EVALUATION OF CERVICAL SCREENING TESTS COLLECTED BY NURSES IN VICTORIA DURING 2015

Victorian Cervical Cytology Registry

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Victorian Cervical Cytology Registry

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State Government Victoria

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Forward

Victorian Nurse Cervical Screening Providers - Credentialling Program 2015

This year, the Victorian Credentialling Program celebrates its twentieth year. The program continues its role in monitoring cervical screening nurse providers through ongoing quality assurance, professional accountability and responsibility for clinical practice.

Once they have completed their endorsed Victorian training course, nurses are granted a one year credentialling period to enable support and quality monitoring as they enter this area of practice.

Thereafter a three year re-credentialling process ensures Victorian women continue to receive a high quality of service in cervical screening, and that nurses are equipped with up-to-date knowledge on screening practices and technologies.

In 2015, the program had 527 registered nurses, 443 of whom were actively participating in the screening program.

The quality of nurses' practice has been reported by the Victorian Cervical Cytology Registry (VCCR) annually since 2000. Victoria is the only Australian state or territory that has nurse collected cervical screening data reported by their cervical cytology registry.

The VCCR Nurses Evaluation Report 2015 is the third edition in which data from all Victorian nurses providing cervical screening has been reported, regardless of pathology provider used.

The outcome of this report demonstrates the close working relationship between VCCR and PapScreen Victoria (PSV) and their shared commitment to showcasing cervical screening undertaken by Victorian nurse cervical screening providers.

We would like to acknowledge the work of VCCR, VCS Pathology and PapScreen Victoria staff who have enabled the successful reporting of cervical screening provided by nurses working in Victoria.

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1. Number of Cervical Screening Tests (CST) collected by nurses

This report includes data on Cervical Screening Tests (CST) where nurses are credentialled and funded by the Department of Health and Human Services (DHHS) to be eligible for their own 'practice number' at VCS Pathology. Also included in this report are CST from nurses using Private Pathology Services. These nurses provide cervical screening data to PapScreen Victoria, which is then provided to the Victorian Cervical Cytology Registry (VCCR) for analysis in this report.

The report captures all CST reported in Victoria, including those conducted as part of the Compass trial. The Compass study is a clinical trial comparing two and a half yearly Pap test screening with five yearly HPV screening[1]. The Pilot commenced at the end of 2013 and the Main trial commenced at the start of 2015. Since 2014, data from the trial has been included in this report.

The data in this report includes:

1. All Pap and LBC[2] tests (as usually reported) that are not part of the Compass trial.
2. All LBC primary screening tests conducted as part of the Compass trial.
3. LBC triage tests for Compass – the associated HPV screening test is not included so it is not double counted.
4. Compass HPV primary screening tests for which there is no LBC triage.

This method is used to prevent counting the same sample twice and is necessary due to current reporting limitations. Footnotes have been included under tables/figures to indicate where Compass HPV tests (without LBC) are excluded from the analysis.

Due to the addition of HPV tests (without LBC) to the data, the term Cervical Screening Tests (CST) is used in place of Pap tests when referring to data that includes HPV tests.

As reported to the VCCR, a total of 33,780 CST were collected by 432 nurses during 2015 (with 33,496 being from women with a cervix). This is out of a total of 602,463 Victorian CST for 2015 (with 593,956 being from women with a cervix).

Of the CST reported by nurses, 29,884 tests (88.5%) were reported to VCS Pathology. The remaining 3,896 tests (11.5%) were taken by nurses through Private Pathology Services under a doctor's name.

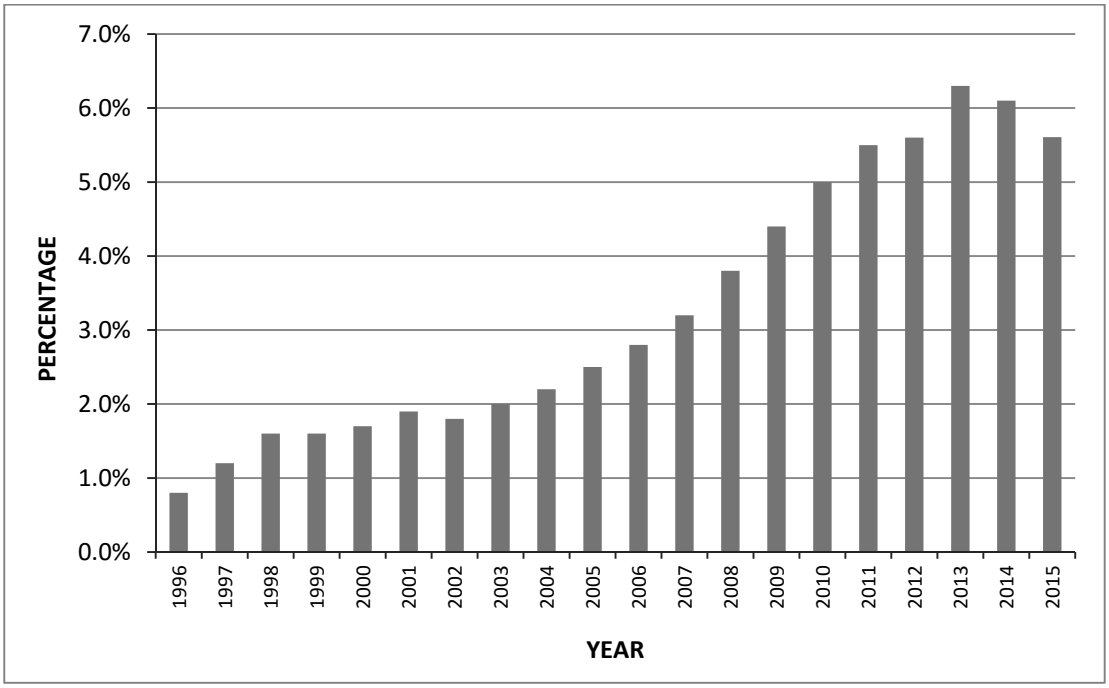
The 33,780 tests collected by nurses represents 5.6% of all Victorian CST collected during 2015. As shown in Table 1.1 and Figure 1.1, the number and proportion of tests collected by nurses has decreased compared to the previous two years (2013 and 2014). However the number remains more than six times higher than the figure recorded in 1996.

[1] Victorian Cytology Service (VCS). *About Compass*. URL: http://www.compasstrial.org.au/about. Accessed: 30/05/2016.
[2] Liquid Based Cytology

Table 1.1 Number of Cervical Screening Tests (CST) collected by nurses in Victoria[3]

Year	Number of CST collected by nurses	% of all Victorian CST
2015	33,780[4]	5.6%
2014	36,410[4]	6.1%
2013	38,012	6.3%
2012	33,875	5.6%
2011	31,613	5.5%
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%
2000	9,628	1.7%
1999	9,922	1.6%
1998	9,858	1.6%
1997	7,155	1.2%
1996	5,170	0.8%

Figure 1.1 Proportion of CST collected by nurses in Victoria, 1996 – 2015



2. Post-hysterectomy tests

Two hundred and eighty four CST collected by nurses during 2015 were taken from women whose records indicate they have had a hysterectomy. This represents 0.8% of tests collected by nurses during 2015 and is equivalent to the percentage of post-hysterectomy tests completed by other Victorian provider types.

[3] Data from 1996-2012 excludes tests taken by nurses through Private Pathology under a doctor's name.
[4] Since 2014, HPV tests (without LBC) and Pap tests completed by nurses as part of the Compass trial have been included in these data.

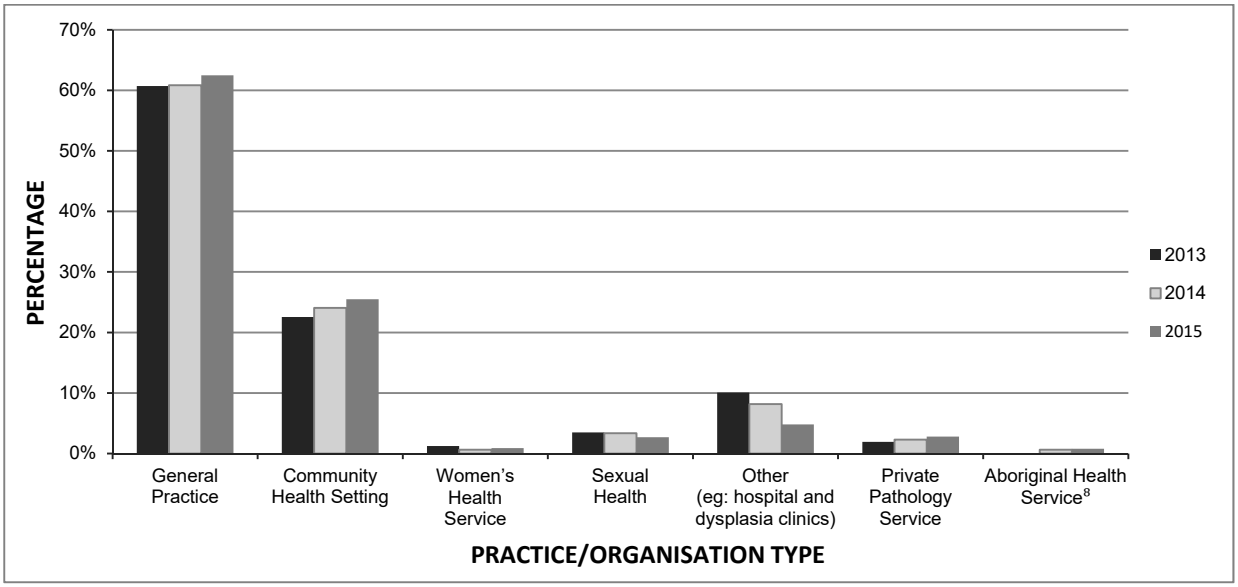
3. Type of practice/organisation for nurses

Of the CST collected by nurses during 2015, the majority were conducted in General Practice or in a Community Health setting. The combined proportion of CST collected in General Practice or a Community Health setting has increased from 83.3% in 2013 to 88.0% in 2015. There was an increase in collection by most practice types between 2014 and 2015 (except for Sexual Health and Other).

Table 3.1 Number of CST collected by nurses during 2015 by practice/organisation

Practice/organisation type	Number of practices/ organisations	Number of nurses at each practice/ organisation[5]	Number of CST by nurses during 2015	% of CST by practice/ organisation
General Practice	221	232	21,117	62.5%
Community Health setting	97	105	8,616	25.5%
Women's Health Service[6]	1	3	298	0.9%
Sexual Health[7]	3	41	930	2.7%
Other (e.g. hospitals and dysplasia clinics)	19	32	1,622	4.8%
Private Pathology Service	2	2	942	2.8%
Aboriginal Health Service	12	17	255	0.8%
Total	355	432	33,780	100.0%

Figure 3.1 Comparison of the proportion of CST collected by nurses 2013 to 2015 by practice/organisation



[5] For nurses who worked at more than one type of practice/organisation, their most common type was used.
[6] Women's Health Services represent statewide health services such as Women's Health Loddon Mallee.
[7] Sexual Health includes: Melbourne Sexual Health Centre, Family Planning Victoria – Box Hill, and the Action Centre – Family Planning Victoria.
[8] Prior to 2014, data identified as CST in Aboriginal Health Services was categorised in the other listed practice types.

4. Practice and woman location at time of CST

During 2015, 432 nurses performed CST in Victoria. The Registry recorded 403 credentialled nurses which were reported by VCS Pathology. PapScreen Victoria provided the details of 29 additional unique nurses whose CST were reported to the Registry through Private Pathology Services under a doctor's name.

The geographical location of nurses (by practice) and the women whose CST were collected by a nurse during 2015 are classified below using the Australian Statistical Geography Standard (ASGS) Remoteness Areas.

The ASGS Remoteness Areas classification was developed by the Australian Bureau of Statistics (ABS), and classifies Australia into large regions which share common characteristics of remoteness into broad geographical regions.

The ASGS Remoteness Areas classification divides Australia into five areas:

- Major Cities of Australia: includes most capital cities, as well as major urban areas such as Melbourne, Geelong, Newcastle and the Gold Coast.
- Inner Regional Australia: includes towns such as Ballarat, Bendigo, Albury-Wodonga, Hamilton, Hobart, Launceston, Mackay and Tamworth.
- Outer Regional Australia: includes towns and cities such as Bairnsdale, Horsham, Darwin, Whyalla, Cairns and Gunnedah.
- Remote Australia: includes Mallacoota, Alice Springs, Mount Isa and Esperance.
- Very Remote Australia: represents much of central and western Australia and includes towns such as Tennant Creek, Longreach and Coober Pedy.[9]

Using the ASGS classification, Table 4.1 shows that the majority of nurses who collected CST during 2015 were based in a major city or inner regional area, as were the women tested.

Table 4.1 Nurse practice and CST location by Australian Statistical Geography Standard Remoteness Areas[10]

ASGS Remoteness Area	Nurses located in the area[11]		CST in the area[12]	
	Number	%	Number	%
Major Cities of Australia	212	49.1%	11,797	39.3%
Inner Regional Australia	170	39.3%	12,996	43.3%
Outer Regional Australia	50	11.6%	5,130	17.1%
Remote Australia	0	0.0%	90	0.3%
Very Remote Australia[13]	0	0.0%	0	0.0%

[9] Australian Bureau of Statistics (2013). *Glossary of Statistical Geography Terminology*. Cat.no.1217.0.55.001. URL: www.abs.gov.au/ausstats/abs@.nsf/mf/1217.0.55.001

[10] Courtesy of the Australian Institute of Health and Welfare (AIHW) (May 2014). *Postal Area to ASGS RA conversion file*. Data is based on 2011 Remoteness Areas on 2011 census data.

[11] Data from nurses using Private Pathology Services are included in these statistics for the first time, as postcode was collected during 2015.

[12] The postcode for three CST could not be mapped and there were 3,764 CST where there was no postcode recorded, or postcode was invalid e.g. 33690.

[13] Very Remote Australia areas are not represented within Victoria.

5. Proportion of CST collected by nurses by Department of Health and Human Services (DHHS) region

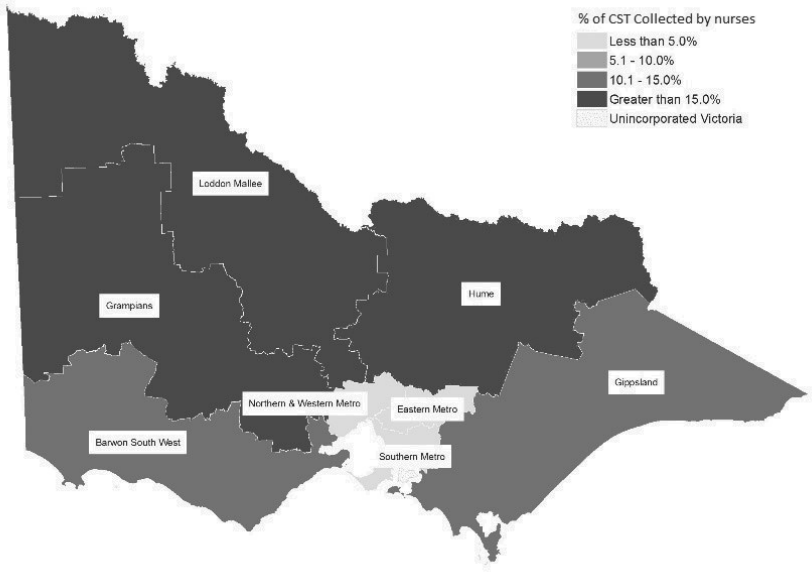
Most Victorian postcodes are assigned to a region of the Victorian DHHS (previously the Department of Health). Victoria is divided into eight regions, five in rural Victoria and three covering metropolitan Melbourne. The table below shows that nurses collected a higher proportion of CST in rural regions than in metropolitan regions. The proportion of CST collected by nurses increased across all DHHS regions except Grampians and Loddon Mallee between 2014 and 2015. The largest change was seen in the Hume region, which saw an increase of 3.6% in the number of tests completed.

Data from nurses using Private Pathology Services are included in these statistics for the first time, as previously postcode was not collected. This may account for some of the increase in numbers across regions compared to the 2014 report.

Table 5.1 CST for women with a cervix collected by nurses by Department of Health and Human Services (DHHS) region[14]

Region name	Number of CST collected by nurses in 2015[15]	Number of nurses in each region in 2015[16]	% of CST collected by nurses in 2015	% of CST collected by nurses in 2014
Barwon-South West	3,913	44	11.3%	10.8%
Eastern Metropolitan	2,645	39	2.6%	2.0%
Gippsland	2,415	28	10.9%	10.5%
Grampians	2,990	29	15.8%	16.1%
Hume	3,891	54	17.2%	13.6%
Loddon Mallee	5,978	69	22.0%	22.0%
Northern & Western Metropolitan	7,391	126	4.1%	3.7%
Southern Metropolitan	3,498	34	2.5%	2.1%

Figure 5.1 Proportion of CST collected by nurses during 2015 by DHHS region



[14] Courtesy of the Department of Health and Human Services, Modelling GIS and Planning Products Unit (2013). Postcode to DHHS region concordance file. Data based on *ABS digital geographic boundaries* (Cat. no. 1270.0.55.006) and DHHS regions.
[15] Excludes 284 post-hysterectomy CST, 534 CST with interstate postcodes or not able to be mapped, 241 CST where postcode was missing.
[16] Excludes nine nurses with interstate postcodes.

6. Socio-Economic Index for Areas (SEIFA)

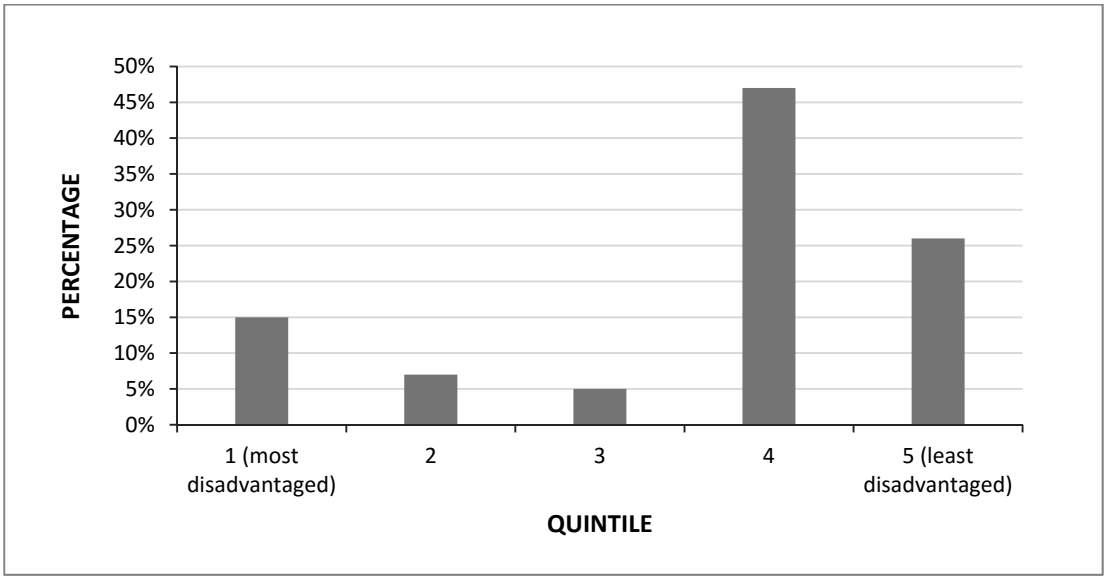
Socio-Economic Index for Areas (SEIFA) 2011 is a summary measure developed by the Australian Bureau of Statistics (ABS), which includes four indexes to allow the ranking of regions, to then determine the level of social and economic well-being in that region.[17] This report uses the Index of Relative Socio-economic Disadvantage (IRSD), which is a general measure focusing on disadvantage. The IRSD is derived from attributes such as income, education level, unemployment, disability, and dwellings without internet connection. In particular it focuses on low income earners, relatively lower educational attainment and high unemployment.[18] Index of disadvantage scores have been grouped into quintiles (1 – 5) for analysis. The highest quintile (5) represents the highest 20% of postcode scores (20% of the population) and includes the least disadvantaged areas. The lowest quintile (1) represents the lowest scores and the most disadvantaged areas.

Analysis of data by SEIFA is a new addition to this year's report. As seen below in both the table and figure, most women screened by nurses during 2015 are categorised in the least disadvantaged quintiles (four and five).

Table 6.1 Number and percentage of women screened by nurses in 2015 by SEIFA[19]

Quintile	Number of women[20]	Percentage
1 (most disadvantaged)	4,252	15%
2	2,193	7%
3	1,582	5%
4	13,700	47%
5 (least disadvantaged)	7,496	26%

Figure 6.1 Percentage of women screened by nurses during 2015 by SEIFA quintile



[17] SEIFA 2011 was released 28/03/2013 and is based on 2011 social and economic Census data.
[18] Australian Bureau of Statistics (2013). *IRSD*. URL: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2033.0.55.001main+features100052011. Accessed: 30/05/2016.
[19] SEIFA concordance provided by the ABS: *Postal Area, Indexes, SEIFA 2011* (Cat. No.: 2033.0.55.001). URL: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012011?OpenDocument
[20] 333 women could not be aggregated into SEIFA quintiles, as there was no postcode to Postal Area match in the concordance file (57), postcode was blank (44) or postcode was interstate (232). NB: SEIFA calculations are based on women with a Victorian postcode only.

7. Age distribution of CST

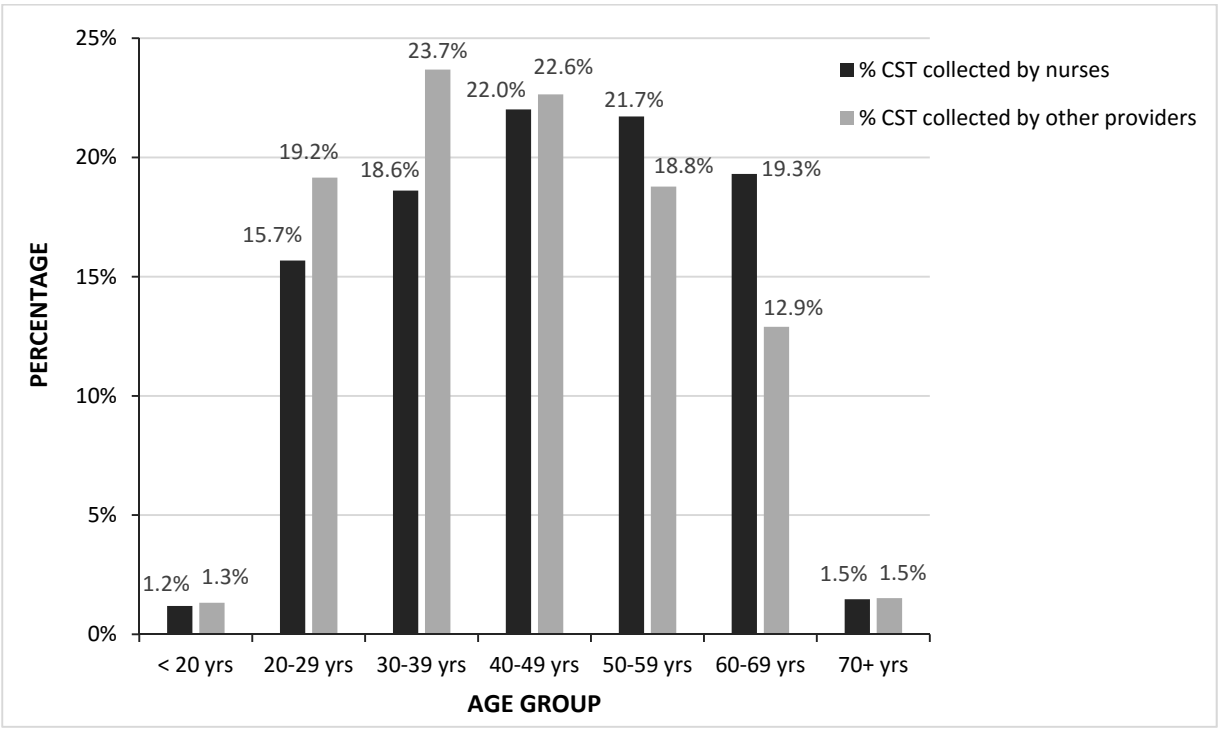
The age distribution of women whose CST were collected by nurses and other provider types is shown in the table below[21]. A comparison of 2014 and 2015 data shows the percentage of CST for each age group to be similar for both nurses and other provider types.

Consistent with the findings for 2014, the aggregated percentage of CST collected by nurses during 2015 for women aged 50 years or older was greater than those collected by other provider types (42.5% compared with 33.2%).

Table 7.1 Age distribution at time of CST in 2014 and 2015

Age group	CST collected by:			
	Nurses		Other Provider types	
	2014	2015	2014	2015
<20 yrs	1.5%	1.2%	1.5%	1.3%
20-29 yrs	16.5%	15.7%	19.4%	19.2%
30-39 yrs	19.1%	18.6%	23.6%	23.7%
40-49 yrs	22.2%	22.0%	22.8%	22.6%
50-59 yrs	21.6%	21.7%	18.7%	18.8%
60-69 yrs	17.7%	19.3%	12.5%	12.9%
70+ yrs	1.4%	1.5%	1.5%	1.5%
Total	100%	100%	100%	100%

Figure 7.1 Age distribution at time of CST in 2015



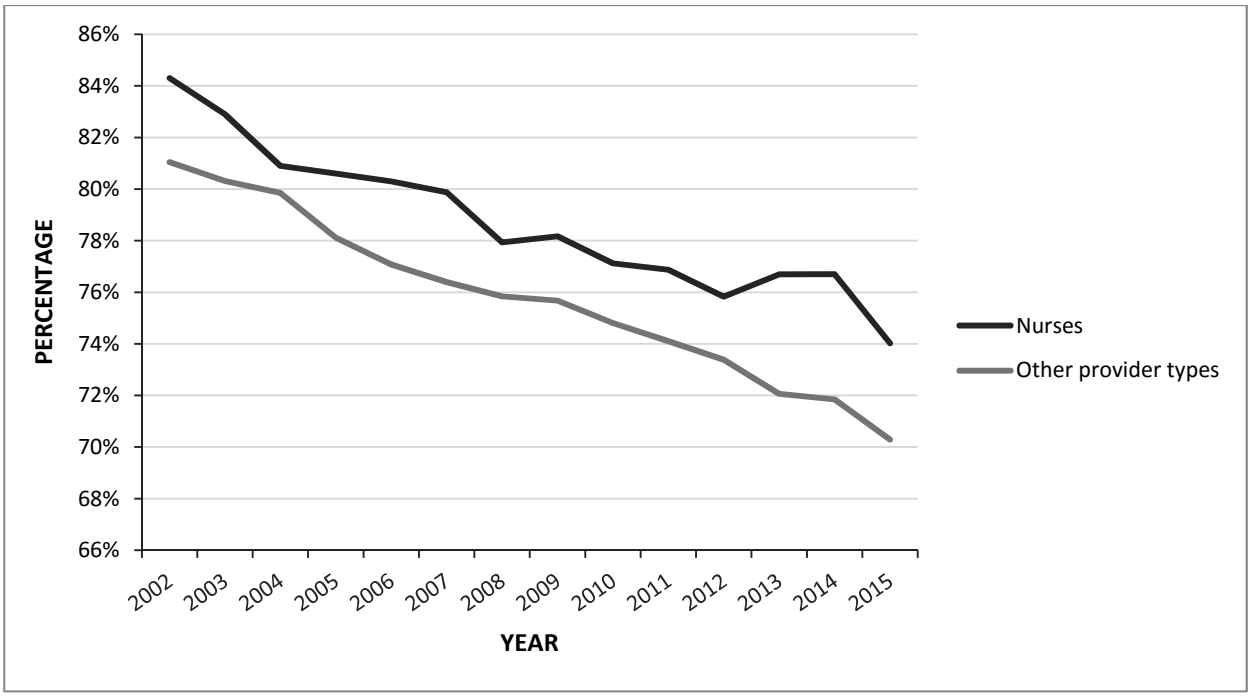
[21] Note- age range for Compass trial participants is 25-64 years: analysis is based on the number of tests, not the number of unique women.

8. Endocervical status

The presence of endocervical cells within a Pap test specimen is considered to be a reflection of smear quality. Of the technically satisfactory Pap tests collected from women with a cervix by nurses in 2015, 74.0% were reported as including an endocervical component. The proportion of Pap tests with an endocervical component for other provider types during the same time period was 70.3%.

The graph below shows that the proportion of Pap tests collected by nurses having an endocervical component remained stable between 2013 and 2014, with a decline during 2015. The proportion for other provider types has continued to decrease during 2015. Over the decade prior to 2013, a general decline in the proportion of Pap tests with an endocervical component was observed across all provider types.

Figure 8.1 Proportion of Victorian Pap tests collected by nurses and other provider types with an endocervical component[22]



[22] Excludes Compass HPV tests (without LBC)

9. Profile of CST

The following tables show the result categories for CST collected by nurses and other provider types during 2015. Note that Pap tests and HPV tests (without LBC) are shown separately.

Table 9.1 shows the Pap test result categories for tests collected by nurses and other provider types during 2015 for women with a cervix. Compared with Victorian Pap tests collected by other provider types, nurses had a significantly higher proportion of tests with negative results ($p<0.0001$) and significantly lower proportions with high-grade results ($p=0.007$) and unsatisfactory tests ($p<0.0001$).

Table 9.1 Profile of Pap test results collected during 2015 for women with a cervix[23]

Result category[24]	Number (%) of Pap tests collected by nurses	% of Pap tests collected by other provider types
High-grade abnormality	176 (0.6%)	0.7%
Low-grade abnormality	1,368 (4.5%)	4.7%
Inconclusive	172 (0.6%)	0.6%
Negative	27,947 (92.1%)	91.1%
Unsatisfactory	664 (2.2%)	2.9%
No reported result*	3 (0.01%)	-
Total	30,330 (100%)	100%

*This indicates Pap tests where there were no reported results by nurses using Private Pathology Services.

Table 9.2 shows the HPV (without LBC) test result categories for tests collected by nurses during 2015. These results are part of the cervical screening completed in the Compass trial. Over 98% of HPV tests (without LBC) returned a negative result, with the remaining tests returning a positive result (not type 16/18). The number of Compass HPV (without LBC) tests completed by nurses during 2015 is six times higher than in 2014.

Table 9.2 Profile of HPV (without LBC) test results for women during 2015[25]

Test result	Number (%) of tests
Negative	3,122 (98.6%)
Positive (not type 16/18*)	44 (1.4%)
Total	3,166 (100%)

*type 16/18 data = 0

[23] Excludes Compass HPV tests (without LBC) and 284 post-hysterectomy CST.
[24] Based only on the squamous cell code within the VCCR Cytology Coding Schedule 2006.
[25] Includes HPV tests (without LBC) completed as part of the Compass Pilot trial and Main trial. It does not represent the total number of Primary HPV tests across both the Pilot and Main trial.

10. Time since previous screening

The following table shows the length of time since any previous Pap test, as known to the Registry, for tests collected by nurses during 2015. Compared with Pap tests collected by other Victorian provider types and similar to the findings of 2014, a higher proportion of Pap tests were collected by nurses where the time interval since the last test was between 21 – 27 months.

Table 10.1 Time since previous Pap test during 2015 for women with a cervix[26]

Time since previous test	Number (%) of Pap tests collected by nurses	% of Pap tests collected by other provider types
No previous test	2,908 (9.6%)	11.2%
<21 months	4,845 (15.9%)	23.7%
21-27 months	10,446 (34.4%)	22.9%
Greater than 27 months	7,296 (24.0%)	27.0%
Greater than 36 months	2,348 (7.7%)	7.3%
Greater than 48 months	2,485 (8.2%)	7.8%
Unknown[27]	2 (0.01%)	-
Total	30,330 (100%)	100%

[26] Excludes Compass HPV tests (without LBC) and 284 post-hysterectomy CST.
[27] Unknown (n=2) represents the data from PapScreen Victoria where time since previous Pap test for women with a cervix was not reported.

11. Collection of Aboriginal and Torres Strait Islander status, Country of Birth and Language Spoken at Home

Closing the data gaps

A priority for the Victorian DHHS, as outlined in the Victorian Public Health and Well Being Plan 2011-2015 and the previous governments' Victorian Cancer Action Plan (2008-2011), is to improve the participation of Aboriginal and Torres Strait Islander women in cervical screening[28,29]. Following a successful pilot in 2008, the nurses who work with VCS Pathology continue to record Aboriginal and Torres Strait Islander status on the VCS Pathology Request Forms.

The standard nationally approved format is used on data collection forms as follows:

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

Table 11.1 Number and percentage of CST collected by nurses in 2015 by Aboriginal and Torres Strait Islander status

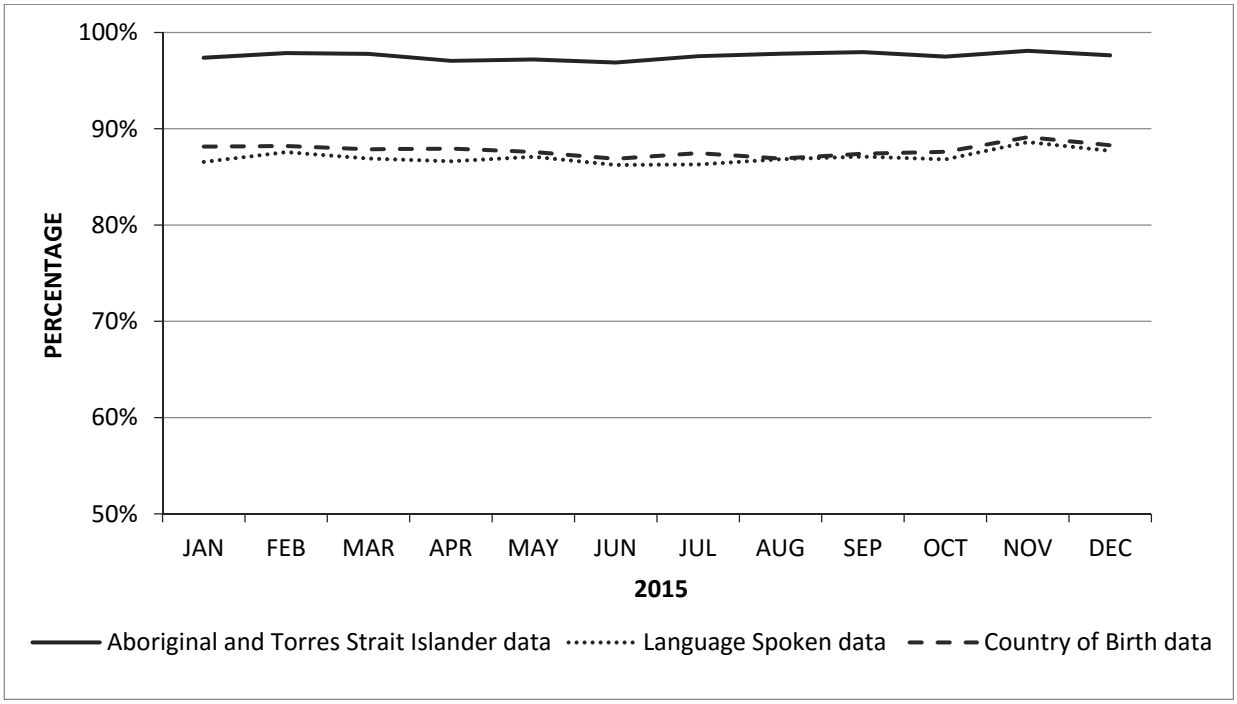
	2015		2014
Aboriginal and Torres Strait Islander status	**Number**	**(%)**	**%**
Aboriginal	482	(1.43%)	1.3%
Torres Strait Islander	8	(0.02%)	0.1%
Aboriginal and Torres Strait Islander	47	(0.14%)	0.1%
Not Aboriginal or Torres Strait Islander	32,416	(95.96%)	95.6%
Data not collected	827	(2.45%)	2.9%
Total	33,780	100%	100%

The overall percentage of CST collected by nurses for which an Aboriginal and Torres Strait Islander status was reported in 2015 was 97.6%, an increase of 0.5% from 97.1% in 2014. The distribution of Aboriginal and Torres Strait Islander status for the women that had a CST collected by nurses has remained consistent between 2014 and 2015.

[28] DHHS, Victoria (2011). *Victorian Public Health and Wellbeing Plan 2011-2015.* State Government of Victoria, Melbourne.
[29] Department of Health, Victoria (2008). *Victoria's Cancer Action Plan 2008-2011*. State Government of Victoria, Melbourne.

In 2011, the data collection was expanded to also include Country of Birth and Language Spoken at Home. It is intended that the collection of this additional information will assist with understanding and addressing the screening needs of women from culturally diverse backgrounds.

Figure 11.1 Percentage of CST collected by nurses for which Aboriginal and Torres Strait Islander status, Language Spoken at Home and Country of Birth were recorded for each month of 2015[30]



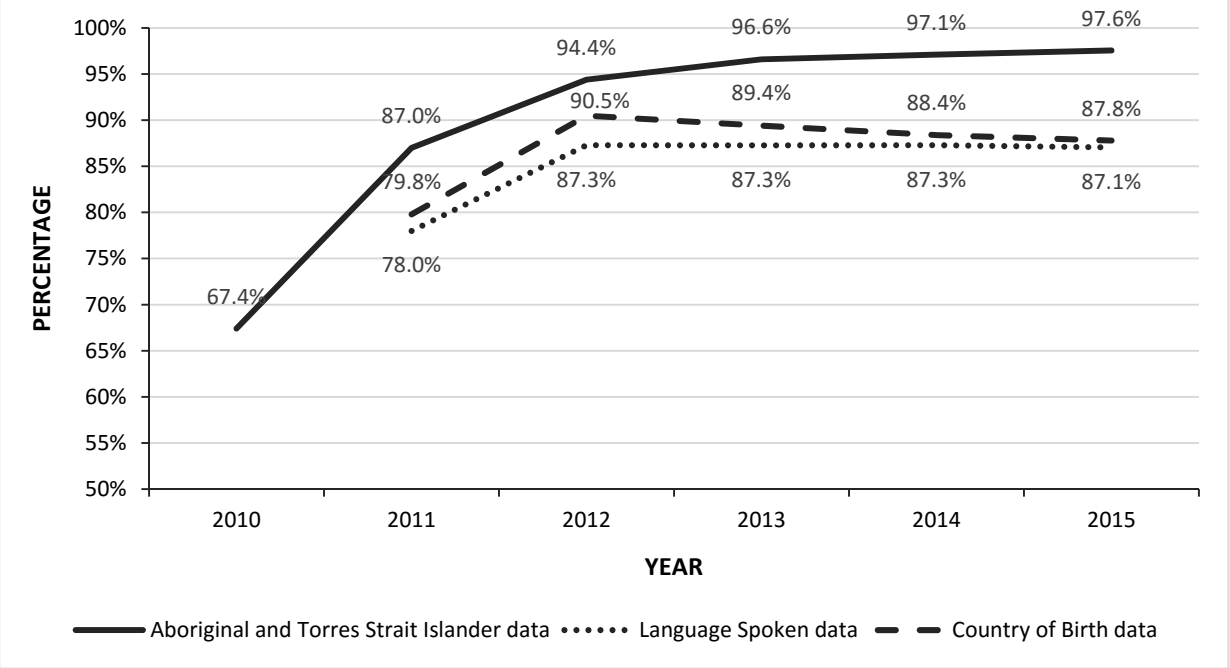
In 2015, the overall percentage of CST recorded by nurses for which Language Spoken at Home was collected was 87.1%. This has remained consistent since 2012. The most common Non-English languages were as follows (most common first): Vietnamese, Khmer, Italian, Chinese (not elsewhere classified), Greek, Arabic, Mandarin, Cantonese, Turkish and Spanish.

The overall percentage of CST recorded by nurses for which Country of Birth was recorded was 87.8%. This has decreased over the past three years and is a 0.6% reduction compared with the 88.4% recorded in 2014. The most common countries of birth outside of Australia were as follows (most common first): England, Vietnam, Cambodia, China (excludes SARS and Taiwan), New Zealand, Philippines, Burma (Myanmar), India, United Kingdom (includes Channel Islands and Isle of Man) and Italy.

[30] CST includes VCCR and Compass Pap tests, Compass HPV tests (without LBC) and nurses who use Private Pathology Services.

VCCR continues to work closely with VCS Pathology and PapScreen Victoria to capture these data items on the registry database from nurse notifications including from nurses who use Private Pathology Services. Figure 11.2 below represents the continued increase in the recording of Aboriginal and Torres Strait Islander status. There is also a high percentage of Language Spoken at Home and Country of Birth data collection. The high percentage figures shown in the graph below illustrate the strong commitment to complete data collection by nurses involved in cervical screening and other key stakeholders.

Figure 11.2 Percentage of CST collected by nurses for which Aboriginal and Torres Strait Islander status, Language Spoken at Home[31] and Country of Birth[31] were recorded by year[32]



[31] Language Spoken at Home and Country of Birth not collected prior to 2011.
[32] CST includes VCCR and Compass Pap tests, Compass HPV tests (without LBC) and nurses who use Private Pathology Services.

12. Conclusion

There were 432 active credentialled nurses in Victoria during 2015. Of these, 403 reported Cervical Screening Tests (CST) directly to VCS Pathology and the remaining 29 reported to the Registry through other Private Pathology Services under a doctor's name.

During 2015, the number of tests collected by these credentialled nurses and reported to the Registry was 33,780 tests (88.5% reported through VCS Pathology and 11.5% reported through private pathology under a doctor's name). The CST collected by nurses represented 5.6% of all CST performed that year, which was a reduction from 6.1% in 2014.

General Practice and Community Health settings continued to represent the main practice/ organisation types where nurses collected CST. There was also an increase in collection by most other practice types (except for Sexual Health and Other categories).

The majority of nurses who collected CST and Victorian women who had CST collected by nurses during 2015 were located in major cities or inner regional areas of Victoria. Within DHHS regions, the proportion of CST collected by nurses increased across most regions (except Grampians and Loddon Mallee).

In 2015, nurses continued to collect a higher proportion of tests from women over the age of 50 years than other provider types. Although a general downward trend has been observed over the last decade, the proportion of Pap tests with an endocervical component continued to be higher for nurses than other provider types during 2015.

The data in this report highlights the important role that nurses have in the success of the Victorian Cervical Screening Program, particularly in relation to the rising number of CST performed by them over the past two decades and the high quality of their tests. Also of note is the commitment of nurses to complete data collection, which assists with targeting under screened groups.

13. References

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