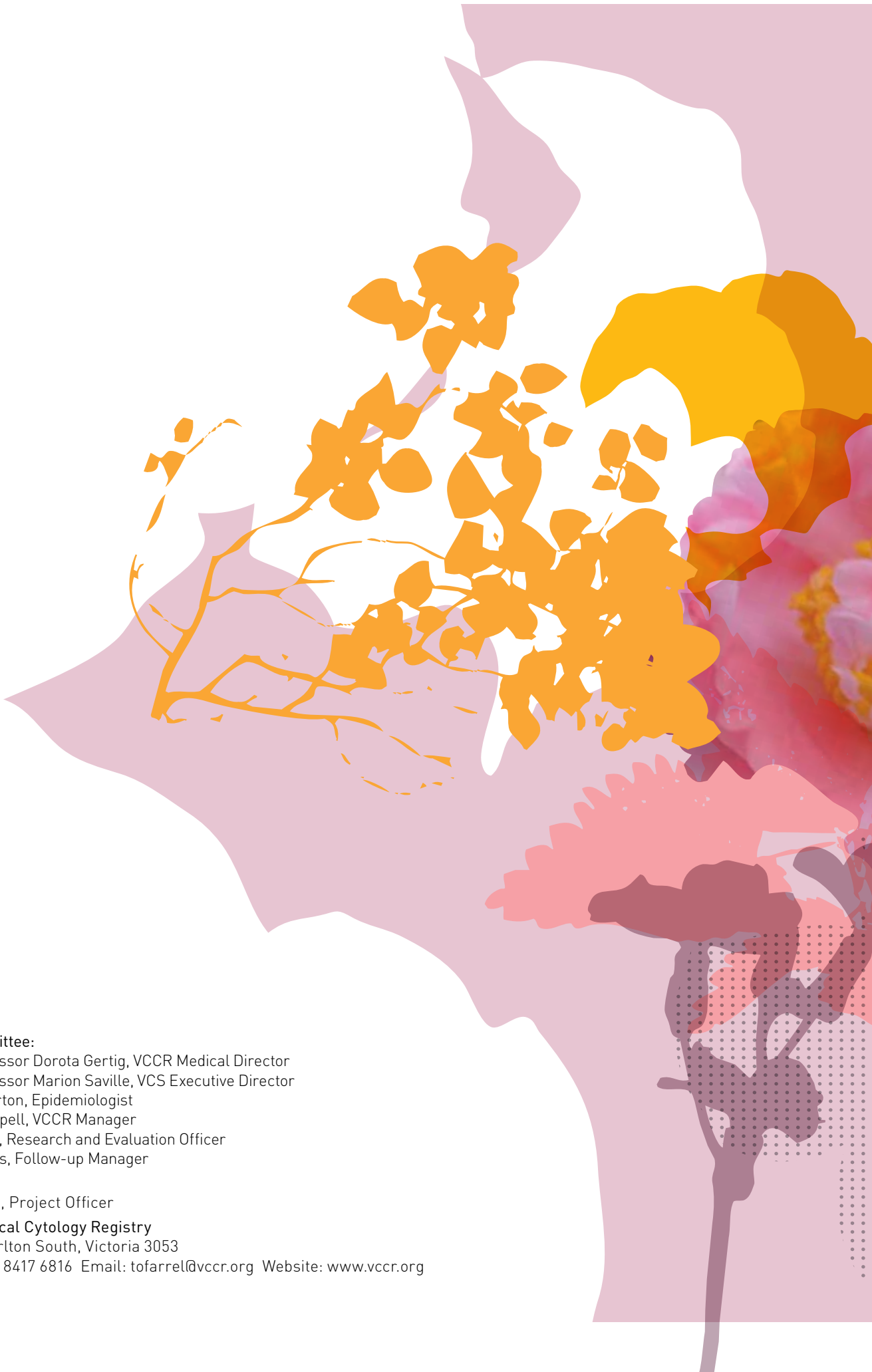


STATISTICAL REPORT 2010



Victorian Cervical Cytology
Registry



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EXECUTIVE SUMMARY

The Victorian Cervical Cytology Registry (VCCR) plays an important role as a safety net for Victorian women, by sending reminders for Pap tests and following up abnormal results. More than 573,000 Pap tests were registered by the VCCR in 2010, representing over 547,000 Victorian women. The VCCR sent over 296,000 follow-up and reminder letters to women and practitioners and followed up almost 6,000 abnormal Pap tests in 2010.

The Pap test registries are playing a key role in monitoring cervical abnormality rates in the cohort of young women who commenced screening following the introduction of the National HPV Vaccination Program in 2007. In June this year, data from VCCR were published in the *Lancet*¹, reporting a decline in the incidence of histologically confirmed high-grade abnormalities in young women, suggesting an early impact of the HPV vaccine. Data through 2010 show a continuation of this decline in women under 20 years, but not in older women. Further work is planned to analyse the data by vaccination status, through cross-linking of the VCCR data with the data from the National HPV Vaccination Register, to provide more definitive results.

VCCR data show that there has been a slight decline in participation in cervical screening with an estimated 60.7% two year participation for 2009–2010 for women in the target age range of 20 to 69 years compared with 61.3% for 2008–2009. Since last year, the estimated two year participation rates for 20 to 29 year olds and 30 to 39 year olds have declined; rates have remained stable in the 40 to 49 years age group and increased for women aged 50 to 59 and 60 to 69 years. Since the commencement of the National HPV Vaccination Program in April 2007, the importance of continuing regular Pap tests for vaccinated women of screening age continues to be emphasised. There was a slight decline in the two year participation in cervical screening for the 20 to 24 year age group, which includes women vaccinated in the HPV vaccine catch-up program, with a rate of 41.6% in 2009–2010 compared with 43.0% in 2008–2009.

Substantial variation exists in screening rates between different areas of Victoria as represented by Divisions of General Practice, with the lowest two year screening rate for 2009–2010 at 54.1% and the highest at 69.2%. The screening rate for Victorian regions of the Department of Health ranged from 56.2% to 63.9% while the estimated two year participation rate by Local Government Area ranged from 47.1% to 73.7%.

Over the last decade there has been a gradual increase in the proportion of Pap tests collected by nurses, with 5.0% of all Victorian Pap tests being collected by nurses in 2010. The Victorian Cytology Service (VCS) and PapScreen Victoria have been working with nurses who collect Pap tests and utilize the VCS laboratory, to record Aboriginal and Torres Strait Islander (A&TSI) status on the VCS Pathology Request Forms and in 2010, the overall percentage of Pap tests collected by nurses for which A&TSI status was recorded was 67.4%. This work has been undertaken with the aim of improving the participation of A&TSI women in cervical screening, given they continue to have higher rates of cervical cancer incidence and mortality than other Australian women.

Of Pap tests recorded by the VCCR during 2010, 6.4% were reported as having a squamous cell abnormality. A definite high-grade abnormality was present in close to 0.8% of tests. Endocervical abnormality was identified in 0.1% of tests. For 2010 the VCCR recorded details of more than 17,000 histology reports relevant to the cervix. For the 3,896 high-grade cytology tests reported, 2,985 were subsequently confirmed with high-grade histology on biopsy within a six month period. This represents a positive predictive value of 77.0% and reflects the high quality of laboratory reporting in Victoria.

Rates of cervical cancer incidence and mortality for Victoria through to 2008 from the Victorian Cancer Registry show that cervical cancer incidence has declined dramatically since the late 1980s when the organised screening program was introduced. Mortality from cervical cancer has continued to decline in Victoria and at around 1.0 per 100,000 women, is now among the lowest in the world. Of Victorian women diagnosed with invasive cervical cancer during 2008, at least 81.0% had either no Pap tests or were lapsed screeners prior to their cancer diagnosis, reinforcing the need for regular Pap tests.

1 Brotherton J, Fridman M, May C, Chappell G, Saville M, Gertig D. *Early effect of the HPV vaccination programme on cervical abnormalities in Victoria, Australia: an ecological study*. 2011. *Lancet*.377: 2085-2092.

1. INTRODUCTION

1.1 BACKGROUND

The Victorian Cervical Cytology Registry (VCCR) is one of eight such registries operating throughout Australia. Each State and Territory operates its own register. Victoria was the first State to establish such a register and commenced operation in late 1989 after amendments to the *Cancer Act 1958*.

The Pap test Registries, as they are commonly known, were introduced progressively across Australia throughout the 1990s. The Registries are an essential component of the National Cervical Screening Program and provide the infrastructure for organised cervical screening in each State and Territory.

The VCCR is a voluntary "opt-off" confidential database or register of Victorian women's Pap test results. Laboratories provide the VCCR with data on all Pap tests taken in Victoria, unless a woman chooses not to participate.

The VCCR works closely with PapScreen Victoria which is responsible for the communications and recruitment program aimed at maintaining the high rate of participation of Victorian women in the National Cervical Screening Program.

1.2 FUNCTIONS OF THE VCCR

The VCCR facilitates regular participation of women in the National Cervical Screening Program by sending reminder letters to women for Pap tests and by acting as a safety net for the follow-up of women with abnormal Pap tests.

The primary functions of the VCCR as specified in the *Cancer Act 1958* are:

- a) to follow-up positive results from cancer tests,
- b) to send reminder notices when persons whose names appear in the register are due for cancer tests,
- c) subject to and in accordance with the regulations, to give access to the register to persons studying cancer; and
- d) to compile statistics and, if the organisation considers it appropriate, to publish those statistics that do not identify the persons to whom they relate.

Secondary functions of the Registries have developed on a more regional basis. In Victoria, the role of the VCCR includes:

- the provision of the known screening history of a woman to the laboratory that is reporting the current Pap test,
- the provision of quantitative data to laboratories to assist with their quality assurance programs; and
- the provision of aggregate data to the Australian Institute of Health and Welfare (AIHW) so that the National Cervical Screening Program can be judged against an agreed set of performance indicators.

1.3 NATIONAL POLICY: THE NHMRC GUIDELINES FOR THE MANAGEMENT OF ASYMPTOMATIC WOMEN WITH SCREEN DETECTED ABNORMALITIES

On 1 July 2006, the National Health and Medical Research Council (NHMRC) *Guidelines for the Management of Asymptomatic Women with Screen Detected Abnormalities* (2005)² were implemented around Australia. The main changes to the existing guidelines were:

- the change of terminology for cytology reports to the Australian Modified Bethesda System 2004,
- repeat Pap tests for most women with low-grade squamous abnormalities,
- not to treat biopsy proven low-grade or HPV lesions,
- to refer all women with atypical glandular cells for colposcopy,
- to refer all women with a possible high-grade lesion for colposcopy; and
- to use HPV tests and cytology as a test of cure for women treated for CINII and CINIII.

The VCCR is presently participating in the national Safety Monitoring of the NHMRC guidelines.

1.4 THE NATIONAL HPV VACCINATION PROGRAM

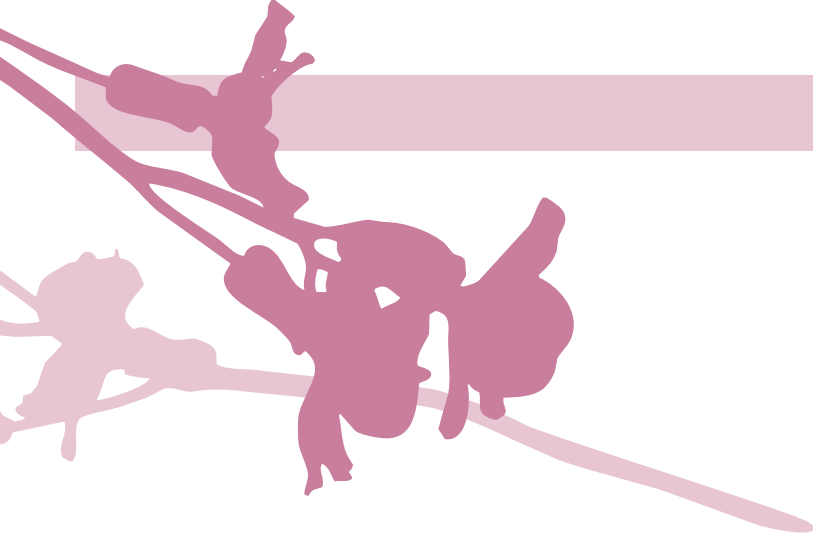
The National HPV Vaccination Program commenced in April 2007 and will have a substantial impact on the cervical screening program in the years to come. As part of the National Immunisation Program, the Australian Government is providing the Human Papillomavirus (HPV) vaccine on an ongoing basis through schools for 12 and 13 year old girls. The government previously funded a two year catch-up program for 13 to 18 year old girls in schools and 18 to 26 year old women through general practice and community-based programs which ceased in December 2009. To date, the program has used the quadrivalent HPV vaccine Gardasil.

The Pap test Registries around Australia will play an important role in monitoring the impact of the vaccination program on participation rates in cervical screening and on cervical abnormalities and cancer in the long term. The importance of continuing regular Pap tests for vaccinated women is emphasised as part of the National HPV Vaccination Program.

A National HPV Vaccination Program Register³ (the HPV Register) has been established to support, monitor and evaluate the National HPV Vaccination Program. The Victorian Cytology Service Inc, which has operated the Victorian Cervical Cytology Registry for over 20 years,

2 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>

3 The National HPV Vaccination Program Register website. <http://www.hpvregister.org.au>



was engaged by the Department of Health and Ageing in February of 2008 to establish and manage the National HPV Vaccination Program Register. The HPV Register became fully operational in December 2008.

The HPV Register receives data from all states and territories and from all types of vaccination providers including Local Councils (who in some States deliver the school vaccination program), General Practitioners, nurses and other immunisation providers around Australia. The Register records basic demographic information and information about doses administered in Australia.

The HPV Register supports the program by sending statements on vaccination status to eligible females and their providers, and by providing reports and de-identified data to approved providers and researchers.

Linkage of data held by the HPV Register with information from cervical cytology (Pap test) and cancer registries will be important in the future for evaluation purposes.

1.5 DATA INCLUDED IN THIS REPORT

This statistical report provides timely information about cervical screening in Victoria during 2010. In most cases the terminology provided in VCCR reports is consistent with that published by the Australian Institute of Health and Welfare (AIHW) as part of reporting indicators for the National Cervical Screening Program⁴.

It is important to note that in 2009 the AIHW revised the national indicators for the National Cervical Screening Program, and where possible the Registry adopted the same methodology for reporting commencing with the 2009 Statistical Report. Caution needs to be taken when comparing data from the 2009 and 2010 reports with that presented in earlier reports due to this change in methodology. Note that the correlation section in the 2010 report is now based on tests, not women, to ensure full consistency with the AIHW indicators.

Participation rates

This report includes information on participation rates for women aged 20 to 69 years in ten year age groups and five year age groups for the 20 to 29 group. Participation rates provided have been adjusted using the Australian Bureau of Statistics National Health Survey 2004-05 hysterectomy fractions. The two year participation rates are also presented by Division of General Practice, Department of Health region and Local Government Area.

The number and proportion of Pap tests collected by nurses is presented in this report, by year and Department of Health region.

Information on the proportion of women who re-screen early is also featured.

Cytology coding

Information is provided on the cytology report of Pap tests which are pre-coded by the pathology laboratory to the Cytology Coding Schedule. Data are presented on the proportion of Pap tests according to the results of unsatisfactory, negative, squamous abnormality and endocervical abnormality. The percentage of Pap tests collected during 2010 without an endocervical component is also presented.

Appendix 1 shows the Australia-wide cytology codes that have been used from 1 July 2006 to correspond with the implementation of the NHMRC guidelines. The Cytology Coding Schedule allows a Pap test report to be summarised to a six digit numeric code covering the type of test, site of test, the result for squamous cells, the endocervical component, other non-cervical cells, and the recommendation made by the laboratory in regard to further testing.

Histology/colposcopy reports

The 2010 histology registrations in this report are as notified by August 2011. The vast majority of histology reports are registered by this time. While reasonably comprehensive registration occurs for histology reports, a proportion of colposcopy only results are also registered, most typically when a histology report is not available. Data included in this report excludes results reported from a colposcopy report alone (i.e. no laboratory report).

Follow-up protocol

The VCCR Reminder and Follow-up Protocol is based on the NHMRC *Guidelines for the Management of Asymptomatic Women with Screen Detected Abnormalities*. The Reminder and Follow-up Protocol used by the VCCR in 2010 is shown in Appendix 2.

Reminder letters are not sent to women whose VCCR records indicate a past history of hysterectomy or of cervical or uterine malignancy, or to women who are over 70 years of age and whose last Pap test was normal.

Cervical cancer incidence and mortality

Information on cervical cancer incidence and mortality is provided in this report courtesy of the Victorian Cancer Registry at the Victorian Cancer Council. Also included is a section examining the screening history of Victorian women diagnosed with invasive and micro-invasive cervical cancer during 2008.

⁴ AIHW 2011. *Cervical screening in Australia 2008-2009*. Cancer series no. 61. Cat. no. CAN 57. Canberra: AIHW.

2. PARTICIPATION IN SCREENING

2.1 NUMBER OF PAP TESTS AND WOMEN SCREENED

Table 2.1 shows data on the number of Pap tests registered and the number of women screened for each year of the VCCR's operation. During 2010 a total of 573,800 Pap tests were registered from over 547,400 women. From the previous year, this is a decrease of 10,500 Pap tests and 9,200 women. While this represents a decline in the number of Pap tests and women screened since 2009, the numbers still exceed those reported for 2008.

The number of women screened in each of these years is probably a slight overestimate because of incomplete record-linkage due to the lack of a unique identifying number for each woman. Where possible, the Medicare number of women is used to assist with accurate record linkage. Since 2001, 95% of women with a Pap test record on the VCCR have a Medicare number available, and from 1999 the VCCR has used SSA-Name (matching software) in the linking of incoming tests to pre-existing data on the database. This has resulted in more complete record-linkage of different episodes of care for women.

In interpreting the information in Table 2.1, it is important to realise that a proportion of women in Victoria are screened on an annual basis.

The VCCR is a voluntary "opt-off" database; however, the proportion of women who are part of the screening program but decide to opt-off the VCCR is estimated to be less than 1%. A recent review of 10 years of VCS laboratory records (2001–2010) showed an opt-off rate for Pap tests received by the laboratory of 0.36%. Where a woman objects to her Pap test being registered, the VCCR holds no information about that test.

Table 2.1: Number of Pap tests registered and number of women screened in Victoria, 1990–2010.

Year	Number of Pap Tests registered	Number of women screened
2010	573,800	547,400
2009	584,300	556,600
2008	565,500	538,100
2007	585,500	557,400
2006	572,800	540,700
2005	585,300	549,700
2004	588,000	550,000
2003	571,000	532,000
2002	579,000	540,000
2001	577,000	542,000
2000	572,000	532,000
1999	603,000	558,000
1998	619,000	571,000
1997	587,000	535,000
1996	616,000	560,000
1995	590,000	530,000
1994	622,000	562,000
1993	571,000	523,000
1992	542,000	497,000
1991	545,000	498,000
1990	436,000	402,000

2.2 PARTICIPATION BY AGE GROUP

Method of calculating participation

The participation of women in cervical screening by age group is expressed as a percentage.

- The denominator is the female Estimated Resident Population (ERP)⁵ based on Australian Bureau of Statistics data for Victoria, after adjustment for the estimated proportion of women who have had a complete hysterectomy using hysterectomy estimates in the general population from the 2004-05 National Health Survey⁶. The average female population over the two year period is used as the denominator.

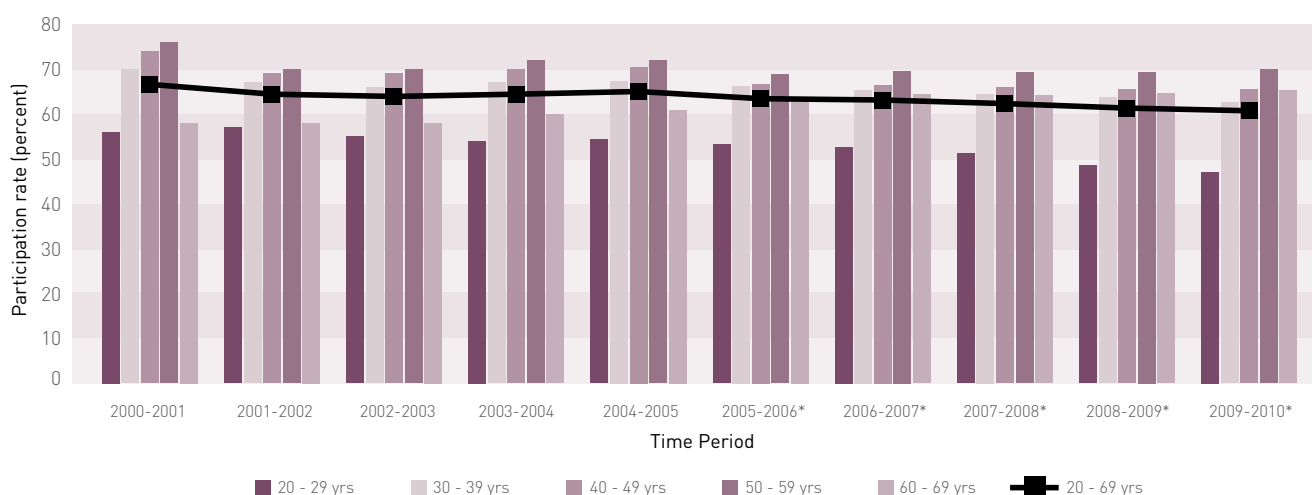
- The numerator is estimated from the VCCR database. It is the number of women resident in Victoria who had at least one Pap test in the time period of interest and who appear to have a cervix (that is, they have not had a hysterectomy according to information held by the VCCR).

Table 2.2 shows the estimated cervical screening rates by age group in 2010 and the calendar year periods of 2009–2010, 2008–2010 and 2006–2010.

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

Age Group	% screened 2010 (1 year)	% screened 2009-2010 (2 years)	% screened 2008-2010 (3 years)	% screened 2006-2010 (5 years)
20 to 29 yrs	25.4%	47.1%	61.0%	82.1%
- 20 to 24 yrs	22.3%	41.6%	55.1%	78.0%
- 25 to 29 yrs	28.4%	52.4%	66.9%	86.2%
30 to 39 yrs	33.3%	62.6%	77.1%	92.5%
40 to 49 yrs	35.3%	65.5%	77.8%	87.9%
50 to 59 yrs	37.6%	69.9%	80.7%	87.5%
60 to 69 yrs	34.7%	65.3%	73.0%	75.5%
20 to 69 yrs	32.6%	60.7%	73.3%	86.2%

Figure 2.2: Estimated two year cervical screening rates by age group, 2000–01 to 2009–10.



* Note that data from 2005-2006 onwards has been adjusted with the 2004-05 National Health Survey hysterectomy fraction which has reduced participation rates compared with the 2001 National Health Survey hysterectomy fraction used for previous years.

Notes

- Crude rates of the number of women screened as a proportion of the eligible female population. Women screened only includes women who have not had a hysterectomy according to information held by the VCCR. The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2004-05 National Health Survey.
- Periods covered apply to calendar years.

⁵ Australian Bureau of Statistics. 2011. *Australian Demographic Statistics*. Cat. no. 3101.0, Canberra: ABS

⁶ Australian Bureau of Statistics. 2006. *National Health Survey: Summary of Results 2004-05*. Cat. no. 4364.0, Canberra: ABS

Limitations

Participation rates are necessarily imprecise and measurement error may affect both the denominator and the numerator. The biggest impact on denominator error comes from uncertainty about hysterectomy rates. Only women with a cervix are considered eligible for cervical screening and adjustment must be made for the proportion of women in the population who have had a hysterectomy.

Measurement error in VCCR data also comes from imperfect record-linkage between multiple Pap tests from the same woman (resulting in an overestimate of the number of women screened) and from missing data not reported to the Registry regarding whether the Pap test was taken from a woman with or without a cervix.

Participation rates

Because of the moderate decrease in the number of women screened from 2009 to 2010, the one year screening rate for women aged 20 to 69 years decreased slightly from 33.7% for 2009 to 32.6% for 2010.

The two year participation rate for women aged 20 to 69 years decreased from 61.3% in 2008–2009 to 60.7% in 2009–2010. It is important to note that while the number of women screened increased by 1.4% between these two year screening periods, the number of eligible women in the population for cervical screening increased by 2.4% (number of women screened and population data not shown). Because the growth in the population exceeded the growth in the number of Pap tests this is reflected as a decrease in the estimated two year participation rate.

The estimated two year participation rates for 20 to 29 year olds and 30 to 39 year olds declined between 2008–2009 and 2009–2010, remained static in the 40 to 49 years age group and increased for women aged 50 to 59 and 60 to 69 years.

Over the three year period from 2008–2010, the participation rate of Victorian women aged between 20 to 69 years in the Pap test screening program was estimated to be 73.3%. Table 2.2 also shows the five year estimated participation rate from 2006–2010 of 86.2%.

The participation in cervical screening has remained relatively stable over time for each age group since 2000–2001 as shown in Figure 2.2; however a slight decline in the estimated two year participation can be seen overall. The 50 to 59 and 60 to 69 age groups were the only groups to show any increase. Women aged between 50 and 59 years continue to have the highest two year screening rate. Women aged 20 to 29 years have the lowest screening rate of the 10 year age groups, which has shown a steady decline over the last decade. This trend towards decreasing participation in young women has also been seen nationally and internationally⁷.

2.3 PARTICIPATION BY AREAS

Method of calculating participation

The participation rate for age eligible women in cervical screening by Division of General Practice (GP), Department of Health (DH) region and Local Government Area (LGAs) is expressed as a percentage.

- The denominator is the estimated number of women in each Postal Area⁸ adjusted to exclude the proportion of women estimated to have had a hysterectomy (using the 2004–05 National Health Survey hysterectomy fraction⁹). The average female population over the two year period is used as the denominator.
- 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 VCCR.

To calculate the estimated participation by area, data were converted from Australia Post Postcodes and ABS Postal Areas to LGAs and Divisions of GP using ABS concordances¹⁰. Data for LGAs were aggregated to produce data by DH regions.

It is important to note that there has been an increase in the population of eligible women across most areas in the period analysed. As described in section 2.2, the growth in the population for many areas has exceeded the increase in the number of women screened. This may explain some of the decline seen for many areas when comparing data with the 2009 VCCR Statistical Report.

Limitations

Small-area data (eg. DH regions, LGAs and Divisions of GP) 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 derived from applying the national hysterectomy fractions to the relatively small female population resident in the Postal Areas.

Other additional (but probably lesser) sources of measurement error derive from:

- the proportion of Victorian Pap tests reported by laboratories outside of Victoria which are not reported to the VCCR (this will mainly affect areas located on the Victoria/New South Wales and Victoria/South Australia borders),
- the differences between the Australia Post postcode 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 are created specifically for Census purposes and disseminating statistics, while postcodes are designed to distribute mail.

7 Lancucki L, Fender M, Koukari A, Lynge E, Mai V et al. *A fall-off in cervical screening coverage of younger women in developed countries*. 2010; J Med Screen.17:91-6

8 Based on the following Australian Bureau of Statistics data: Victorian Female Estimated Resident Population by Postal Area at 30 June 2009 (revised data) and Victorian Female Estimated Resident Population by Postal Area at 30 June 2010 [preliminary data].

9 Australian Bureau of Statistics. 2006. *National Health Survey: Summary of Results 2004-05*. Cat. no. 4364.0, Canberra: ABS

10 2007 Postcode to LGA converter algorithm supplied by Victorian Department of Health and based on ABS concordances. Postcode to Divisions of General Practice converter algorithm supplied by Victorian Department of Health and based on the 2008 Australian Divisions of General Practice boundaries.

2.3.1 Participation by General Practice Networks

The Divisions of General Practice boundaries are service areas maintained by the Commonwealth Department of Health and Ageing to provide services and support to general practice. There are 29 Divisions of GP which lie partially or entirely within Victoria. Using methods discussed in the

beginning of Section 2.3, the estimated two year participation rates have been calculated for these areas. It is important to note that there have been changes to Divisions of GP boundaries since the VCCR 2008 Statistical Report. These were undertaken by the Department of Health and Ageing and although minor in the case of many areas, have resulted in alignment changes for all Divisions¹¹.

Table 2.3.1: Estimated two year cervical screening rates by Division of General Practice, 2008–2009 and 2009–2010.

Division Number	Division Name	2008–2009 % screened (95% CI)	2009–2010 % screened (95% CI)
301	Melbourne GP Network	58.0% (57.7%–58.3%)	57.6% (57.3%–57.9%)
302	North East Valley Division of GP	67.4% (67.1%–67.8%)	67.2% (66.8%–67.5%)
303	Melbourne East GP Network	66.2% (66.0%–66.5%)	65.9% (65.7%–66.2%)
304	Southcity GP Services	66.5% (66.1%–66.8%)	66.0% (65.6%–66.3%)
305	Westgate GP Network	56.0% (55.6%–56.4%)	54.8% (54.4%–55.2%)
306	PivotWest #	57.5% (57.1%–57.8%)	56.7% (56.4%–57.1%)
307	Impetus (Progressive Health Ltd.) #	59.6% (59.3%–60.0%)	58.9% (58.6%–59.2%)
308	Northern Division of GP (Melbourne)	57.5% (57.1%–57.8%)	56.8% (56.4%–57.1%)
311	Greater Monash GP Network	61.6% (61.2%–62.0%)	60.3% (59.9%–60.7%)
312	Monash Division of GP	63.3% (62.9%–63.8%)	63.0% (62.6%–63.5%)
313	Bayside GP Network	70.3% (69.9%–70.7%)	69.2% (68.8%–69.6%)
314	Knox Division of GP	63.2% (62.8%–63.6%)	62.9% (62.5%–63.3%)
315	Dandenong Casey GP Association	57.7% (57.4%–58.0%)	57.2% (56.9%–57.5%)
316	Peninsula GP Network	61.3% (61.0%–61.6%)	61.4% (61.0%–61.7%)
317	GP Association Geelong	62.0% (61.6%–62.4%)	62.1% (61.7%–62.4%)
318	Central Highlands GP Network	60.1% (59.7%–60.6%)	59.2% (58.7%–59.6%)
319	North East Victorian Division of GP	65.3% (64.7%–65.8%)	65.0% (64.4%–65.6%)
320	Eastern Ranges GP Association	62.6% (62.3%–63.0%)	62.2% (61.9%–62.6%)
322	GP Alliance South Gippsland	59.9% (59.2%–60.6%)	59.3% (58.6%–60.0%)
323	Central West Gippsland Division of GP	58.9% (58.4%–59.4%)	58.5% (58.0%–59.0%)
324	Otway Division of GP	60.8% (60.3%–61.4%)	60.8% (60.3%–61.3%)
325	Ballarat and District Division of GP	53.8% (53.3%–54.4%)	55.4% (54.9%–55.9%)
326	Central Victoria GP Network	60.0% (59.4%–60.5%)	59.3% (58.7%–59.8%)
327	Goulburn Valley Division of GP	57.8% (57.2%–58.4%)	56.1% (55.5%–56.7%)
328	East Gippsland Division of GP	61.3% (60.6%–62.0%)	60.6% (59.9%–61.2%)
329	Albury Wodonga Regional GP Network	62.9% (62.0%–63.8%)	61.1% (60.2%–62.0%)
330	West Vic Division of GP	54.2% (53.5%–54.8%)	54.1% (53.4%–54.8%)
331	Murray Plains Division of GP	58.0% (57.1%–58.9%)	58.2% (57.3%–59.1%)
332	Mallee Division of GP	57.1% (56.4%–57.8%)	56.1% (55.5%–56.8%)

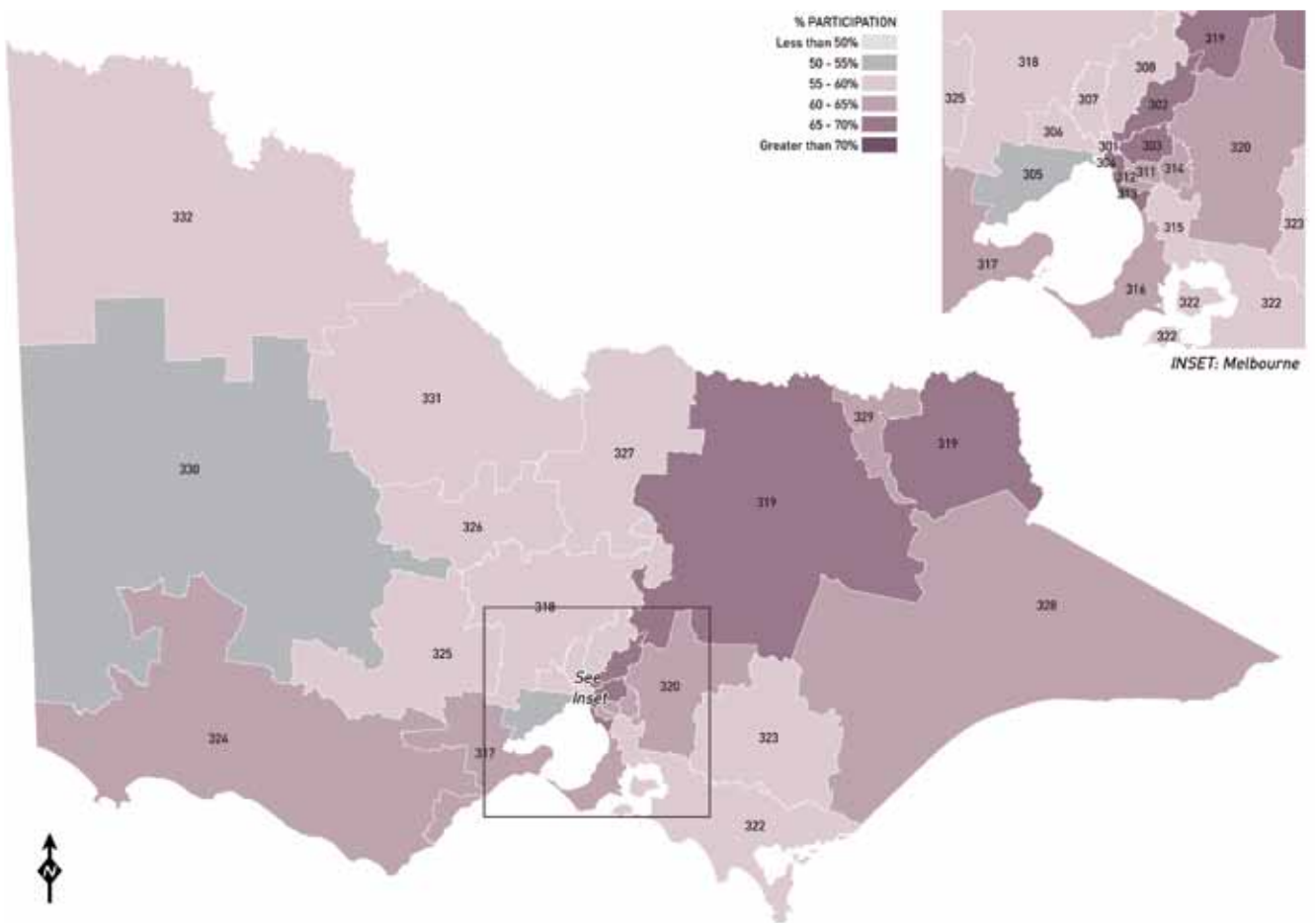
Divisions of GP with name change from previous year.

Notes

1. Crude rates of the number of women screened as a proportion of the eligible female population. Women screened only includes women who have not had a hysterectomy according to information held by the VCCR. The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2004–05 National Health Survey.
2. Periods covered apply to calendar years.

¹¹ As from 1 July 2008 the Division of GP boundaries changed in order to align with the ABS 2006 Census Collection District boundaries. In addition a number of Divisions have amalgamated or renegotiated their boundaries. Refer to <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pcd-programs-divisions-boundarymaps> for more information.

Figure 2.3.1: Estimated two year cervical screening rates by Division of General Practice, 2009–2010.



Divisions of GP boundaries have been truncated where they overlap the Victorian border. This includes the North-East Victorian [319], Goulburn Valley [327], Murray Plains [331] and Mallee [332] Divisions of GP and the Albury Wodonga Regional GP Network [329].

2.3.2 Participation by Department of Health region

Victoria is divided into eight Department of Health (DH) regions, with five in rural Victoria and three covering metropolitan Melbourne. Using methods discussed in 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 Department of Health region, 2008–2009 and 2009–2010.

Region Name	2008-2009 % screened [95% CI]	2009-2010 % screened [95% CI]
Barwon South West	61.5% (61.2%-61.8%)	61.5% (61.2%-61.8%)
Eastern Metropolitan	64.3% (64.1%-64.5%)	63.9% (63.7%-64.1%)
Gippsland	60.0% (59.6%-60.4%)	59.5% (59.1%-59.8%)
Grampians	55.4% (55.0%-55.8%)	56.2% (55.8%-56.5%)
Hume	61.5% (61.1%-61.8%)	60.6% (60.2%-60.9%)
Loddon Mallee	60.0% (59.7%-60.4%)	59.5% (59.1%-59.8%)
Northern and Western Metropolitan	59.0% (58.8%-59.1%)	58.2% (58.1%-58.3%)
Southern Metropolitan	63.1% (62.9%-63.2%)	62.5% (62.4%-62.7%)

Notes

1. Crude rates of the number of women screened as a proportion of the eligible female population. Women screened only includes women who have not had a hysterectomy according to information held by the VCCR. The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2004-05 National Health Survey.
2. Periods covered apply to calendar years.





Figure 2.3.2: Estimated two year cervical screening rates by Department of Health region, 2009–2010.



Unincorporated Victoria refers to the areas within Victoria which are not administered by incorporated local government bodies.



2.3.3 Participation by Local Government Area

Within Victoria there are 79 Local Government Areas (LGAs). Using methods discussed at the beginning of Section 2.3, the estimated two year participation rates have been calculated.

Table 2.3.3: Estimated two year cervical screening rates by Local Government Area, 2008–2009 and 2009–2010.

DHS region	LGA Code ¹²	LGA	2008–2009 % screened (95% CI)	2009–2010 % screened (95% CI)
Barwon S/W	21750	Colac-Otway	67.4% (66.2%-68.7%)	66.9% (65.6%-68.1%)
	21830	Corangamite	56.1% (54.7%-57.6%)	56.8% (55.3%-58.3%)
	22410	Glenelg	57.4% (56.0%-58.7%)	56.3% (55.0%-57.6%)
	22750	Greater Geelong	60.8% (60.4%-61.2%)	60.8% (60.4%-61.2%)
	25490	Moyne	58.0% (56.5%-59.5%)	58.9% (57.4%-60.3%)
	26080	Queenscliffe	66.9% (63.6%-70.1%)	66.5% (63.3%-69.8%)
	26260	Southern Grampians	62.2% (60.7%-63.6%)	60.2% (58.7%-61.6%)
	26490	Surf Coast	69.0% (67.9%-70.1%)	69.9% (68.8%-71.0%)
	26730	Warrnambool	62.5% (61.5%-63.5%)	63.4% (62.4%-64.3%)
Eastern Metro	21110	Boroondara	68.5% (68.1%-68.9%)	68.5% (68.1%-68.9%)
	23670	Knox	63.5% (63.0%-63.9%)	63.0% (62.6%-63.5%)
	24210	Manningham	66.7% (66.2%-67.2%)	66.7% (66.2%-67.2%)
	24410	Maroondah	62.8% (62.2%-63.3%)	62.7% (62.2%-63.3%)
	24970	Monash	61.2% (60.8%-61.6%)	59.6% (59.2%-60.1%)
	26980	Whitehorse	63.5% (63.0%-63.9%)	62.7% (62.2%-63.1%)
	27450	Yarra Ranges	63.9% (63.4%-64.3%)	64.4% (63.9%-64.8%)
Gippsland	20740	Bass Coast	58.2% (57.1%-59.3%)	58.1% (57.1%-59.2%)
	20830	Baw Baw	62.9% (62.0%-63.9%)	61.6% (60.7%-62.5%)
	22110	East Gippsland	61.8% (60.9%-62.7%)	61.3% (60.4%-62.2%)
	23810	Latrobe	56.6% (55.9%-57.2%)	56.7% (56.0%-57.4%)
	26170	South Gippsland	64.1% (63.0%-65.2%)	62.9% (61.8%-64.1%)
	26810	Wellington	60.2% (59.3%-61.1%)	59.3% (58.3%-60.2%)

12 Refer to Appendix 3 for full listing of Local Government Area codes.

DHS region	LGA Code ¹²	LGA	2008–2009 % screened (95% CI)	2009–2010 % screened (95% CI)
Grampians	20260	Ararat	48.6% (46.8%-50.4%)	48.6% (46.8%-50.4%)
	20570	Ballarat	53.3% (52.7%-54.0%)	54.8% (54.2%-55.4%)
	22490	Golden Plains	62.4% (61.0%-63.7%)	62.9% (61.5%-64.2%)
	22910	Hepburn	62.7% (61.2%-64.2%)	63.3% (61.8%-64.8%)
	22980	Hindmarsh	55.0% (52.4%-57.5%)	57.8% (55.3%-60.3%)
	23190	Horsham	58.0% (56.7%-59.4%)	58.2% (56.9%-59.5%)
	25150	Moorabool	58.5% (57.4%-59.6%)	58.2% (57.1%-59.3%)
	25810	Northern Grampians	54.9% (53.2%-56.7%)	54.1% (52.4%-55.9%)
	25990	Pyrenees	50.4% (48.0%-52.7%)	52.1% (49.8%-54.4%)
	26890	West Wimmera	49.0% (46.1%-52.0%)	49.5% (46.6%-52.4%)
	27630	Yarriambiack	51.5% (49.2%-53.8%)	50.7% (48.4%-52.9%)
Hume	20110	Alpine	65.6% (64.0%-67.3%)	67.3% (65.7%-68.9%)
	21010	Benalla	67.3% (65.8%-68.8%)	66.3% (64.7%-67.8%)
	22830	Greater Shepparton	59.8% (59.0%-60.5%)	56.7% (55.9%-57.4%)
	23350	Indigo	66.1% (64.6%-67.5%)	66.1% (64.6%-67.5%)
	24250	Mansfield	65.0% (62.9%-67.1%)	65.3% (63.3%-67.4%)
	24850	Mitchell	56.1% (55.1%-57.1%)	57.1% (56.1%-58.1%)
	24900	Moira	55.4% (54.2%-56.5%)	55.6% (54.5%-56.8%)
	25620	Murrindindi	62.9% (61.4%-64.5%)	63.5% (61.9%-65.1%)
	26430	Strathbogie	60.0% (58.1%-61.9%)	58.3% (56.4%-60.2%)
	26670	Towong	62.7% (60.3%-65.1%)	61.7% (59.3%-64.1%)
	26700	Wangaratta	64.9% (63.8%-66.0%)	64.6% (63.5%-65.7%)
27170	Wodonga	64.5% (63.6%-65.5%)	62.4% (61.5%-63.4%)	
Loddon-Mallee	21270	Buloke	59.9% (57.6%-62.3%)	58.2% (55.8%-60.5%)
	21370	Campaspe	57.5% (56.5%-58.4%)	57.5% (56.5%-58.5%)
	21670	Central Goldfields	51.3% (49.6%-53.1%)	52.4% (50.6%-54.1%)
	22250	Gannawarra	57.2% (55.4%-59.0%)	55.9% (54.0%-57.7%)
	22620	Greater Bendigo	59.0% (58.5%-59.6%)	58.4% (57.8%-59.0%)
	23940	Loddon	58.7% (56.5%-60.9%)	56.4% (54.2%-58.6%)
	24130	Macedon Ranges	69.1% (68.3%-70.0%)	68.9% (68.0%-69.7%)
	24780	Mildura	59.2% (58.4%-60.0%)	56.9% (56.0%-57.7%)
	25430	Mount Alexander	71.0% (69.7%-72.3%)	70.8% (69.5%-72.0%)
26610	Swan Hill	50.4% (49.1%-51.7%)	52.9% (51.6%-54.3%)	

Table 2.3.3: Estimated two year cervical screening rates by Local Government Area, 2008-2009 and 2009-2010 (*continued*)

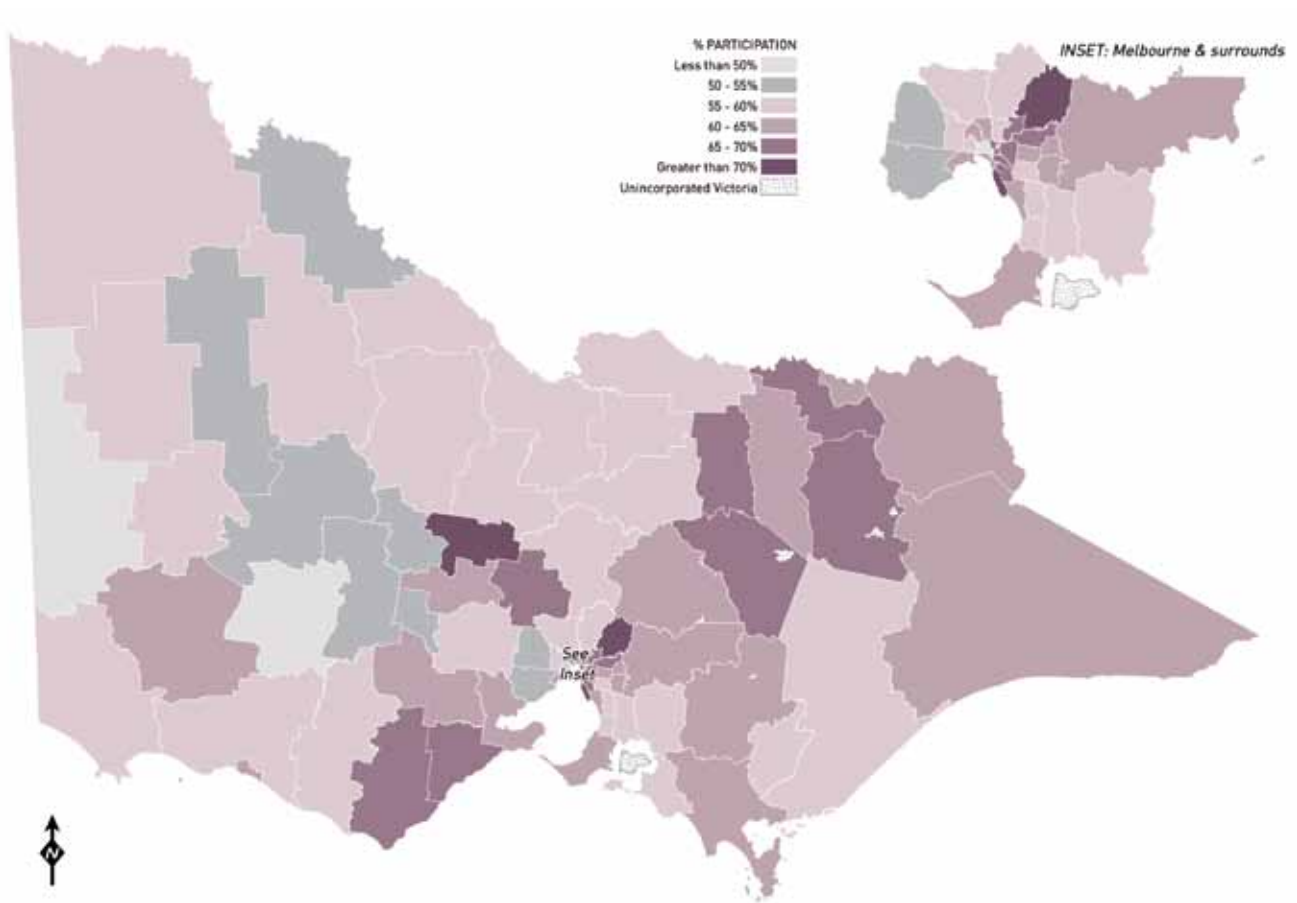
DHS region	LGA Code ¹²	LGA	2008-2009 % screened [95% CI]	2009-2010 % screened [95% CI]
North-West Metro	20660	Banyule	66.6% [66.2%-67.1%]	66.1% [65.6%-66.6%]
	21180	Brimbank	57.2% [56.8%-57.6%]	56.4% [56.0%-56.8%]
	21890	Darebin	60.2% [59.7%-60.7%]	59.9% [59.4%-60.3%]
	23110	Hobsons Bay	62.3% [61.7%-62.9%]	61.6% [61.0%-62.2%]
	23270	Hume	56.1% [55.6%-56.5%]	55.1% [54.6%-55.5%]
	24330	Maribyrnong	59.1% [58.4%-59.7%]	58.7% [58.0%-59.3%]
	24600	Melbourne	48.1% [47.6%-48.7%]	47.1% [46.5%-47.6%]
	24650	Melton	55.0% [54.4%-55.6%]	53.1% [52.6%-53.7%]
	25060	Moonee Valley	62.0% [61.5%-62.5%]	61.5% [61.0%-62.0%]
	25250	Moreland	60.6% [60.1%-61.1%]	60.4% [59.9%-60.8%]
	25710	Nillumbik	71.8% [71.2%-72.5%]	71.9% [71.3%-72.6%]
	27070	Whittlesea	57.6% [57.1%-58.1%]	56.9% [56.4%-57.4%]
	27260	Wyndham	52.1% [51.6%-52.6%]	50.8% [50.3%-51.3%]
	27350	Yarra	66.0% [65.5%-66.6%]	66.1% [65.5%-66.6%]
Southern Metro	20910	Bayside	74.9% [74.4%-75.4%]	73.7% [73.1%-74.2%]
	21450	Cardinia	60.2% [59.5%-60.9%]	58.0% [57.3%-58.7%]
	21610	Casey	58.1% [57.7%-58.5%]	57.6% [57.2%-57.9%]
	22170	Frankston	57.3% [56.8%-57.8%]	57.1% [56.6%-57.7%]
	22310	Glen Eira	66.2% [65.8%-66.7%]	66.1% [65.7%-66.6%]
	22670	Greater Dandenong	59.2% [58.7%-59.7%]	58.3% [57.8%-58.8%]
	23430	Kingston	64.0% [63.6%-64.5%]	63.4% [63.0%-63.9%]
	25340	Mornington Peninsula	64.5% [64.1%-65.0%]	64.8% [64.3%-65.3%]
	25900	Port Phillip	65.2% [64.7%-65.8%]	64.8% [64.3%-65.3%]
	26350	Stonnington	67.6% [67.1%-68.2%]	67.3% [66.8%-67.9%]

Notes

1. Crude rates of the number of women screened as a proportion of the eligible female population. Women screened only includes women who have not had a hysterectomy according to information held by the VCCR. The eligible female population is adjusted for the estimated proportion of women who have had a hysterectomy using national hysterectomy fractions derived from the Australian Bureau of Statistics 2004-05 National Health Survey.
2. Periods covered apply to calendar years.



Figure 2.3.3: Estimated two year cervical screening rates by Local Government Area*, 2009–2010.



Unincorporated Victoria refers to the areas within Victoria which are not administered by incorporated local government bodies.

* Note that maps showing Local Government Area codes provided in Appendix 3.

2.4 PAP TESTS COLLECTED BY NURSES

The credentialling of nurses every three years to perform Pap tests recognises nurses' expertise and a dedication to the Victorian Cervical Screening Program. This process has been set in place to allow nurses to be accountable to the public and responsible for their individual practice while at the same time maintaining a standard of excellence. The credentialling program is coordinated by PapScreen Victoria.

During 2010, a total of 28,546 Pap tests were collected by 350 credentialled nurses. This number represents 5.0% of all Pap tests collected in Victoria during 2010. Over the last fifteen years, the number and proportion of Pap tests collected by nurses has increased from 0.8% in 1996 to 5.0% in 2010. Table 2.4 shows the number and proportion of Pap tests collected by nurses for the past 10 years.

Nurse Pap test data highlight the increasingly important role that nurses have in the Victorian Cervical Screening Program, particularly in relation to the increasing number of Pap tests collected by nurses in recent years and the high quality of tests. As observed in recent years Pap tests collected by nurses compared with other provider types are more likely to have an endocervical component, which is considered to be a reflection of test quality. General Practice and Community Health settings remain the main types of

practices where nurses collect Pap tests (85.3% of practice types in 2010). During 2010, 38.9% of the Pap tests collected by nurses were from women over 50 years of age compared with 30.7% collected by other provider types in Victoria during this period¹³.

2.4.1 Proportion of Pap Tests Collected by Nurses by Department of Health region

Data on Pap tests collected by nurses was analysed by Department of Health (DH) region. The following table and figure show that the rural DH regions had a higher proportion of tests collected by nurses, for women with a cervix, than those within metropolitan Melbourne. The proportion of Pap tests collected by nurses also increased across most DH regions between 2009 and 2010, with the largest increases seen in the Grampians (4.5% increase) and Hume regions (2.2% increase)¹⁴.

Table 2.4: Proportion of Pap tests collected by nurses, 2001–2010.

Year	Number of Pap tests collected by nurses	% of all Victorian Pap tests
2010	28,546	5.0%
2009	25,594	4.4%
2008	21,668	3.8%
2007	18,651	3.2%
2006	16,035	2.8%
2005	14,375	2.5%
2004	13,100	2.2%
2003	11,494	2.0%
2002	10,635	1.8%
2001	11,017	1.9%

Table 2.4.1: Pap tests for women with a cervix collected by nurses, by Department of Health region, 2010.

Region name	Number of Pap tests collected by nurses ¹	Number of nurses in each region ²	% Pap tests in region collected by nurses
Barwon South West	3,028	41	8.7%
Eastern Metropolitan	1,554	24	1.5%
Gippsland	2,683	30	11.5%
Grampians	3,458	31	18.1%
Hume	2,997	45	12.3%
Loddon Mallee	5,417	50	19.2%
Northern & Western Metropolitan	6,640	100	4.0%
Southern Metropolitan	2,406	25	1.8%

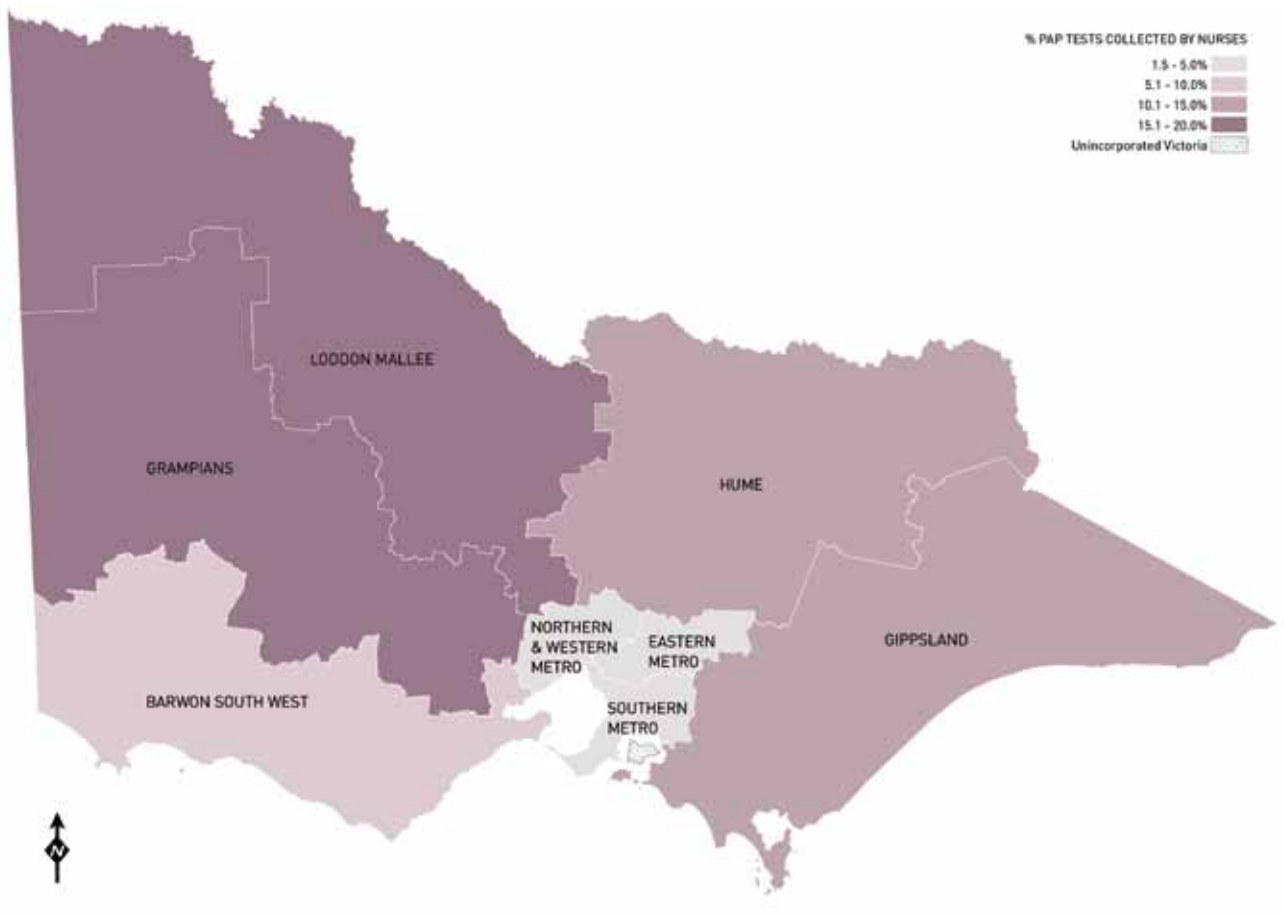
¹ Excludes 343 post-hysterectomy Pap tests and 20 women whose postcode was missing or not able to be matched.

² Excludes four nurses whose postcode could not be matched.

¹³ VCCR Evaluation of Pap tests collected by Nurses in Victoria during 2010 report. Refer to www.vccr.org/stats.html

¹⁴ *Ibid.*

Figure 2.4.1: Proportion of Pap tests collected by nurses, by Department of Health region, 2010.



Unincorporated Victoria refers to the areas within Victoria which are not administered by incorporated local government bodies.

2.4.2 Indigenous Women and Cervical Screening

Closing the Data Gap

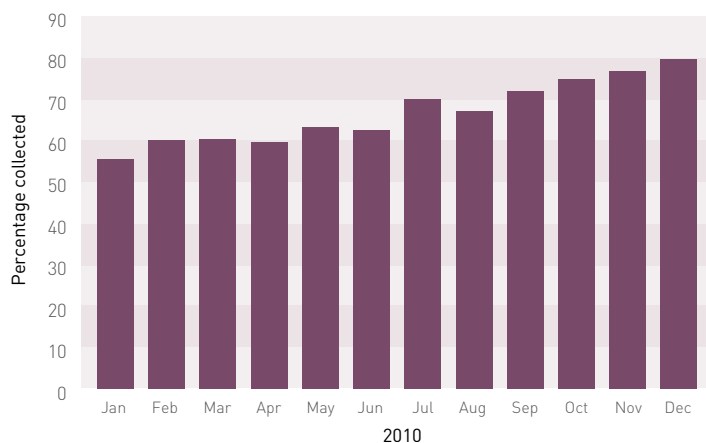
A key objective of the Victorian Government's Cancer Action Plan is to improve the participation of Aboriginal and Torres Strait Islander (A&TSI) women in cervical screening. Following a successful pilot in 2008, the Victorian Cytology Service (VCS) has been working with nurses who collect Pap tests and utilise the VCS laboratory, to record A&TSI status on the VCS Pathology Request Forms. The standard nationally approved format is used on the forms as follows:

- Aboriginal
- Torres Strait Islander
- Aboriginal and Torres Strait Islander
- Not Aboriginal or Torres Strait Islander

VCCR has been working with VCS to capture this information on the Registry database and to also facilitate the provision of these data from other pathology providers in the future. The VCCR database is now able to record A&TSI status when provided, and it is also now an item on the VCCR website to prompt women when changing their demographic details.

During 2010, there was a marked improvement in the recording of A&TSI information as a proportion of Pap tests collected by nurses; increasing during the course of the year from 55.5% to 79.6% of all tests. The overall percentage of Pap tests collected by nurses for which A&TSI status was recorded in 2010 was 67.4%. This improvement reflects the strong commitment of nurses involved in cervical screening, as well as the stakeholders involved in this project, such as VCS and PapScreen Victoria.¹⁵

Figure 2.4.2: Percentage of Pap tests collected by nurses using VCS for which A&TSI data was recorded, by month, in Victoria, 2010.



¹⁵ VCCR Evaluation of Pap tests collected by Nurses in Victoria during 2010 report. Refer to www.vccr.org/stats.html

¹⁶ AIHW 2011. *Cervical screening in Australia 2008-2009*. Cancer series no. 61. Cat. no. CAN 57. Canberra: AIHW.

2.5 FREQUENCY OF EARLY RE-SCREENING

While the Australian screening policy is for screening every two years after a negative Pap test report, a proportion of women are screened more frequently. A small level of early re-screening can be justified on the basis of a past history of abnormality. It has previously been estimated at the national level that early re-screening of women whose last Pap test result was normal is high with an estimated 15.1% of Australian women in the program undergoing early re-screening¹⁶. The evidence is that early re-screening does not just occur in the months immediately prior to the two year anniversary, but rather is a steady continuum throughout the two year period after a negative Pap test report.

In late 2000, the National Cervical Screening Program adopted the following definition of early re-screening:

Early re-screening is the repeating of a Pap test within 21 months of a negative Pap test report, except for women who are being followed up in accordance with the NHMRC guidelines for the management of cervical abnormalities.

This definition recognises that some re-screening may occur opportunistically between 21 and 24 months after a negative Pap test report and this may be cost-effective.

To determine how many women are truly screened early, women with a prior cytological or histological abnormality recorded by the VCCR within 36 months of the index Pap test are excluded. This is in line with the national reporting of indicators by the AIHW for the same period and is also consistent with the NHMRC Guidelines.

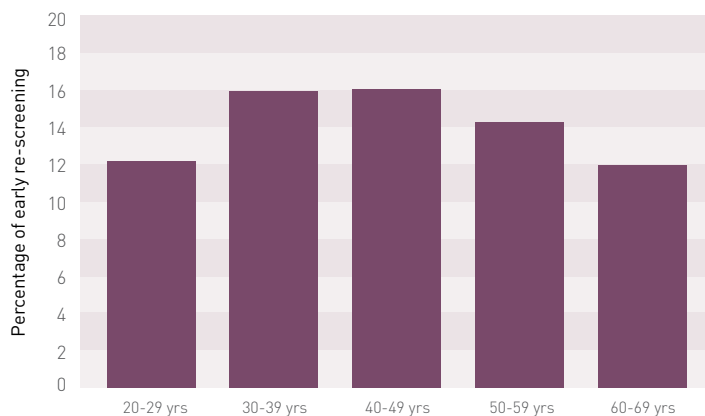
Table 2.5 shows the number of further Pap tests over a 21 month period for women who received a negative Pap test report in the February of 2009. The data show that 85.5% of women aged 20 to 69 years who had a negative Pap test in February 2009 had no further tests within the next 21 months.

This data is comparable with that provided in the 2009 Statistical Report, however not with prior reports, as the method of determining the percentage now excludes women who have an abnormality within 36 months of their negative index Pap test.

Table 2.5: Subsequent Pap tests over a 21 month period for women with a negative report in February of 2009.

Number of subsequent Pap tests since February 2009	Percent
No further tests	85.5%
1	14.0%
2	0.5%
3	0.0%
4	0.0%
5 or more	0.0%

Figure 2.5: Early re-screening after a negative Pap test report in February 2009 by age group.



As seen in Figure 2.5, some variation in early re-screening occurs by age group. The graph shows the proportion of women, by age group, who had early re-screening after a negative Pap test report in February 2009. As seen last year, early re-screening is highest in women under 50 years of age and is least evident in the age group 60 to 69 years.



3. CYTOLOGY REPORTS

Cytology reports received by the VCCR 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 requested by the AIHW for the reporting of national indicators for the same period.

For this analysis, the results of 564,397 Pap tests from any provider type were considered. These include Pap tests which were collected during 2010, from women of any age, but not post-hysterectomy smears (also referred to as vault smears).

3.1 UNSATISFACTORY PAP TESTS

An unsatisfactory Pap test result is defined as having:

- unsatisfactory squamous cells (SU) and unsatisfactory endocervical cells (EU); or
- unsatisfactory squamous cells (SU) and no endocervical cells (E0) or no endocervical abnormality (E1).

Of Pap test results received during 2010 by the VCCR, 12,335 were recorded as having an unsatisfactory result. This equates to 2.2% of Pap tests. There has been a modest upward trend in unsatisfactory cytology over the last 10 years from 1.2% in 2001.

3.2 NEGATIVE PAP TESTS

A negative Pap test result is defined as having squamous cells with no abnormality (S1) and no endocervical cells (E0) or no endocervical abnormality (E1).

Of the Pap tests results received during 2010 by the VCCR, 515,855 were recorded as having a negative result. This equates to 91.4% of Pap tests.

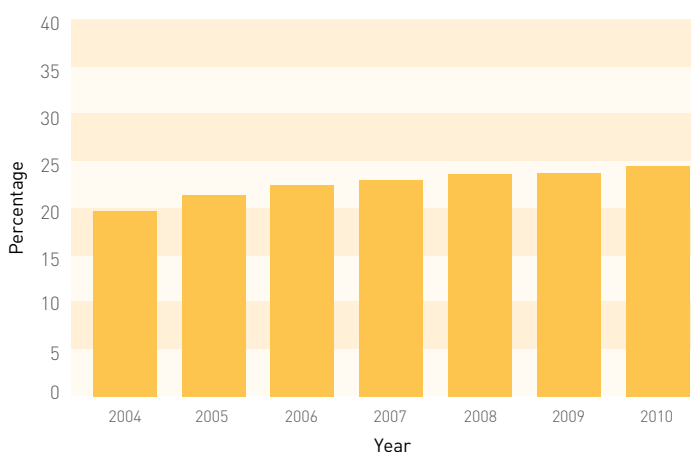
3.3 PAP TESTS WITHOUT AN ENDOCERVICAL COMPONENT

The presence of endocervical cells within a Pap test specimen is considered to be a reflection of test quality. Pap tests identified as not containing an endocervical component are coded as having a result of E0 for the endocervical cell result.

Of the Pap test results received during 2010 by the VCCR, 138,449 were recorded as not having an endocervical component present in the specimen. This equates to 24.5% of Pap tests.

As illustrated in Figure 3.3, the proportion of Pap tests without an endocervical component has gradually increased from 19.7% in 2004 to 24.5% in 2010 ($p < 0.001$). This increase has also been seen at a national level. The reason for the decline in Pap tests with an endocervical component is unclear. It is likely to be multi-factorial, and a more detailed analysis of these trends is being undertaken by the VCCR.

Figure 3.3: Percentage of Pap tests without an endocervical component.



3.4 PAP TESTS WITH A SQUAMOUS ABNORMALITY

Table 3.4 shows the proportion of Pap tests collected during 2010 which had a squamous cell abnormality.

The proportion of Pap tests with a squamous cell abnormality (with an abnormality of possible low-grade lesion or worse) in 2010 was 35,905, which equates to 6.4% of all Pap tests for the year.

A definite high-grade abnormality (i.e. high-grade lesion with or without possible micro-invasion or invasion, invasive squamous cell carcinoma) was reported in 0.8% of Pap tests for 2010.

Table 3.4: Number and percent of Pap tests collected in 2010 with a squamous abnormality.

Squamous Cell Code	Number of Pap tests	% of Pap tests
Possible low-grade squamous intraepithelial lesion (LSIL) (S2)	15,133	2.7%
Low-grade squamous intraepithelial lesion (LSIL) (S3)	11,912	2.1%
Possible high-grade squamous intraepithelial lesion (HSIL) (S4)	4,425	0.8%
High-grade squamous intraepithelial lesion (HSIL) (S5)	4,315	0.8%
High-grade squamous intraepithelial lesion (HSIL) with possible micro-invasion/invasion (S6)	74	< 0.1%
Squamous carcinoma (S7)	46	< 0.01%

3.5 PAP TESTS WITH AN 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.

The following table shows the proportion of Pap tests for 2010 where an endocervical abnormality was detected. Pap tests which are known to have been collected post-hysterectomy are excluded.

For 2010, the total number of Pap tests with an endocervical abnormality (atypical endocervical cells of uncertain significance or worse) was 420, which equates to less than 0.1% of all Pap tests for the year.

Table 3.5: Number and percent of Pap tests collected in 2010 with an endocervical abnormality.

Endocervical Component Code	Number of Pap tests	% of Pap tests
Atypical endocervical cells of uncertain significance (E2)	204	< 0.1%
Possible high-grade endocervical glandular lesion (E3)	105	< 0.1%
Adenocarcinoma in situ (E4)	87	< 0.1%
Adenocarcinoma in situ with possible micro-invasion/invasion (E5)	9	< 0.01%
Adenocarcinoma (E6)	15	< 0.01%

3.6 TYPE OF TESTS

In July 2006, the VCCR began recording the type of Pap test taken; that is, conventional cytology, liquid-based specimen or combination.

During 2010 the proportion of liquid-based tests was 3.9% of all tests in Victoria. Nearly all of these tests were "split samples" where the conventional Pap smear is accompanied by the liquid-based specimen. Very small numbers were liquid-based specimens only (0.1%).

4. HISTOLOGY REPORTS

This section describes the histology reports that were notified to the VCCR during 2010. Although the reporting of histology results is not mandatory, the majority of all relevant cervical biopsies are reported to the VCCR. All cancers are notified to the Victorian Cancer Registry by laboratories, hospitals and the VCCR.

In 2010, there were 17,869 histology reports relating to the cervix received by the VCCR. The following table shows the distribution of histology findings for 2010.

Note that the method used to tabulate data presented in Table 4 is consistent with that used in the 2009 VCCR Statistical Report; it includes all histology reports received by the VCCR, and is not restricted to the most severe report for a woman.

Table 4: Histology findings reported to the VCCR in 2010.

	Histology findings	Number	(%)
Endocervical abnormality	Carcinoma of the cervix- other ¹	13	(< 0.1%)
	Adenosquamous carcinoma	9	(< 0.1%)
	Endocervical adenocarcinoma – invasive	33	(0.2%)
	Endocervical adenocarcinoma – micro-invasive	1	(< 0.1%)
	High-grade – carcinoma in situ/ adenocarcinoma in situ	45	(0.3%)
	High-grade – adenocarcinoma in situ	110	(0.6%)
	High-grade – endocervical dysplasia	8	(< 0.1%)
	Endocervical atypia	4	(< 0.1%)
Squamous abnormality	Squamous cell carcinoma – invasive	67	(0.4%)
	Squamous cell carcinoma – micro-invasive	29	(0.2%)
	High-grade squamous abnormality – CIN III	2,460	(13.8%)
	High-grade squamous abnormality – CIN II	2,035	(11.4%)
	High-grade squamous abnormality – not otherwise specified	144	(0.8%)
	Low-grade squamous abnormality	3,174	(17.8%)
Benign changes/normal	9536	(53.4%)	
Unsatisfactory	201	(1.1%)	
TOTAL		17,869	(100%)

¹ Carcinoma of the cervix – other: includes small cell carcinoma and other malignant lesions (may include tumours of non-epithelial origin).

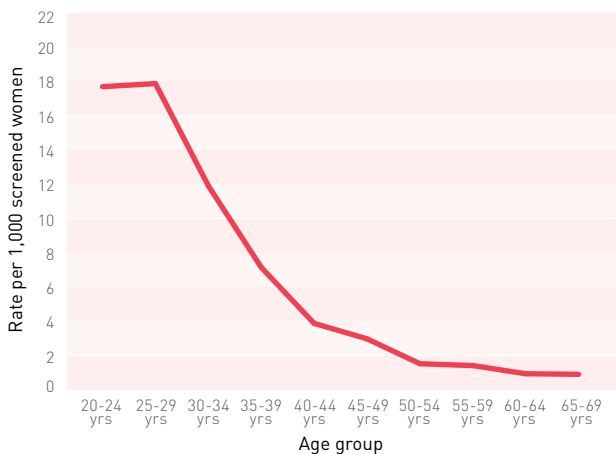
5. HIGH-GRADE ABNORMALITY DETECTION RATES

In 2010 the overall rate of high-grade abnormalities detected in Victoria for histologically confirmed women aged 20–69 years was 7.21 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 2010 by age group. The graph clearly illustrates that younger women have a much higher rate of high-grade abnormalities compared with older women.

As compared with 2008, the age-specific curves for 2009 and 2010 for younger women (aged 20 to 24 years) show a decline in high-grade detection rate for the 20 to 24 year old age group from 19.8 in 2008 to 17.7 per 1,000 in 2010. The HPV vaccination catch-up program for women aged 18 to 26 ran from July 2007 through to July 2009, with an extension until December 2009 for women who had already commenced vaccination prior to July 2009. It is possible that this represents an early effect of the HPV vaccine, and is consistent with the more detailed analysis of incident abnormalities (rather than prevalence as reported here) published by the VCCR in 2011¹⁷.

Figure 5.2 shows the rate of histologically-confirmed high-grade cervical abnormalities over time, by age-group. A clear decline is evident in women under 20 years, with a rate of

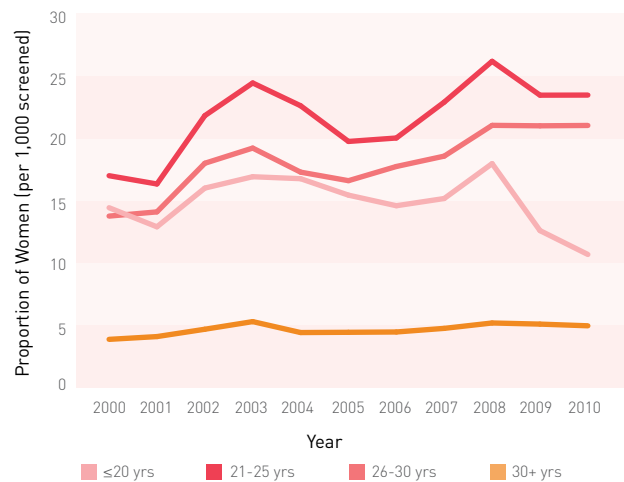
Figure 5.1: Detection rate of high-grade intraepithelial abnormalities (histologically confirmed) during 2010 per 1,000 screened women.



15 cases per 1,000 women diagnosed in 2006 compared to 11 cases per 1,000 in 2010. This is not shown in older women, and is suggestive of an early impact of the HPV vaccine, as the youngest vaccinated women (and those less likely to have been previously exposed to high-risk HPV subtypes through sexual activity) are now eligible for the screening program.¹⁸ Three dose vaccination coverage during the catch-up vaccination program between 2007–2009 was highest in young women under 18 years of age¹⁹ at 70%, and approximately 32% for 18 to 26 year old women. Notably coverage with at least one dose was significantly higher at 83% for 12 to 17 year olds and lower at 55% for 18 to 26 year olds²⁰. The estimates for women 18 to 26 years are also impacted by under notification of vaccination doses to the Register.

There are several important caveats to the interpretation of these data. Firstly, these trends are ecological in nature; that is, it cannot be determined whether the decline was greater in vaccinated women compared with unvaccinated women or whether it is due to other factors. Other changes to the screening program during this time, such as the change to the 2005 NHMRC guidelines²¹, or changes in the risk profile of women presenting for screening may have impacted on these trends. To resolve this issue more definitively, a linkage between VCCR and the HPV Vaccination Register records is required, so that trends can be analysed separately for vaccinated and unvaccinated women.

Figure 5.2: Trends in high-grade cervical abnormalities (histologically confirmed) by age, 2000–2010, VCCR.



17 Brotherton J, Fridman M, May C, Chappell G, Saville M, Gertig D. Early effect of the HPV vaccination programme on cervical abnormalities in Victoria, Australia: an ecological study. 2011. Lancet.377: 2085-2092.

18 Ibid.

19 Gertig DM, Brotherton JM, Saville M. Measuring human papillomavirus (HPV) vaccination coverage and the role of the National HPV Vaccination Program Register, Australia. 2011. Sex Health 8(2):171-8

20 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, Australia. 2011. Commun Dis Intell 35 (2):197-201

21 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>

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 2009 where a subsequent histology test was reported within six months. If multiple histology results were reported the most severe result is used. Colposcopy reports, without histological confirmation, have been excluded from this analysis.

In interpreting this information, it is important to remember that only a minority of low-grade cytology (atypia and CINII) 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 implemented in July 2006 which is based on the Australian Modified Bethesda System of 2004 (refer to Appendix 1). Each Pap test is assigned a summary code (negative, low-grade, glandular, possible high-grade and high-grade) which is based on specific criteria of the squamous, endocervical and other/non-cervical codes. The correlation uses this classification for cytology.

The histology classification and method of correlation presented is consistent with the revised AIHW national reporting indicators. It is now based on the test, not the woman (unlike previous reports) and the data includes women aged 20 to 69 years. It also includes the records of women who reside outside of Victoria but have data recorded on the VCCR.

Where a definite high-grade cytology result was reported, 77.0% (2,985/3,896) were subsequently diagnosed with high-grade histology at biopsy (including high-grade not otherwise defined, CINII, CINIII and micro-invasive and invasive squamous carcinoma). This figure represents the positive predictive value of a high-grade cytology report for high-grade histology. The NPAAC performance standards require that not less than 65% of cytology specimens with a definite high-grade epithelial abnormality are confirmed on histology within six months as having a high-grade abnormality or cancer.²²

Women with a Pap test report of 'atypical endocervical or glandular cells of uncertain significance' have glandular or (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 Guidelines²³ recommend colposcopy as an initial evaluation because of the risk of invasive cancer²⁴. Of the 22 cytology reports of 'atypical endocervical or glandular cells of undetermined significance', four were subsequently diagnosed with invasive or micro-invasive cancer (where histology was available within six months after the cytology result).

There was only one case of invasive cancer recorded during 2010 following a low-grade cytology in the six month period preceding the histology. On review, this woman had a past history of CINIII.

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

23 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>

24 Appendix 8. *Outcome after a cytological prediction of glandular abnormality in 1999*. Author Dr Heather Mitchell. Screening to prevent Cervical Cancer: Guidelines for the management of asymptomatic women with screen detected abnormalities. Available from the NHMRC website www.nhmrc.gov.au/publications.

Table 6.1: Correlation¹ of squamous cytology to the most serious squamous histology within 6 months, women aged 20 to 69 years, cytology tests performed in 2009.

Histology finding HG: High-Grade LG: Low-Grade SQ: Squamous		Cytology Prediction													
		Negative ²		Possible Low-Grade		Low-Grade		Possible High-Grade ³		High-Grade ⁴		High-Grade plus ⁵		SCC	
		S1	S2	S3	S4	S5	S6	S7							
Squamous abnormality	Negative HC01	2784	75.6%	1007	42.8%	712	27.4%	820	27.9%	431	11.1%	4	7.0%	1	3.8%
	LG SQ abnormality HC02	699	19.0%	1001	42.5%	1354	52.2%	634	21.6%	480	12.3%	5	8.8%	0	0.0%
	HG SQ abnormality NOS HC03.1	19	0.5%	31	1.3%	30	1.2%	54	1.8%	57	1.5%	0	0.0%	0	0.0%
	HG SQ abnormality CIN II HC03.2	97	2.6%	181	7.7%	355	13.7%	681	23.2%	1023	26.3%	1	1.8%	0	0.0%
	HG SQ abnormality CIN III HC03.3	80	2.2%	135	5.7%	142	5.5%	736	25.1%	1867	47.9%	34	59.6%	13	50.0%
	SQ Cell Carcinoma – micro-invasive HC04.1	1	<0.1%	0	0.0%	1	<0.1%	6	0.2%	20	0.5%	4	7.0%	2	7.7%
	SQ Cell Carcinoma – invasive HC04.2	1	<0.1%	0	0.0%	0	0.0%	5	0.2%	18	0.5%	9	15.8%	10	38.5%
	Totals	3681	100%	2355	100%	2594	100%	2936	100%	3896	100%	57	100%	26	100%

1 The correlation excludes diagnosis based on colposcopic impression alone

2 Negative cytology: no abnormal squamous cells or only reactive changes

3 Possible High grade: includes possible high-grade squamous intraepithelial lesion

4 High-grade cytology: includes high-grade squamous intraepithelial lesion

5 HG Plus: includes high-grade squamous intraepithelial lesion with possible micro-invasion/invasion

Table 6.2: Correlation¹ of endocervical cytology to the most serious endocervical histology within 6 months, women aged 20–69 years, cytology tests performed in 2009.

Histology finding		Cytology Prediction											
		Negative		Atypical Endocervical cells of uncertain significance ⁴		Possible High-Grade ⁵		Adenocarcinoma in situ (AIS)		AIS with possible micro-invasion /invasion		Adenocarcinoma	
		E1		E2		E3		E4		E5		E6	
Endocervical Abnormality	Negative HE01	1578	95.8%	7	31.8%	3	7.3%	1	1.8%	0	0.0%	0	0.0%
	Endocervical Atypia HE02	0	0.0%	0	0.0%	1	2.4%	0	0.0%	0	0.0%	0	0.0%
	HG Endocervical Dysplasia HE03.1	2	0.1%	0	0.0%	0	0.0%	1	1.8%	0	0.0%	0	0.0%
	HG Adenocarcinoma in situ HE03.2	32	1.9%	6	27.3%	29	70.7%	35	63.6%	4	57.1%	0	0.0%
	HG Carcinoma in situ / Adenocarcinoma in situ HE03.3	19	1.2%	5	22.7%	3	7.3%	7	12.7%	0	0.0%	1	20.0%
	Endocervical Adenocarcinoma – micro-invasive HE04.1	3	0.2%	1	4.5%	2	4.9%	4	7.3%	1	14.3%	0	0.0%
	Endocervical Adenocarcinoma – invasive ² HE04.2	8	0.5%	1	4.5%	2	4.9%	6	10.9%	2	28.6%	4	80.0%
	Adenosquamous Carcinoma HE04.3	2	0.1%	2	9.1%	1	2.4%	1	1.8%	0	0.0%	0	0.0%
	Carcinoma of the cervix – Other ³ HE04.4	4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Totals	1648	100%	22	100%	41	100%	55	100%	7	100%	5	100%

1 The correlation excludes diagnosis based on colposcopic impression alone

2 Endocervical Adenocarcinoma – invasive: includes adenocarcinoma and embryonal/clear cell carcinoma

3 Cancer of the Cervix – other: includes small cell carcinoma and other malignant lesions (may include tumours of non-epithelial origin)

4 Glandular cytology: includes atypical glandular cells of uncertain significance [E2]

5 Possible High grade: includes possible high-grade endocervical glandular lesion



7. FOLLOW-UP AND REMINDER PROGRAM

Throughout 2010 VCCR adhered to the Reminder and Follow-up Protocol (refer to Appendix 2) which was modified after the introduction of the new NHMRC Guidelines in 2006. As part of the follow-up service provided by VCCR, a total of 296,245 follow-up and reminder letters were mailed to women and practitioners in 2010. The following is a summary of the VCCR follow-up activities during 2010.

Reminders

Between 1 January 2010 and 31 December 2010, 272,595 reminder letters were sent to women in the categories shown in Table 7.

Of the 260,126 reminders sent after a negative Pap test, 96,346 (37%) women had a subsequent Pap test within three months of the date of the reminder.

Follow-up

During 2010, VCCR sent out 1,954 questionnaires to practitioners seeking further information after a high-grade abnormality on Pap test and 3,773 after a low-grade abnormality. These questionnaires are part of the follow-up of abnormal tests and seek information on colposcopy or biopsy to alter the follow-up interval accordingly. The VCCR also sent out 14,567 reminder letters to practitioners, following low grade or unsatisfactory Pap tests.

During the year, 815 women with a high-grade abnormality required further follow-up by the VCCR as no further

information had been received by 5.5 months after their Pap test. For these women, at least one phone call to the practitioner was made to ascertain follow-up, with many requiring additional calls. As the VCCR was unable to ascertain whether the woman was aware of her abnormal result in 370 cases, letters were sent, mostly by Registered mail, to these women. For women who had low-grade abnormalities requiring further investigation, on whom the VCCR had not received follow-up information, 1,929 letters were sent to these women in 2010. The VCCR followed up 140 non-cervical abnormalities with letters to the practitioners seeking information about further investigations.

Second reminders to women

The Victorian Cancer Action Plan²⁵ has identified as a priority area, the need to increase participation in cervical screening by under-screened women. In an effort to increase participation in the Cervical Screening Program, the VCCR has been working with the Victorian Department of Health and PapScreen Victoria to facilitate the introduction of a Second Reminder Letter to women. The second reminder letter will be sent 9 months after the first so most women will receive letters at 27 months and, if they have not yet attended, at 36 months after their previous Pap test. The VCCR commenced trialing of the Second Reminder Letter in mid 2011, with an evaluation planned to determine its utility and viability as a permanent follow-up initiative.

Table 7: Number of reminder letters sent to women by the VCCR in 2010.

Pap test report category	Number sent
High-grade with subsequent biopsy	1,110
High-grade no subsequent Pap test by 12/12	195
Low-grade with subsequent biopsy or colposcopy	1,387
Low-grade - previous test abnormal or fluctuating abnormality	901
Low-grade – over 30 with no negative cytology in previous 3 years	522
Low-grade – all other women	5,392
Negative with previous abnormal	25,279
Negative	234,847
Unsatisfactory with previous abnormal	86
Unsatisfactory	2,876

25 Victoria's Cancer Action Plan 2008-2011. Refer to <http://www.health.vic.gov.au/cancer/vcap.htm>

8. CERVICAL CANCER INCIDENCE AND MORTALITY IN VICTORIA

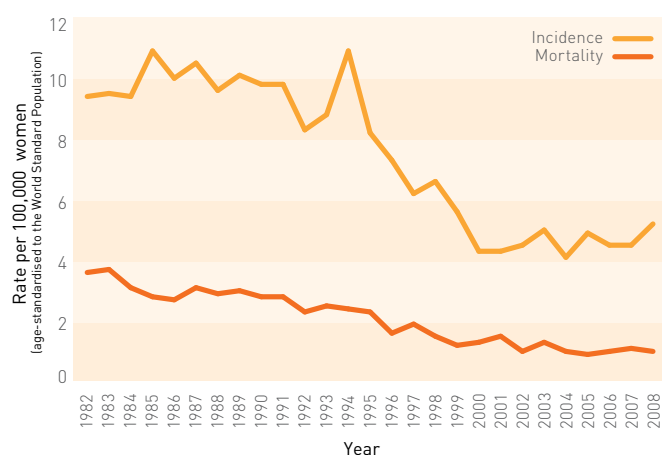
The aim of the cervical cancer screening program is to reduce the incidence of and mortality from cervical cancer. Data on cancer incidence and mortality are collected by the Victorian Cancer Registry and notifications are required from laboratories, hospitals and the VCCR.

Figure 8.1 shows the incidence and mortality rates from cervical cancer in Victoria from 1982 to 2008. The incidence of cervical cancer has declined dramatically since the 1980s with a considerable decline from the mid 1990s. There was a plateau in incidence in 2000 and the rate has remained relatively stable since that time at between 4 and 5 per 100,000 women, with a slight increase to 5.2 per 100,000 in 2008.

The mortality from cervical cancer in Victoria has declined gradually over time and since 2002 has been around 1.0 per 100,000 women, which is among the lowest in the world²⁶.

The reported mortality rate for all types of cervical cancer in 2008 was 1.0 per 100,000 Victorian women.

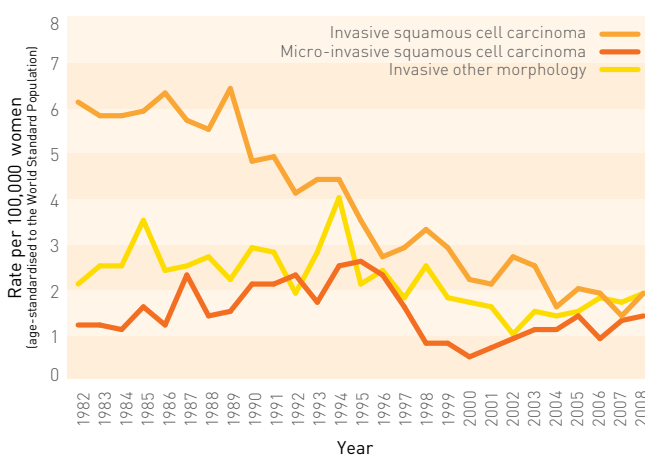
Figure 8.1: Age standardised incidence and mortality rates for all types of cervical cancer in Victoria, 1982–2008.



Source: Thursfield V, Farrugia H, Robertson P, Giles G. Cancer in Victoria 2008. *Canstat* No 49. The Cancer Council Victoria, Melbourne 2010.

Figure 8.2 shows the age-standardised incidence rates for cervical cancer by histological type over time. The greatest impact of the cervical screening program has been on squamous cell carcinoma of the cervix, with age-standardised incidence rates declining from 6.4 per 100,000 women in 1989 to 1.9 per 100,000 in 2008. Incidence rates for micro-invasive cancer have increased slightly since 2000, currently at 1.4 per 100,000 women screened. Rates for other cancers, comprising predominantly cervical adenocarcinomas, are slightly lower than in the mid 1990s although it is recognised that cervical screening is less effective for the detection of adenocarcinomas²⁷.

Figure 8.2: Age-standardised incidence rates (ASR) for cervical cancer by histological subtype in Victoria, 1982–2008.



Other cancers are comprised of cervical adenocarcinomas, mixed adenosquamous carcinomas, small cell carcinomas and carcinosarcomas/sarcomas. ASR is the age-standardised incidence rate.

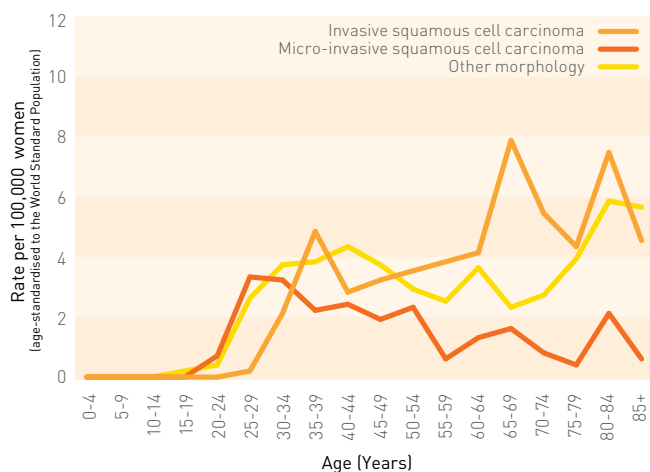
Source: Unpublished data, Victorian Cancer Registry, Cancer Council Victoria.

26 Ferlay J, Shin HR, Bray F, Forman D, Mathers C and Parkin DM. GLOBOCAN 2008, *Cancer Incidence and Mortality Worldwide*: IARC CancerBase No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer; 2010. Available from: <http://globocan.iarc.fr>

27 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>

Figure 8.3 shows the age-specific incidence rates of cervical cancer by histology and age, grouped over the three year period of 2006 to 2008. The age-specific incidence of invasive squamous cervical cancer increases in the 30 to 34 year old age group to peak at age 35 to 39 years, followed by a subsequent peak in women aged in their mid to late 60s. Micro-invasive cervical cancer peaks at around 30 years of age and declines steadily thereafter. The incidence of other types of cervical cancer, predominantly adenocarcinomas, peaks at around 40 years of age followed by an even higher peak in women aged 80 years or older.

Figure 8.3: Age-specific incidence rates of cervical cancer by histological subtype in Victoria, 2006–2008.



Other cancers are comprised of cervical adenocarcinomas, mixed adenosquamous carcinomas, small cell carcinomas and carcinosarcomas / sarcomas, and cases where there was no histological confirmation.
 Source: Unpublished data, Victorian Cancer Registry, Cancer Council Victoria.

9. SCREENING HISTORY OF WOMEN DIAGNOSED WITH CERVICAL CANCER DURING 2008

According to the Victorian Cancer Registry (VCR), 181 Victorian women were diagnosed with cervical cancer between 1 January 2008 and 31 December 2008. This includes 76 women with a diagnosis of invasive squamous cell carcinoma, 41 with micro-invasive squamous cell cancer and 64 women with other types of invasive cervical cancer (including small cell carcinoma, mixed-adenosquamous adenocarcinoma and carcinosarcomas/ sarcomas)²⁸.

Of these women diagnosed with cervical cancer, 89 of them were also recorded on the Victorian Cervical Cytology Registry (VCCR) as having invasive cancer. Of the 41 women diagnosed with micro-invasive cancers, 39 were recorded on the VCCR.

An audit was conducted on the screening histories of women with cervical cancer that were recorded on the VCCR (89 invasive and 39 micro-invasive) based on criteria used in other international studies²⁹. The following categories were used, and all screening history within 6 months of diagnosis was excluded (as any tests within 6 months were assumed to have led to the diagnosis):

- A. Never screened (coverage failure),
- B. Lapsed screening: with more than two and a half years between the cancer diagnosis and the ultimate Pap test,
- C. Adequately screened (screening failure): with less than two and a half years between the cancer diagnosis and the ultimate Pap test,
- D. Delayed diagnosis: eg no colposcopy and/or biopsy recorded [biopsy, management or treatment failure],
- E. Not eligible: Women over the age of 70 years and no longer eligible for the screening program.¹

Table 9: Screening history of Victorian women diagnosed with cervical cancer for the period 1 January 2008 to 31 December 2008.

Screening History	Invasive Squamous cell carcinoma Number (%)		Other invasive cervical cancer Number (%)		Invasive Sub-Total		Micro-invasive Sub-Total		Invasive & Micro-invasive Total	
A. Never screened	46	61%	36	56%	82	59%	13	32%	95	52%
B. Lapsed screeners (last screen greater than 2.5 years)	17	22%	14	22%	31	22%	9	22%	40	22%
C. Adequately screened (last screen within 2.5 years)	5	7%	12	19%	17	12%	11	27%	28	15%
D. Delayed diagnosis	3	4%	1	2%	4	3%	7	17%	11	6%
E. Not eligible	5	7%	1	2%	6	4%	1	2%	7	4%
Total	76	100%	64	100%	140	100%	41	100%	181	100%

¹ Women over 70 years and with a negative screening history are outside the eligible range for the screening program. Refer to the National Cervical Screening Program at www.cancerscreening.gov.au

²⁸ Unpublished data, Victorian Cancer Registry, Cancer Council Victoria.

²⁹ Sasieni P, Adams J, Cuzick J. *Benefits of cervical screening at different ages: evidence from the UK audit of screening histories*. 2003. Br J Cancer. 89 (1): p. 88-93.

Invasive Cervical Cancers

As shown in Table 9, the screening history of the 140 women diagnosed with invasive cervical cancer during 2008 can be classified into the following four groups.

A. Women with no previous screening history

The never screened category includes women who were on the VCR and either not recorded on the VCCR (51 women), and thus it is assumed they were never screened, or were recorded on the VCCR but their first Pap test was within 6 months of diagnosis (31 women). A proportion of those unknown to the VCCR may have been screened interstate or overseas, or have opted-off the Registry.

B. Women with a lapsed screening history

According to the VCCR records, 31 women (22%) had a screening history but were lapsed screeners. This is defined as women with no record of a Pap test within two and a half years of their cancer diagnosis (but more than six months prior to diagnosis) in accordance with the current National screening policy recommendation of two yearly screening.

The proportions of squamous and glandular invasive cancers for which there was either no screening history (Group A) or lapsed screening history (Group B) were 83% and 78% respectively.

C. Women with an adequate screening history

Of the women diagnosed with cervical cancer, 17 (12%) have been assessed as having an adequate screening history with at least one Pap test between six months and two and a half years prior to their cancer diagnosis. Two thirds of these women were diagnosed with glandular cervical cancers, which are harder to detect through cervical screening.

D. Women with a delayed diagnosis

Of the 140 women diagnosed with frankly invasive cervical cancer during 2008 only four women appear to have had a delayed diagnosis or management failure according to information available on the VCCR.

Micro-invasive Cervical Cancers

This year, the data in Table 9 on screening histories of women with cervical cancer is presented separately for invasive and micro-invasive cancers. As would be expected, a lower proportion of micro-invasive cancers are detected among women who were never screened (32% vs 61% for invasive squamous cancers), as these are very early stage cancers detected primarily through screening.

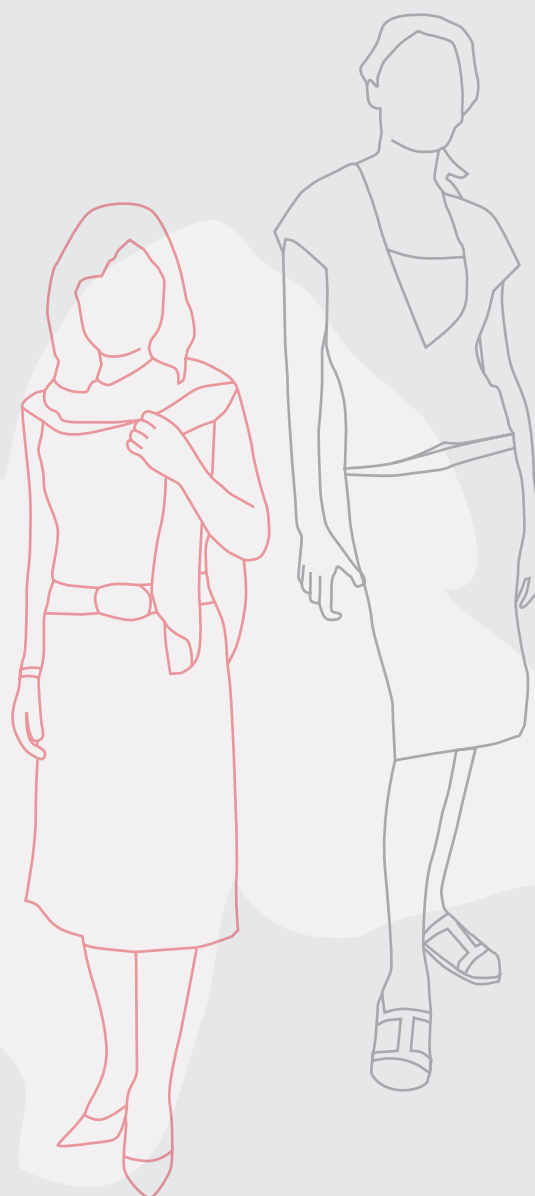
ACKNOWLEDGEMENTS

The production of this report would not be possible without the cooperation of the staff of the pathology laboratories of Victoria, the staff of the VCCR and the ICT team. Very sincere thanks are extended to the members of all these groups. In particular, special thanks go to the dedicated VCCR staff for the collection of high-quality information and the provision of an excellent service for women and health practitioners.

The figures on incidence and mortality from cervical cancer were kindly provided by the Victorian Cancer Registry at the Cancer Council Victoria. We would like to thank Vicky Thursfield and Professor Graham Giles for their assistance in providing these data.

LIST OF ABBREVIATIONS

ABS:	Australian Bureau of Statistics
AIHW:	Australian Institute of Health and Welfare
ASR:	Age-Standardised Rate (per 100,000 Victorian women standardised to World Standard Population)
CIN:	Cervical Intraepithelial Neoplasia
ERP:	Estimated Resident Population
HPV:	Human Papillomavirus
HSIL:	High-grade squamous intraepithelial lesion
LSIL:	Low-grade squamous intraepithelial lesion
NHMRC:	National Health and Medical Research Council
NHVPR:	National HPV Vaccination Program Register
NPAAC:	National Pathology Accreditation Advisory Council
PPV:	Positive Predictive Value
VCCR:	Victorian Cervical Cytology Registry
VCR:	Victorian Cancer Registry
VCS:	Victorian Cytology Service Inc.



GLOSSARY REFERENCES³⁰

Adenocarcinoma – A rare cancer affecting the cervix, but involving the columnar cells rather than the squamous cells. The columnar cells are involved in glandular activity. Adenocarcinoma has a different type and rate of progression and is not so often picked up in a Pap test

Atypia – Slight changes in the cells of the cervix

Biopsy of the Cervix – Removal of a small piece of the cervix for examination under a microscope

Carcinoma in Situ – Cancer cells that are restricted to the surface epithelium. The abnormal cells are evident throughout each of the layers of the epithelium but they have not extended into other, deeper tissue or surrounding areas

Cervix – The neck of the uterus (womb), located at the top of the vagina

Colposcopy – Examination of the cervix and vagina with a magnifying instrument called a colposcope to check for abnormalities

Cytology – The study of cells taken as samples during procedures such as Pap tests

Endocervix – The inside of the uterine cervix or the mucous membrane lining of the cervix

Glandular Lesion – Lesion involving the columnar cells of the cervix, which produce mucus and have both a different appearance and a different function from the squamous cells

Histology – A branch of anatomy that deals with the minute structure of animal and plant tissues as discernible with the microscope

(Merriam-Webster's Online Medical Dictionary, (<http://www.merriam-webster.com/medical/>)

Human Papillomavirus – Group of viruses that can cause infection in the skin surface of different areas of the body, including the genital area. The virus can cause visible warts of the skin or may only cause microscopic changes in the cells of the skin

Hysterectomy – Refers to the surgical procedure whereby all or part of the uterus is removed

Hysterectomy Fraction – The proportion of women who have had their uterus removed by hysterectomy

Immunisation – Inducing immunity against infection by the use of an antigen to stimulate the body to produce its own antibodies
(AIHW (2008) Australia's Health 2008, Cat. No. AUS 99. AIHW, Canberra)

Incidence – The number of new cases (for example, of an illness or event) occurring during a given period
(AIHW (2008) Australia's Health 2008, Cat. No. AUS 99. AIHW, Canberra)

Intraepithelial lesion – lesion confined to the surface layer of the cervix

Invasive Cancer – A tumour whose cells have a tendency to invade healthy or normal tissue

Lesion – Alteration of surface tissue, caused by injury or disease

Malignant – Abnormal changes consistent with cancer

Micro-invasive squamous cell carcinoma (micro-invasive cancer) – A lesion in which the cancer cells have invaded just below the surface of the cervix, but have not developed any potential to spread to other tissues

National Cervical Screening Program – Australia-wide systematic approach to cervical screening based on sound international scientific evidence, the aim of which is to reduce the incidence and mortality rates for cervical cancer

Opportunistic screening – Taking Pap smears when a woman visits her GP for another reason

Pap Tests (or Smear) – Simple procedure in which a number of cells are collected from the cervix, smeared onto a microscope slide and sent to a laboratory for cytological examination to look for changes that might lead to cervical cancer. Up to 90% accurate and the best way to prevent squamous cervical cancer. Named after the test's inventor, Dr Papanicolaou

Pathology – Laboratory-based study of disease, as opposed to clinical examination of systems

Screening – Testing of all people at risk of developing a certain disease, even if they have no symptoms. Screening tests can predict the likelihood of someone having or developing a particular disease

Squamous cells – Thin and flat cells, shaped like soft fish scales. They line the outer surface of the cervix (ectocervix). They meet with columnar cells in the squamo-columnar junction. Abnormalities associated with squamous cells are the most likely abnormalities to be picked up by Pap tests

Squamous cell carcinoma –
A carcinoma arising from the squamous cells of the cervix

30 Unless otherwise indicated, all definitions have been sourced from the following publications:
AIHW 2011. *Cervical screening in Australia 2008-2009*. Cancer series no. 61. Cat. no. CAN 57. Canberra: AIHW.
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>

APPENDIX 1. CYTOLOGY CODING SCHEDULE

SPECIMEN	Type	A0 Not stated	A1 Conventional smear	A2 Liquid based specimen	A3 Conventional <i>and</i> liquid based specimen
	Site	B0 Not stated	B1 Cervical	B2 Vaginal	B3 Other gynaecological site

CYTOLOGY	S	Squamous Cell	E	Endocervical	0	Other/Non-cervical
	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	0U	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	01	No other abnormal cells
	S2	Possible low-grade squamous intraepithelial lesion (LSIL)	E0	No endocervical component	02	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	03	Atypical glandular cells of uncertain significance - site unknown
	S4	Possible high-grade squamous intraepithelial lesion (HSIL)	E2	Atypical endocervical cells of uncertain significance	04	Possible endometrial adenocarcinoma
	S5	High-grade squamous intraepithelial lesion (HSIL) (CIN II/ CIN III)	E3	Possible high-grade endocervical glandular lesion	05	Possible high-grade lesion - non-cervical
	S6	High-grade squamous intraepithelial lesion (HSIL) with possible micro-invasion/ invasion	E4	Adenocarcinoma-in-situ	06	Malignant cells - uterine body
	S7	Squamous carcinoma	E5	Adenocarcinoma-in-situ with possible micro-invasion/ invasion	07	Malignant cells - vagina
			E6	Adenocarcinoma	08	Malignant cells - ovary
				09	Malignant cells - other	

RECOMMENDATION	R0	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		



APPENDIX 2. REMINDER AND FOLLOW-UP PROTOCOL USED DURING 2010

Victorian Cervical Cytology Registry Summary of Follow-up and Reminder Protocol

Cytology Report	Subsequent Biopsy or Colposcopy	Other Circumstances	Time	Action by Registry
High-grade squamous abnormality or any glandular abnormality	Yes		12 mths	Reminder to woman
	No		4 mths	Questionnaire to practitioner
			5.5 mths	Telephone call to practitioner
			6 mths	Letter to woman
		12 mths	Reminder to woman	
Low-grade squamous abnormality	Yes		15 mths	Reminder to woman
	No	Previous smear also abnormal or fluctuating low-grade abnormality	4 mths	Questionnaire to practitioner
			6 mths	Letter to woman
			12 mths	Reminder to woman
		Woman aged 30+ years and no negative cytology in preceding 36 mths	7 mths	Questionnaire to practitioner
			8.5 mths	Letter to woman
	All other women	15 mths	Reminder to woman	
		12 mths	Reminder to practitioner	
Negative		Previous smear abnormal or past history of biopsy proven CIN 2 or CIN 3 without HPV 'test of cure'	15 mths	Reminder to woman
			All other women	27 mths
Unsatisfactory	Yes		12 mths	Reminder to woman
	No		6 mths	Reminder to practitioner
			9 mths	Reminder to woman

This protocol is adjusted in some unusual clinical circumstances (eg post-hysterectomy, after a diagnosis of cervical or endometrial malignancy, women aged 70+ years).
Details of the full protocol can be obtained by contacting the Registry on (03) 9250 0399.

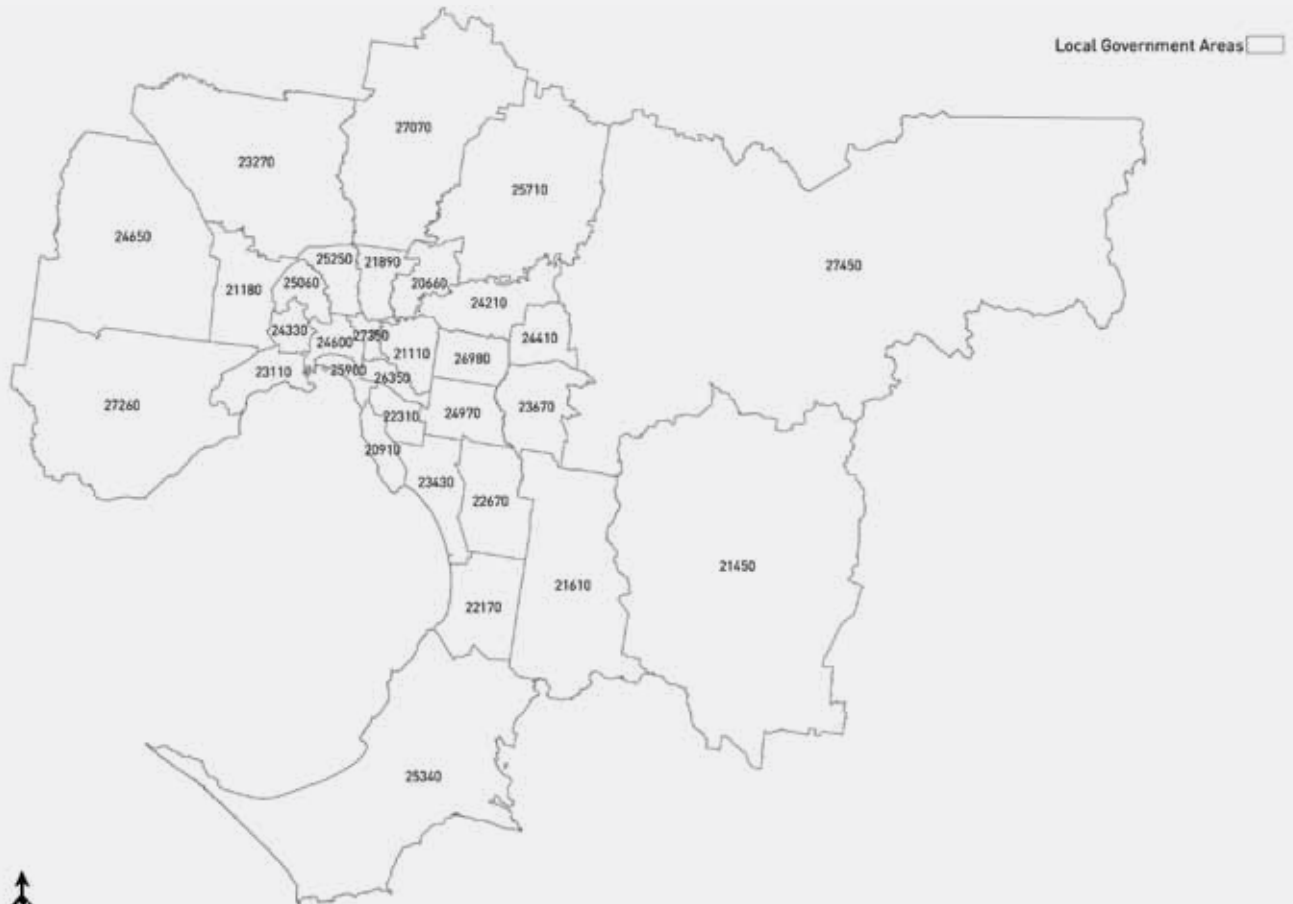
August 2007 (V9)

VICTORIAN CERVICAL CYTOLOGY REGISTRY

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VICTORIAN CERVICAL  CYTOLOGY REGISTRY

APPENDIX 3. MAP OF LOCAL GOVERNMENT AREAS – MELBOURNE



Refer to Table 2.3.3 for key to LGA codes by LGA names.

APPENDIX 3. MAP OF LOCAL GOVERNMENT AREAS – VICTORIA





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