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Contents

Summary

The National Cervical Screening Program (NCSP) is a highly successful public health initiative in Australia, halving cervical cancer incidence and mortality since it was introduced in 1991. This has been achieved through organised, population-based cervical screening using 2-yearly Pap tests to detect precancerous changes to cervical cells, allowing treatment before any progression to cervical cancer, thereby preventing this disease. Cervical screening using Pap tests has been supported by high-quality cervical cytology through pathology laboratories, and by state and territory cervical cytology registers, that facilitated women receiving appropriate recommendations for clinical management, and provided a safety net to women who participated in cervical screening.

Improvements in technology, a greater understanding of the role of human papillomavirus (HPV) in the development of cervical cancer, and the introduction of an HPV vaccine that is now administered to girls and boys under the National Immunisation Program, led to a process by which the NCSP was reviewed and 'renewed', to ensure that the NCSP continued to provide Australian women with safe and effective cervical screening. As a result of this process, on 1 December 2017, a 'renewed' NCSP was introduced.

The renewed NCSP changes the way that women are screened. Instead of women aged 20–69 having a Pap test every 2 years, women aged 25–74 now have a Cervical Screening Test (CST) every 5 years (the CST is an HPV test, followed by a cytology test if HPV is found). Another change is the collection of cervical screening data by the National Cancer Screening Register (NCSR), which is now the sole source of cervical screening data.

Two years after its commencement, this is the first report to present data for the renewed NCSP. This report introduces the 20 performance indicators that will be used to monitor the NCSP going forward, and presents data against 9 of those for which data exist and have been deemed of adequate completeness for inclusion. Others that cannot be reported at this time will appear in future reports.

In considering the data contained within this report, it should be noted that this is a new program with a new source of data, some of which are incomplete. It is expected that data completeness will improve in future, allowing for more comprehensive reporting. Data not considered of adequate completeness to provide useful estimates were colposcopy and histology. This report therefore focuses on recruitment and screening in the renewed NCSP.

As a result of significant changes to the NCSP that was implemented in Australia from 1 December 2017, it must be recognised that program data presented in this report are not comparable to data published in previous years. Further, due to insufficient time having elapsed to adequately measure all performance indicators, in addition to current limitations of data held in the NCSR, this report presents a snapshot that is transitional in nature and cannot be considered directly comparable to data that will be published in future reports.

Participation

Participation refers to the number of women who had a cervical screening test over a certain period of time. Participation in the new 5-year program cannot be properly reported until there are 5 years of data available. In the interim, preliminary estimates have been calculated. Over the 2 years 2017–2018, participation in cervical screening by women aged 25–69 was 53% of the eligible population, and over the 3 years 2016–2018, participation was 68%. These crude rates include pre-renewal and post-renewal data, and include women aged 25–69 who had any cervical screening test (Pap or HPV test) over the reporting period.

A single year estimate of participation of 54% (that includes only women aged 25–74 who had an HPV test under the renewed NCSP) has also been produced for 2018. This single-year estimate mirrors previously-observed trends—participation in cervical screening decreased with increasing remoteness (43% in *Very remote* areas compared with 54% in *Major cities*) and decreased with increasing socioeconomic disadvantage (48% in areas of most disadvantage compared with 60% in areas of least disadvantage).

Response to invitation

Under the renewed NCSP, women are invited to screen (or to rescreen if they have screened before). In 2018, 20% of women aged 25–74 who were invited to screen or rescreen had an HPV test within 6 months.

Rescreening

Rescreening looks at the time between a woman's HPV test in 2018 and her last normal Pap test in the preceding 5 years. Of the women aged 25–74 screened in 2018 who had a normal Pap test within the preceding 5 years, 76% rescreened appropriately, meaning that their HPV test was between 21 months and 3 years after their last normal Pap test. In contrast, 8% rescreened early (before 21 months) and 16% rescreened late (after 3 years).

Screening results

Risk refers to the risk for significant cervical abnormality, and is determined by the result of the Cervical Screening Test (CST)—comprised of an HPV test and, if indicated, reflex liquid based cytology (LBC). The risk allocated to the woman determines her recommendation. Women considered to be at low risk are recommended to rescreen in 5 years, women considered to be at intermediate risk are recommended to have a repeat HPV test in 12 months, and women considered to be at higher risk are referred for colposcopy.

Of the 1,523,868 primary screening episodes in 2018 in women aged 25–74:

- 91% were low risk for significant cervical abnormality
- 6% were intermediate risk for significant cervical abnormality
- 3% were higher risk for significant cervical abnormality
- fewer than 1% could not be assigned a risk (due to unsatisfactory or incomplete tests).

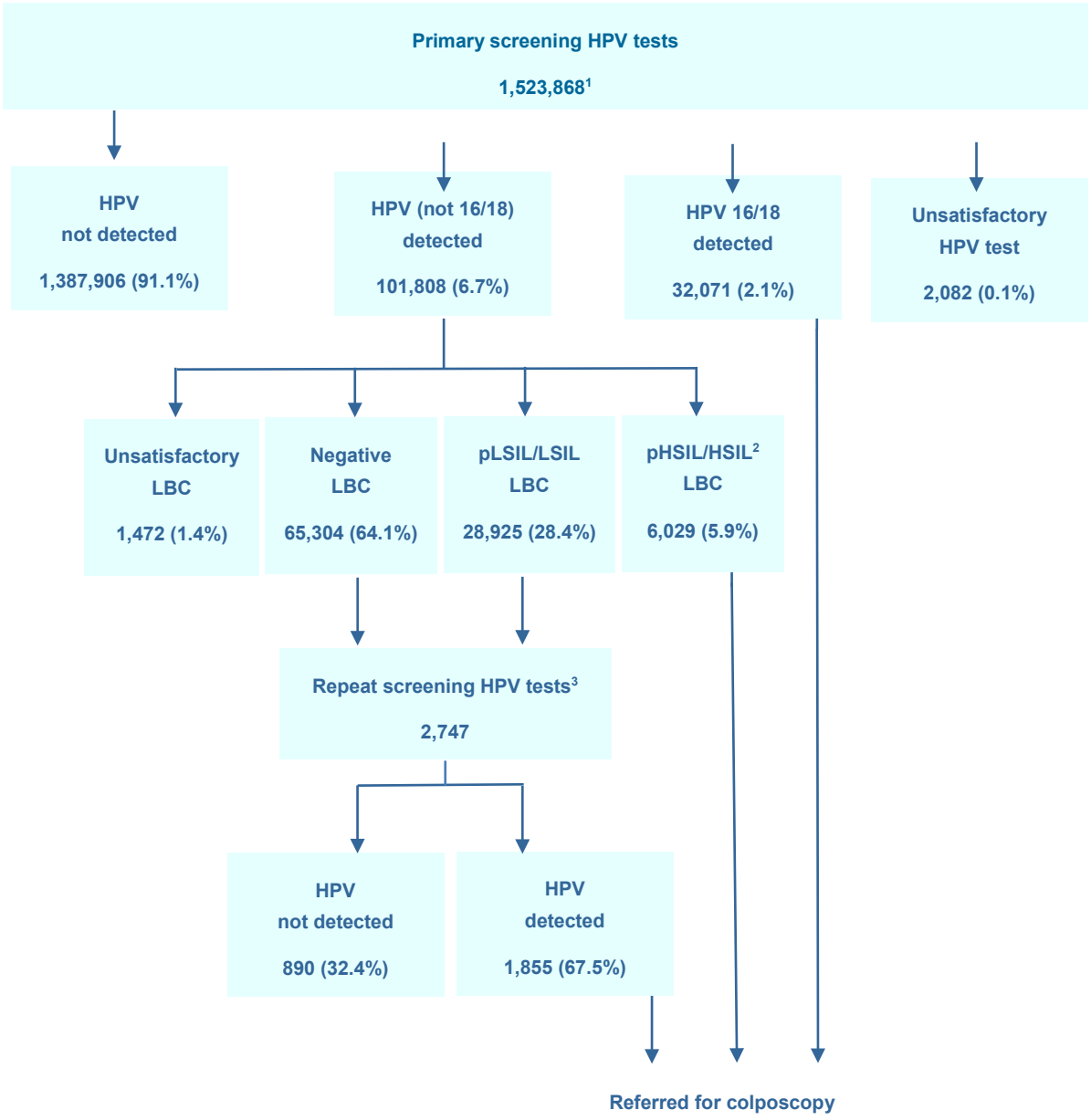
Screening HPV test positivity

All women who have a CST have an HPV test. This HPV test includes partial genotyping, which means that not only can it detect if a cancer-causing (oncogenic) HPV type is present, but it can further determine whether oncogenic HPV types 16 or 18 (the 2 types that cause most cervical cancers) are present. The results of an HPV test will be one of 'Oncogenic HPV not detected', 'Oncogenic HPV 16/18 detected', 'Oncogenic HPV (not 16/18) detected', or 'Unsatisfactory'

Screening HPV test positivity measures the proportion of primary screening HPV tests that detect oncogenic HPV. Of the 1,523,868 primary screening HPV tests performed in 2018 in women aged 25–74:

- 2% were positive for oncogenic HPV types 16 or 18
- 7% were positive for oncogenic HPV types other than 16 or 18.

Summary of data against screening pathway



HPV = human papillomavirus; LBC = liquid based cytology; pLSIL = possible low-grade squamous intraepithelial lesion; LSIL = low-grade squamous intraepithelial lesion; pHSIL = possible high-grade squamous intraepithelial lesion; HSIL = high-grade squamous intraepithelial lesion.

Notes

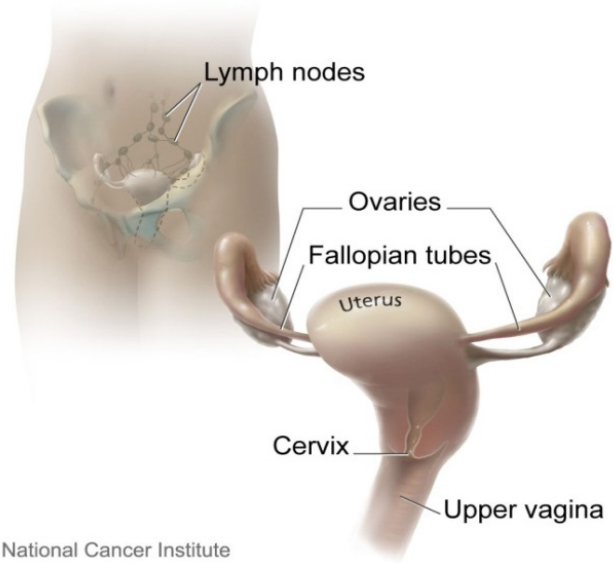
1. There was 1 screening episode for which no HPV test result or LBC result was recorded.
2. In this instance, pHSIL/HSIL also includes squamous cell carcinoma and all glandular abnormalities.
3. Repeat screening HPV tests are those that occurred in 2018, and therefore will not all be related to a primary screening test in 2018, as these are follow-up tests that occur around 12 months after 'intermediate risk' primary screening HPV tests.
4. There were 78 HPV tests with the result 'HPV (not 16/18) detected' that did not have a reflex LBC (only applies to self-collected samples); there were 2 'Repeat screening HPV tests' that were unsatisfactory.

1 Prevention of cervical cancer through organised cervical screening

Cancer is a group of several hundred diseases in which abnormal cells are not destroyed naturally by the body, but instead multiply and spread out of control. Cancers are distinguished from each other by the specific type of cell involved and by the place in the body in which the disease began.

Cervical cancer affects the cells of the uterine cervix, which is the lower part (or 'neck') of the uterus where it joins the upper end of the vagina (Figure 1.1). Cervical cancer develops when abnormal cells in the lining of the cervix begin to multiply out of control and form precancerous abnormalities. If undetected, these abnormalities can develop into cervical cancer and spread into the surrounding tissue.

Figure 1.1: Anatomy of the cervix and nearby organs



Source: http://visualsonline.cancer.gov.

Worldwide, cervical cancer is the fourth most common cancer affecting women, ranking fourth for both incidence and mortality; however, its burden is not equal globally. Cervical cancer ranks second in incidence and mortality behind breast cancer in lower Human Development Index countries without cervical screening programs, where cervical cancer incidence is above 25 new cases per 100,000 women in some countries, compared with a relatively low incidence of 6 new cases per 100,000 women of all ages in Australia (world age-standardised rates) (Bray et al. 2018). This is due to having an organised population based screening program in place since 1991, that has prevented many cervical cancers by detecting and treating high-grade cervical abnormalities before any possible progression to cervical cancer.

Recent research performed by the AIHW using linked cervical screening, cancer and death data showed that 72% of cervical cancers diagnosed between 2002 and 2012 in women

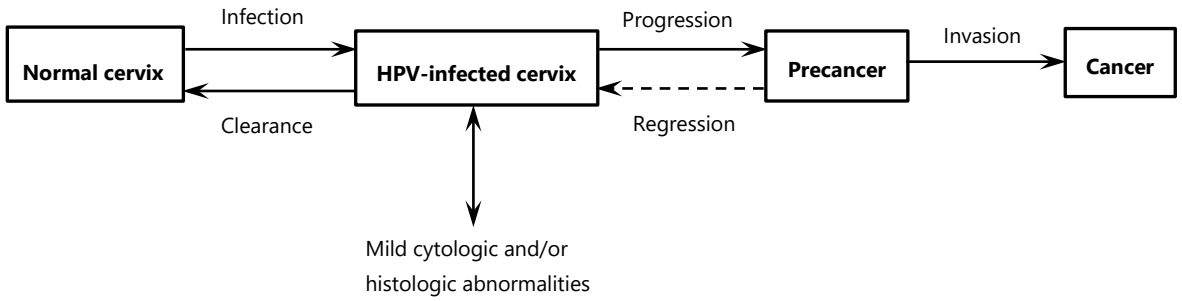
aged 20–69 occurred in those who had either never screened or were lapsed screeners, demonstrating the effectiveness of Australia's cervical screening program in preventing cervical cancer. This research further showed that cervical cancers that did occur in recently screened women were less likely to cause death than those diagnosed in women who had never screened, which is likely due to these cancers being detected an earlier stage (AIHW 2019a).

Human papillomavirus (HPV) plays a major role in the development of precancerous cervical abnormalities and cervical cancer, with HPV being the underlying cause of almost 100% of squamous cell carcinomas and up to 90% of adenocarcinomas (Brotherton et al. 2019a) (see Box 1.1 for further information).

The 4 major steps in most cervical cancer development are (1) infection with HPV (acquired through sexual contact), (2) viral persistence (as most HPV infections clear with no treatment), (3) progression to precancerous abnormalities (many of which will also regress with no treatment) and (4) invasive cervical cancer (Schiffman et al. 2007; Schiffman & Kjaer 2003) (Figure 1.2). As indicated by the arrows in Figure 1.2, the preliminary steps towards the eventual development of cervical cancer are not unidirectional. Most HPV-infected cells return to normal and a large proportion of precancerous abnormalities do not progress to cervical cancer, even without treatment. However, it is not possible to know which precancerous abnormalities will regress without treatment, and so the detection and treatment of all precancerous abnormalities is important.

While the cell changes caused by persistent infection with oncogenic HPV can cause precancerous changes to the cervix, a range of other factors will influence whether precancerous changes will progress to cervical cancer; these include smoking, multiparity (specifically, more than 5 full-term pregnancies), a young age at first full term pregnancy, oral contraceptive use, and immunosuppression (Cancer Council Australia 2014).

Figure 1.2: Role of HPV infection in the development of cervical cancer



Source: Reproduced with permission from M Schiffman, National Cancer Institute (Schiffman & Kjaer 2003).

Australia is set to become the first country in the world to eliminate cervical cancer, with research predicting that the incidence of cervical cancer will drop to fewer than 6 new cases per 100,000 women by 2020—the definition of a rare cancer—to fewer than 4 new cases per 100,000 women by 2035, and to fewer than 1 new case per 100,000 women by 2066 (Hall et al. 2019).

A greater understanding of the role of HPV in most cervical cancers (Box 1.1) has led to 2 major developments in Australia, which are behind these anticipated further reductions in the incidence of cervical cancer in Australia. The first of these developments is the introduction of a national HPV vaccination program in April 2007 (described in Box 1.2), and the second is the commencement of a renewed National Cervical Screening Program (NCSP) on 1 December 2017 which uses an HPV test as its primary screening test (Hall et al. 2019).

Note that, while Australia introduced primary prevention of cervical cancer in the form of HPV vaccination complementing the existing cervical screening program, cervical screening currently remains a vital secondary prevention strategy for both HPV-vaccinated and unvaccinated women. It is important that all women aged 25–74, irrespective of their HPV vaccination status, participate in cervical screening as recommended.

Box 1.1: Proportion of cervical cancers caused by HPV

It was once thought that all cervical cancers were caused by HPV, but it is now recognised that there are some cervical cancers that are not caused by HPV—the majority of these being some histological types of adenocarcinoma (Hodgson & Park 2019; Stolnicu et al. 2018). Current evidence is consistent with HPV being the underlying cause of almost 100% of squamous cell carcinomas and up to 90% of adenocarcinomas (Brotherton et al. 2019a).

In Australia, HPV has been detected in 93% of cervical cancers (Brotherton/Tabrizi et al. 2017). However, the proportion of adenocarcinomas that are present will affect the proportion of cervical cancers that are caused by HPV. The success of cervical screening in reducing the incidence of squamous cell carcinomas has seen the proportion of adenocarcinomas increase in Australia from 11% in 1982 to 24% in 2015 (AIHW 2019b). The higher proportion of adenocarcinomas together with the fact that HPV may no longer be detectable in some cervical cancers caused by HPV (due to loss of HPV DNA over time, for example), has contributed to this finding that HPV has been detected in 93% of cervical cancers in Australia.

In the future, it is likely that the proportion of cervical cancers in which HPV is detected will fall. This would be an indication of a successful cervical screening program, with further reductions in the cervical cancers that are caused by HPV leading to a higher proportion of cervical cancers that are not caused by HPV (Brotherton et al. 2019a).

Box 1.2: HPV vaccination in Australia

In April 2007, Australia introduced the National HPV Vaccination Program, which included an ongoing program for girls aged 12–13 and a ‘catch-up’ program for females aged 14–26. This program was extended to males from February 2013.

In 2018, Australia commenced using the nonavalent HPV vaccine *Gardasil9,* replacing the quadrivalent vaccine *Gardasil,* protecting against an additional 5 strains of HPV (*Gardasil9* protects against types 6, 11, 16, 18, 31, 33, 45, 52 and 58 compared to *Gardasil* that protected against types 6, 11, 16, and 18). The *Gardasil9* program reduces the number of doses from 3 to 2 (spaced 6–12 months apart).

This vaccine will further improve the protection against females developing cervical intraepithelial neoplasia (CIN) and cervical cancer. In addition, by decreasing the number of recommended doses, the rate of compliance with the vaccination schedule is expected to increase.

2 National Cervical Screening Program

The NCSP is a highly successful public health initiative in Australia, halving cervical cancer incidence and mortality since it was introduced in 1991. Until December 2017, this had been achieved through organised, population-based cervical screening using 2-yearly Pap tests to detect precancerous changes to cervical cells, allowing treatment before any progression to cervical cancer, thereby preventing this disease. Cervical screening using Pap tests has been supported by high-quality cervical cytology through pathology laboratories, and by state and territory cervical cytology registers, that facilitated women receiving appropriate recommendations for clinical management, and provided a safety net to women who participated in cervical screening.

Improvements in technology, a greater understanding of the role of human papillomavirus (HPV) in the development of cervical cancer, and the introduction of an HPV vaccine that is now administered to girls and boys under the National Immunisation Program, led to the NCSP being reviewed and 'renewed', to ensure that the NCSP continued to provide Australian women with safe and effective cervical screening. As a result of this process, on 1 December 2017, a 'renewed' NCSP was introduced.

The renewed NCSP means changes to the way that women are screened. Instead of women aged 20–69 having a Pap test every 2 years, women aged 25–74 now have a Cervical Screening Test (CST) every 5 years (the CST is an HPV test, followed by a cytology test if HPV is found). Another change is the collection of cervical screening data by the National Cancer Screening Register (NCSR), which is now the sole source of cervical screening data (Box 2.1).

Box 2.1: National Cancer Screening Register data

The National Cervical Screening Register (NCSR) is the source of cervical screening data in Australia, following the migration and consolidation of state and territory cervical screening register data. This change may impact comparisons with previous NCSP reporting, particularly for women who screen in a different state or territory to which they reside.

The data in this report reflect the NCSR as at 18 October 2019. At this time, screening data were considered to be of an acceptable level of completeness to report on recruitment and screening performance indicators, although there remain an unknown number of screening tests that have not yet been ingested into the NCSR, so some data may be underestimated.

There are known issues with the completeness of colposcopy and histology data that have prevented the reporting of those performance indicators that rely on these data. These issues also relate to a number of histology tests and colposcopy forms not yet provided to the NCSR by pathology laboratories or practitioners.

It is expected that these transition issues will resolve in future, after which time performance indicators that require complete colposcopy and histology data will be able to be reported. It is also possible that data for performance indicators that have been reported will change in future as transition issues are resolved, since these may affect results if there are a high number of uningested screening tests added, and if there are other issues such as undermatching of women who have moved between jurisdictions.

It is not possible to anticipate if and how these data may change, as at this time it is not possible to know the impact of NCSR transition data issues on the screening data that have been reported.

2.1 Screening pathway

A new screening pathway (Figure 2.1) was developed for the renewed NCSP, based around a woman's risk for significant cervical abnormality. This risk can be categorised as 'low risk', 'intermediate risk', or 'higher risk'.

The screening pathway starts with the Cervical Screening Test (CST), which comprises a screening HPV test and, if this detects oncogenic HPV, a cytology test.

A positive HPV test means that 1 or more oncogenic types of HPV has been detected. There are currently 14 oncogenic HPV types: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68, with types 16 and 18 causing 70%–80% of cervical cancers in Australia (Brotherton 2008). The HPV test used in cervical screening incorporates partial genotyping of the HPV—this means it not only can detect oncogenic HPV, but also can determine whether the type detected is 16 or 18, or neither of these.

The 4 possible results of the HPV test component of the CST are:

- oncogenic HPV not detected
- oncogenic HPV (not 16/18) detected
- oncogenic HPV 16/18 detected
- unsatisfactory HPV test.

The result of the HPV test determines whether or not cytology is also performed on the sample. This cytology test is called 'reflex liquid based cytology (LBC)', to reflect that it occurs automatically on the same sample if an HPV test result indicates that it is required. This cytology test is used to provide further information to allow a final risk to be allocated. This is sometimes referred to as triage:

- 'Oncogenic HPV not detected' means that the woman is considered to be at **low risk**, and a reflex LBC is not required.
- 'Oncogenic HPV (not 16/18) detected' means that the woman is not at low risk, and that reflex LBC is required to determine her risk:
  - If the reflex LBC is unsatisfactory, a new sample will need to be collected and tested in 6–12 weeks.
  - If the reflex LBC result indicates there is either no abnormality present or a low-grade abnormality present, the woman is considered to be at **intermediate risk** and will need to have a repeat HPV test in 12 months. At that time, a final risk is allocated of either **low risk** if there is no oncogenic HPV detected at her repeat HPV test, or **higher risk** if there is oncogenic HPV detected at her repeat HPV test (either 16/18 or not 16/18) (a reflex LBC is also performed on this sample, but the result does not change the risk).
  - If the reflex LBC result indicates there is a high-grade abnormality present (including cervical cancer or glandular abnormality), the woman is considered to be at **higher risk**.
- 'Oncogenic HPV 16/18 detected' means that the woman is considered to be at **higher risk**. A reflex LBC is performed on this sample, but the result does not change the risk.
- 'Unsatisfactory HPV test' means that the sample could not be read, and that a new sample will need to be collected and tested in 6–12 weeks. No risk is allocated.

The risk allocated to the woman then determines what recommendation she will receive at the conclusion of the screening episode (that commenced when she had her CST).

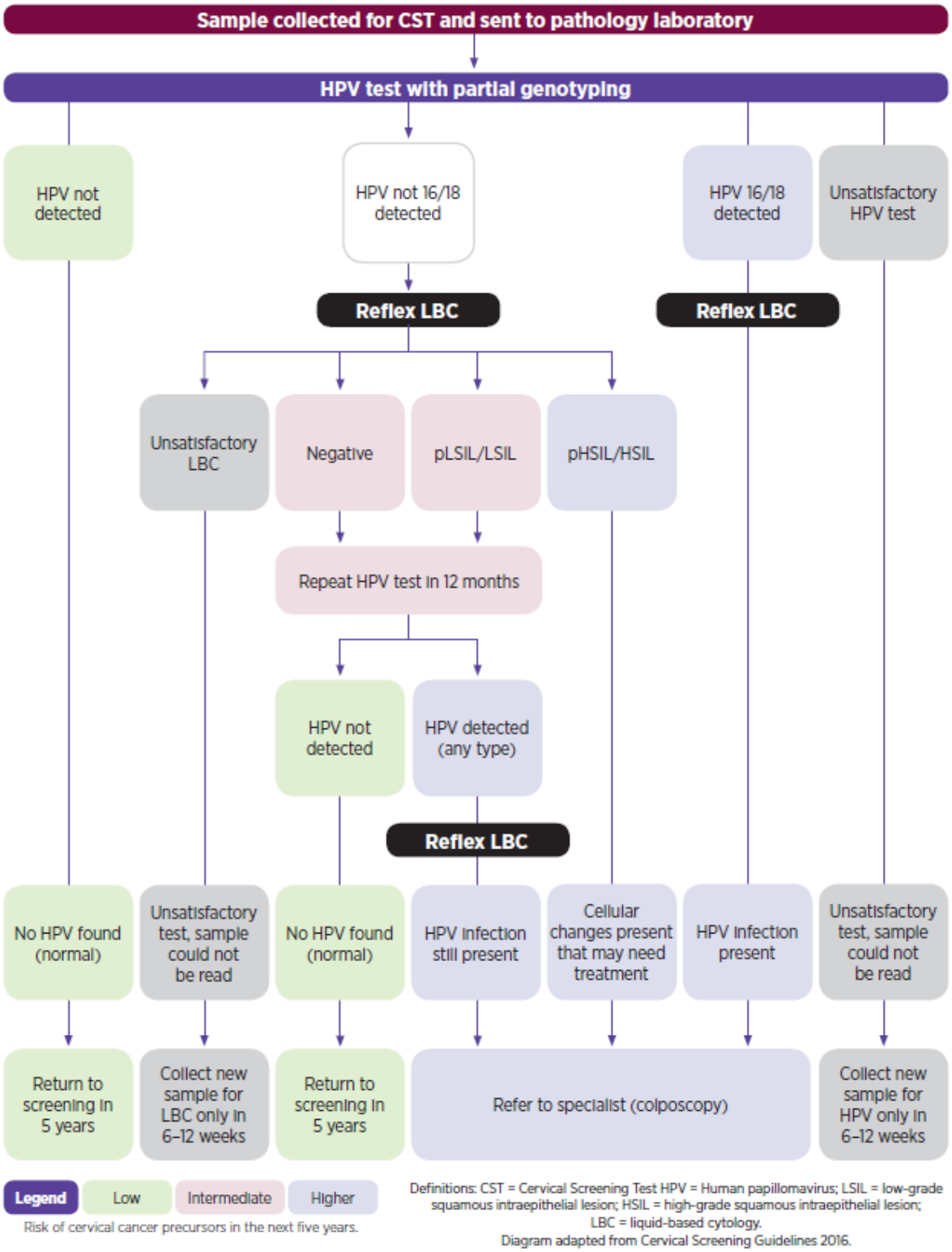
At the completion of a *primary screening episode*, all women are allocated a risk of **low risk, intermediate risk** or **higher risk***:*

- Women considered to be at **low risk** are recommended to rescreen in 5 years.
- Women considered to be at **intermediate risk** are recommended to have a repeat HPV test in 12 months, after which time their risk will be changed to either **low risk** (rescreen in 5 years) or **higher risk** (refer for colposcopy).
- Women considered to be at **higher risk** are referred for colposcopy and move from the screening pathway to the diagnostic pathway.

Self-collect screening pathway

There is a slightly different pathway for women who 'self-collect' the sample for their screening HPV test (women aged 30 or over who are 2 or more years overdue for cervical screening, and who decline a clinician collected sample, are eligible to self-collect a sample that is tested for oncogenic HPV). The self-collected vaginal sample is not suitable for reflex LBC. This is not an issue if the HPV test result is 'Oncogenic HPV not detected' as the woman is considered low risk and recommended to rescreen in 5 years; however, if the result is 'Oncogenic HPV (not 16/18) detected', the woman needs to have a separate sample collected by a practitioner for a reflex LBC test to determine her risk. If the HPV test result is 'Oncogenic HPV 16/18 detected' the woman is considered higher risk and referred for colposcopy as per the standard screening pathway, with the reflex LBC then performed at colposcopy.

Figure 2.1: Cervical screening pathway



2.2 Monitoring key aspects of the National Cervical Screening Program

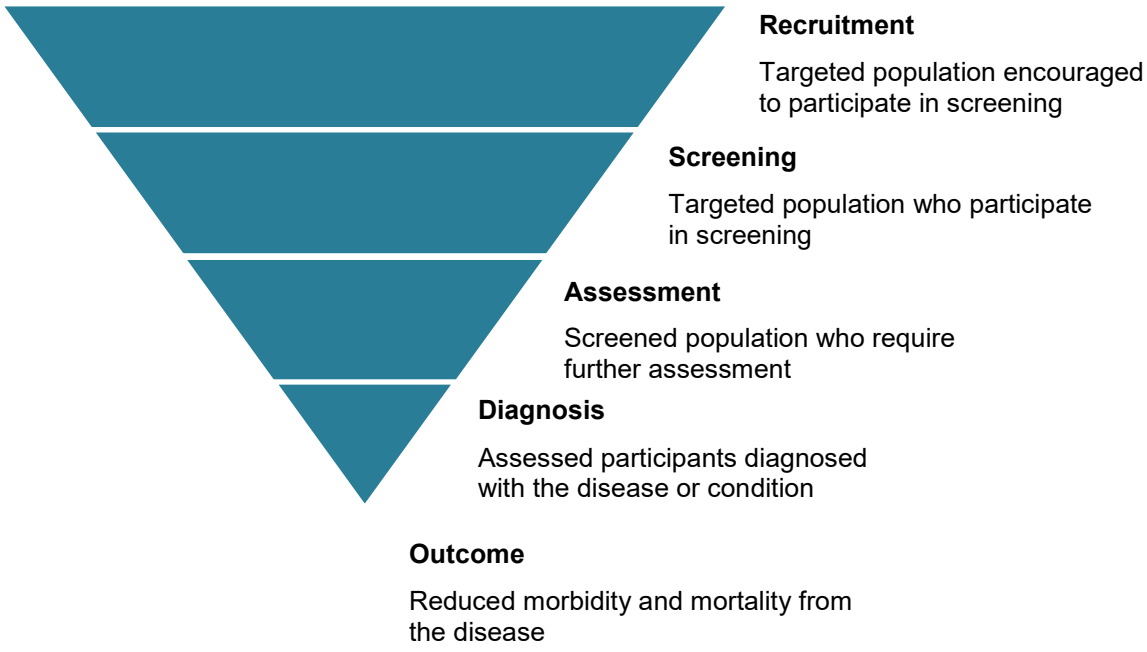
All population-based cancer screening programs require monitoring of their performance, quality and safety. To facilitate this, the NCSP has developed performance indicators, quality standards and associated measures, as well as safety monitoring protocols. This report presents the latest data for the performance indicators of the NCSP; these measure key aspects of the screening pathway.

These performance indicators are structured within the 5 incremental stages of a population screening pathway, as described in the Population Based Screening Framework (Standing Committee on Screening 2016). These stages are recruitment, screening, assessment, diagnosis, and outcome. Each incremental stage includes fewer individuals, represented diagrammatically in Figure 2.2 by an inverted triangle.

The largest section (recruitment) represents the target population of the screening program, followed by a smaller screening section, which represents the individuals who participate. The next section (assessment) is smaller again; it represents the subset of screening individuals who have diagnostic assessment, since a screening test is not intended to be diagnostic but rather aims to identify individuals more likely to have the disease and therefore to require further investigation from diagnostic tests. A subset of individuals assessed will be found to have the disease, represented by the smallest section of the triangle.

Outcomes sit below the triangle, and refer to morbidity and mortality. Screening programs aim to reduce morbidity and mortality.

Figure 2.2: Population screening pathway stages



Throughout the performance indicator section of this report, a small version of this inverted triangle is used as a ‘signpost’ in the top right corner of the page to indicate where in the screening pathway the performance indicator sits.

3 Performance indicator monitoring

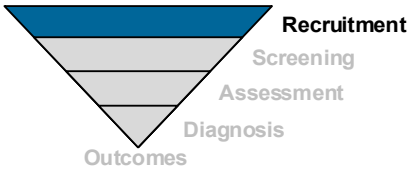
New performance indicators have been developed to allow key aspects of the renewed NCSP to be monitored. These are listed in Table 3.1, and follow the new screening pathway of the NCSP (Figure 2.1). Data are reported against these performance indicators in the following chapters, noting that data required to calculate some performance indicators are not yet available, either due to the program being new and so insufficient time has passed to allow the calculation of some performance indicators, or because the data are not yet complete for reporting in the NCSR (Table 3.1).

The inverted triangle in the top right corner of each performance indicator discussed in this report indicates whether it sits in the 'Recruitment', 'Screening', 'Assessment', 'Diagnosis' or 'Outcome' section of the screening pathway (Figure 2.2). Note that in Table 3.1 the screening pathway entries 'Screening', 'Screening HPV test performance', 'Self-collection' and 'Follow-up' all fall within the broader screening pathway section of 'Screening' (Figure 2.2).

Table 3.1: Performance indicators for the National Cervical Screening Program

Screening pathway	Performance indicator	Data
Recruitment	1 Participation	✓*
	2 Response to invitation	✓
	3 Rescreening	✓*
Screening	4 Screening results	✓
	5 Correlation of screening results	×
Screening HPV test performance	6 Screening HPV test positivity	✓
	7 Cervical cancer diagnosed after a low risk screening test result	×*
Self-collection	8 Self-collection women positive for oncogenic HPV (not 16/18) who have an LBC test within 6 months	✓
	9 Self-collection women positive for oncogenic HPV 16/18 who have a colposcopy within 6 months	×
Follow-up	10 Adherence to recommendation for follow-up	×*
	11 Follow-up results	✓
Assessment	12 Colposcopy rate	×
	13 Time to colposcopy	×
	14 Biopsy rate	×
	15 Yield of high-grade abnormalities on biopsy among women who attend colposcopy with higher risk screening results	×
	16 Positive predictive value of colposcopy	×
Diagnosis	17a High-grade cervical abnormality detection rate	×
	17b Cervical cancer detection rate	×
Outcomes	18 Cervical cancers diagnosed by time since last screen	×*
	19 Incidence of cervical cancer	✓
	20 Mortality from cervical cancer	✓

✓ = reported; ✓* = data not available but reported using an alternative approach; ×* = data not available and not reported as these require data linkage or for more time to have passed; × = data not available and not reported as these are not considered complete enough to report.



3.1 Recruitment

Performance indicator 1: Participation

Summary of participation data

- 53.0% of women aged 25–69 participated in cervical screening over the 2-year period 2017–2018 under either the previous or the renewed NCSP.
- 1,795,395 women aged 25–74 (estimated to be 53.7% of the target population) had an HPV test in 2018 under the renewed NCSP.

Definition

Number of women aged 25–74 screened in a 5-year period as a percentage of women in the population.

Rationale

Higher participation in cervical screening means that more precancerous abnormalities can be detected and treated before any progression to cervical cancer, thereby reducing the incidence of and mortality from cervical cancer.

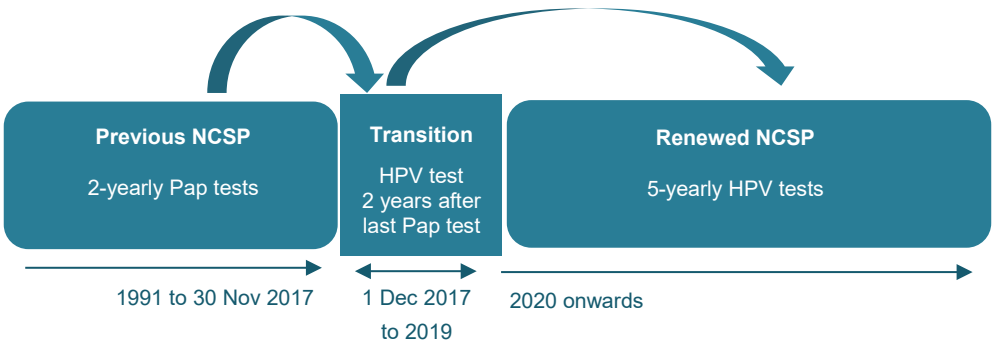
Guide to interpretation

A higher participation rate is better.

Data considerations

Five years need to have passed since the inception of the renewed NCSP to allow this performance indicator to be measured as per the definition, although the true 5-year participation rate may not be known until after around 7 years have passed (that is, when data from 2020–2024 are available). This is because the first 2 years of the renewed NCSP is a transition period in which women who had had a Pap test under the previous NCSP become due for their first screening HPV test, after which time they can then move to a 5-yearly screening interval, as illustrated in Figure 3.1.

Figure 3.1: Transition between 2-yearly Pap tests under the previous NCSP and 5-yearly HPV tests under the renewed NCSP



In the interim, an alternative method of deriving participation has been used; namely, to measure the number of women who participated in cervical screening (by way of a Pap test under the previous NCSP, or an HPV test, LBC test or conventional cytology test under the renewed NCSP) in the previous 2 or 3 years. Because this interim measure covers both the previous and renewed NCSP with different target age groups (20–69 for the previous NCSP and 25–74 for the renewed NCSP), an age group of 25–69, common to both, has been used.

Cervical screening activity in 2018 (the latest full calendar year of data available under the renewed NCSP) has also been examined. Note that estimating a 5-year participation rate using this single year of data will have limited usefulness (while a 1-year participation rate would be expected to represent around 20% of a 5-year participation rate after the transition, during the transition it will be closer to 50% of the 2-year participation rate as women will be returning to screen around 2 years after their last Pap test) (Figure 3.1). For cervical screening activity in 2018 that is wholly within the renewed NCSP, the target age group of 25–74 is used.

In this report this indicator requires complete screening test data from 1 January 2016 to 31 December 2018 to capture all screens that occurred in 2016, 2017 and 2018.

Box 3.1: This report presents a snapshot of data that are transitional in nature, and as such data should not be compared to either past reports or future reports

As a result of significant changes to the NCSP that was implemented in Australia from 1 December 2017, it must be recognised that program data presented in this report are not comparable to data published in previous years. Further, due to insufficient time having elapsed to adequately measure all performance indicators, in addition to current limitations of data held in the NCSR, this report presents a snapshot that is transitional in nature and cannot be considered directly comparable to data that will be published in future reports.

Preliminary results using alternative methodology

These results use an alternative methodology to calculate participation during the transition.

Participation across the previous NCSP and renewed NCSP

Of all women in the population aged 25–69 who were eligible to screen:

- 53.0% had a cervical screening test (cytology or HPV) over the 2 years 2017–2018
- 67.6% had a cervical screening test (cytology or HPV) over the 3 years 2016–2018.

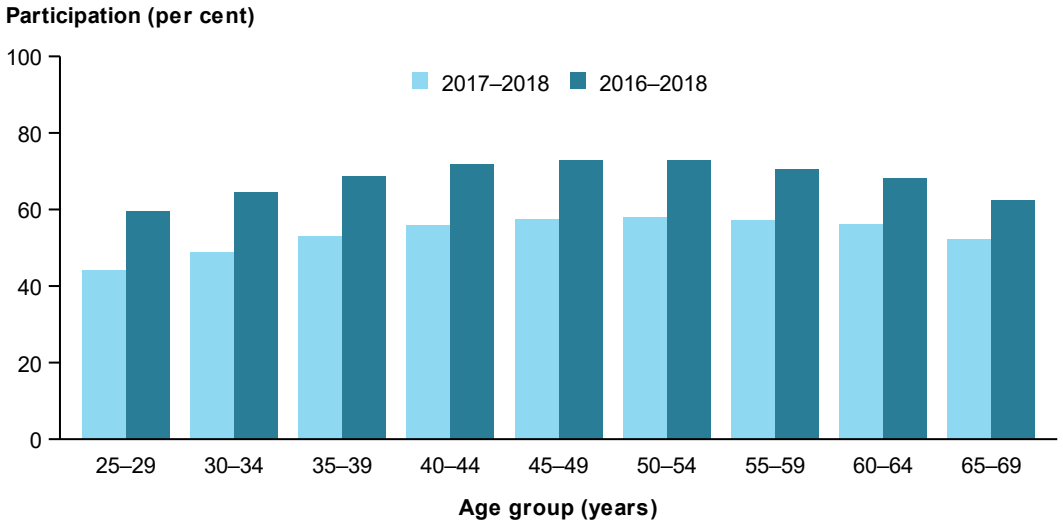
Two-year participation aligns with the recommended screening interval following a normal Pap test, as women are advised to rescreen 2 years after their last normal Pap test. This is still applicable during the transition, as women can only move to a 5-year screening interval after an HPV test, not a Pap test. Three-year participation is a useful supplementary measure, as women are not reminded to rescreen until 27 months after their last normal Pap test. For this reason, some consider 3-year participation to be more indicative of cervical screening.

Participation in 2017–2018 (2-year participation) and 2016–2018 (3-year participation) across 5-year age groups is shown in Figure 3.2.

For both reporting periods, participation was lowest in women aged 25–29 (44.2% for 2-year and 59.5% for 3-year participation). Over the 2 years 2017–2018, participation was highest at above 57% for women aged 45–49, 50–54, and 55–59. Over the 3 years 2016–2018, participation was highest at above 70% for women aged 40–44, 45–49, 50–54 and 55–59.

The number of cervical screening tests performed each month in each year from 2016 to 2018 was then analysed to determine if there were any changes in patterns either leading up to, or after the commencement of, the renewed NCSP on 1 December 2017 (Figure 3.3).

Figure 3.2: Preliminary participation in cervical screening, by age group, 2017–2018 and 2016–2018

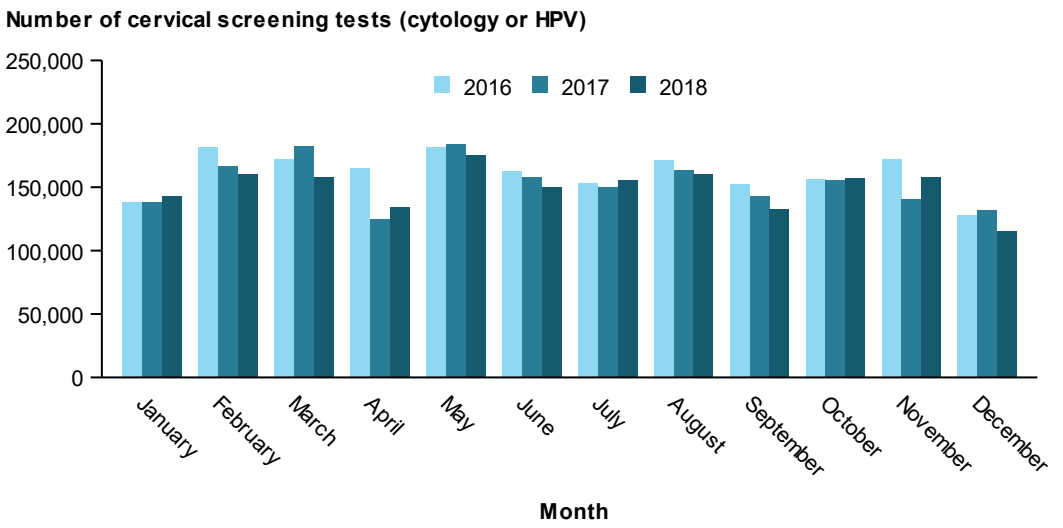


Note: Includes pre-renewal and post-renewal data.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A1.1.

In general, the number of tests performed each month in 2018 followed the same trend as the number of tests performed each month in the years 2016 and 2017. The notable exceptions to this were April and November, during which the number of tests were lower in 2017 than in 2016. These months align with the final month leading up to the first planned date of renewed NCSP of 1 May 2017, and the actual date of the renewed NCSP of 1 December 2017. However, it was also observed that participation tended to be lower in months with national holidays, which may have also played a role in this trend.

Figure 3.3: Preliminary number of cervical screening tests (cytology or HPV) per month, women aged 25–69, 2016 to 2018



Note: Includes pre-renewal and post-renewal data.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A1.3.

Preliminary estimates

These results use a methodology to estimate participation during the transition.

Participation in the renewed NCSP

The following analyses are specific to 2018, which is after the commencement of the renewed NCSP. From this time onwards, most women who participate in the renewed NCSP would be expected to have a CST (Cervical Screening Test)—which is an HPV test with partial genotyping and, if the HPV test detects oncogenic HPV, reflex LBC (liquid based cytology). However, there are some instances where cytology alone is indicated.

For woman aged 25–74 in 2018:

- If any type of cervical screening test (HPV, LBC or conventional cytology (Pap) test) is counted, as in the previous section, 1,800,823 women screened
- If only HPV tests are counted, 1,795,395 women screened
- If only HPV tests are counted for which the reason recorded was 'primary screening HPV test', 1,514,097 women screened.

While in theory the latter number should be used, in practice one of the two former numbers are considered appropriate to provide an overall indication of the number of women who participated in cervical screening, whether as an initial test or as part of a further diagnostic or post treatment pathway, under the renewed NCSP.

The following analyses relate to the number of women who had any HPV test in 2018, which was selected as the primary measure of participation for this report.

Box 3.2: Estimating participation for the single year 2018

While there are limitations in estimating a participation rate from a single year of data while the NCSP is transitioning from the previous 2-yearly Pap test program to the renewed 5-year HPV test program, the eligible population for 2018 was halved (to approximate a population for 2-yearly participation relevant for a single year of data) and used as a denominator to indicate what the level of participation may be.

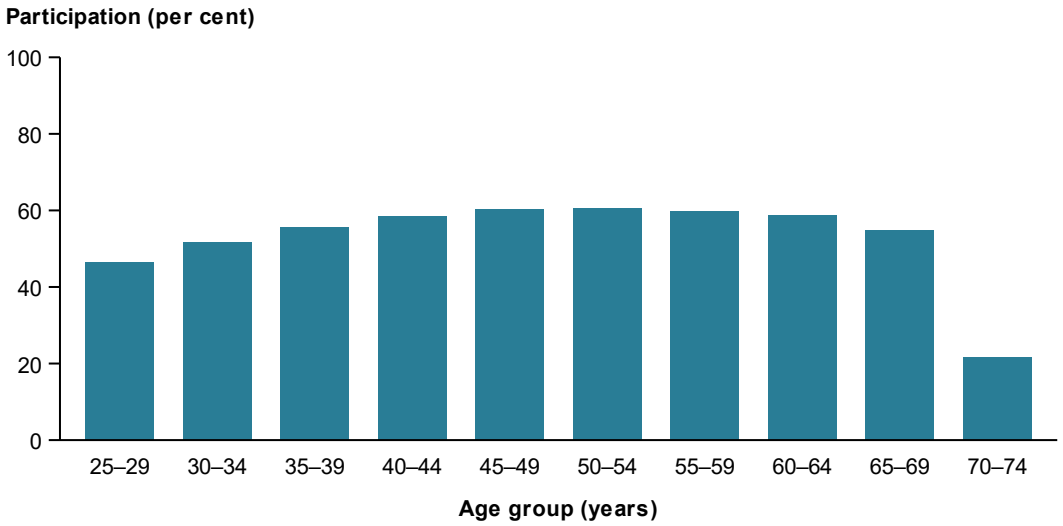
Participation rates using this method are only estimates of what the true rates may be. There may be large differences between these estimates and future estimates as additional data are available for use in producing estimates, and therefore caution should be applied.

Estimating participation for women aged 25–74 in 2018 using the methodology described in Box 3.1 produced an estimated participation rate of 53.7%.

In terms of the proportion of women in the population who screened (using the methodology described in Box 3.1), half the eligible 2018 population was again used to estimate the proportion of women who participated by 5-year age group in the target age range 25–74. Women aged 45–59 had the highest participation of 60%, with all other age groups above 50% participation except for women aged 25–29 at 46.4% and women aged 70–74 at 21.5% (Figure 3.4).

Participation across remoteness area, socioeconomic area, Indigenous status and culturally and linguistically diverse status is examined in the following sections. Where data permitted, analyses used the number of women aged 25–74 who had any HPV test in 2018 to determine the number who participated in cervical screening across groups, and half the 2018 population, divided across these same groups, to estimate participation.

Figure 3.4: Preliminary estimated participation in cervical screening, by age group, 2018



Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A1.4.

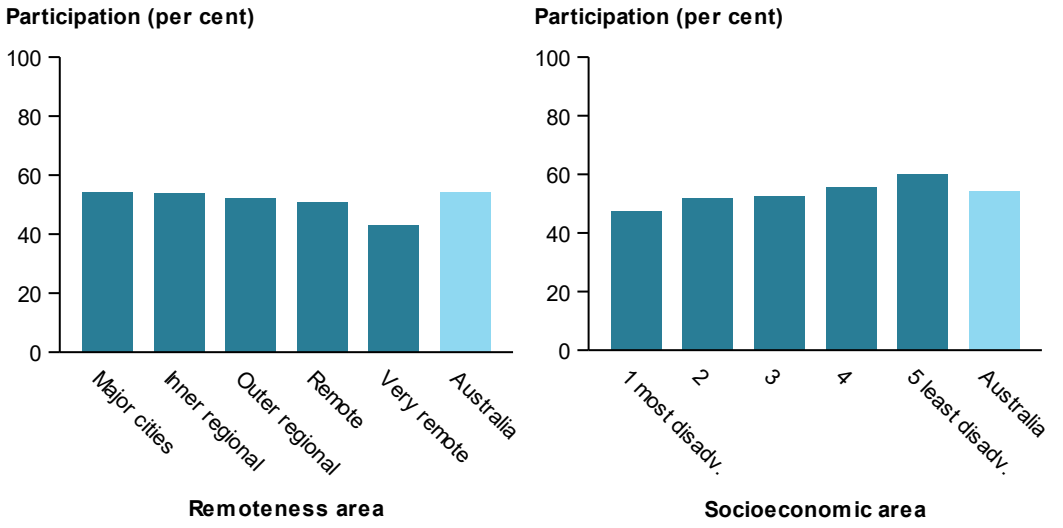
Participation by remoteness area in 2018

A trend of decreasing participation with increasing remoteness was apparent (Figure 3.5). Participation in cervical screening was highest for women residing in *Major cities* and *Inner regional* areas at 54.1% and 53.7%, respectively, followed by women residing in *Outer regional* and *Remote* areas at 52.1% and 50.7%, respectively. Participation was lowest for women residing in *Very remote* areas, at 43.1%.

Participation by socioeconomic area in 2018

A trend of decreasing participation with increasing socioeconomic disadvantage was apparent (Figure 3.5). Participation in cervical screening was highest for women residing in areas with lowest disadvantage at 59.9%; thereafter, it decreased with increasing disadvantage to be lowest for women residing in areas of highest disadvantage at 47.5%.

Figure 3.5: Preliminary estimated participation, by remoteness area and socioeconomic area, women aged 25–74, 2018



Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in tables A1.6 and A1.7.

Participation by Indigenous Australians

There is evidence that Indigenous women are under-screened. Recent research, using data linkage to transfer Indigenous status from the Queensland Health Admitted Patient Data Collection to data from the Queensland Health Pap Smear Register, has provided new insights into participation of Indigenous women in cervical screening in Queensland. In this study, 2-year participation was more than 20 percentage points lower for Indigenous women than for non-Indigenous women for all reporting periods examined from 2000–2001 to 2010–2011; in 2010–2011, 2-year participation was 33.5% for Indigenous women and 55.7% for non-Indigenous women (Whop et al. 2016).

The rate of cervical screening in Indigenous women attending Indigenous-specific primary health-care services is also measured as part of the National Key Performance Indicators (nKPIs) Data Collection. The latest data indicate that 27% of regular female Indigenous clients had a cervical screening test in the previous 2 years as at December 2017; 35% had one in the previous 3 years and 43% in the previous 5 years (AIHW 2018).

It has not been possible to report Indigenous participation in cervical screening at the national level using cervical screening register data because, previously, the only source of cervical screening register data was pathology forms, which did not always include Indigenous status in all states and territories.

The NCSR has 2 measures of Indigenous status, primarily sourced from Medicare (through the Medicare Voluntary Indigenous Identifier), with some additional data from state and territory cervical screening registers (collected before their migration to the NCSR), and from cytology and colposcopy reports to the NCSR. These are:

- ‘Most recent Indigenous status’ which indicates the most recently reported Indigenous status against the following categories:
  - Aboriginal but not Torres Strait Islander origin
  - Torres Strait Islander but not Aboriginal origin
  - Both Aboriginal and Torres Strait Islander origin
  - Neither Aboriginal nor Torres Strait Islander origin
  - Not stated or inadequately described
- ‘Ever Indigenous status’ which indicates if a participant has ever indicated they were of Aboriginal or Torres Strait Islander origin against to the following categories:
  - Aboriginal
  - Torres Strait Islander
  - Aboriginal and Torres Strait Islander
  - Never indicated Aboriginal or Torres Strait Islander.

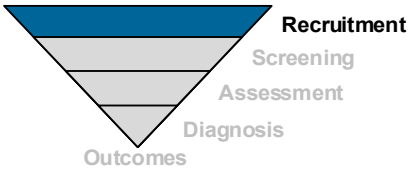
However, of the women aged 25–74 who had an HPV test in 2018, 29.0% had not stated their Indigenous status. This level of incomplete Indigenous status data in the NCSR does not support the estimation of cervical screening by Indigenous status at this time.

Further work will need to occur over the coming years to improve Indigenous identification on the NCSR and explore additional methodology to enable participation of Indigenous women to be estimated using NCSR data.

Participation by culturally and linguistically diverse status

There are 2 fields on the NCSR that are newly-collected for the NCSP related to identifying culturally and linguistically diverse (CALD) women. These are ‘Main language other than English spoken at home’ and ‘Country of birth’.

However, these new fields are not currently sufficiently populated in the NCSR to estimate participation in cervical screening by CALD status. The field ‘Main language other than English spoken at home’ was not populated for 94.9% of women aged 25–74 who had an HPV test in 2018 (only 0.04% reported speaking only English at home); the ‘Country of birth’ field was not populated for 64.0% of these women (only 4.8% had a country of birth of Australia).



Performance indicator 2: Response to invitation

Summary of response to invitation data

Of the 19,535 women aged 25–74 sent an invitation to screen or rescreen in 2018, 19.8% had an HPV test within 6 months.

Definition

The percentage of women aged 25–74 invited to screen or rescreen in a calendar year and who screened within 6 months.

Rationale

How many women screen in response to an invitation provides a measure of the effectiveness of sending invitations. Measuring response to invitation by mode of invitation will also provide useful information as to the most effective method of inviting women (which may differ by age or other factors).

Guide to interpretation

A higher response rate is better.

Data considerations

Invitations in this performance indicator are restricted to invitations to screen and invitations to rescreen. The NCSP has developed protocols for use during the transition that will differ from those that will be used following transition. Reminders to screen or rescreen were excluded.

Data are based on the number of invitations sent, not the number of women who received an invitation, which cannot be known. While return to sender notifications can provide some information on the number of women who received an invitation, not all individuals who receive a letter addressed to someone else will advise that it should be returned to the sender, so this will not give a complete number of individuals who did not receive a letter.

In this report this indicator requires complete screening test data to 30 June 2019 to capture all screens that occurred within 6 months of invitations sent in 2018.

Results

In 2018, there were 19,535 women aged 25–74 sent an invitation to screen or rescreen. Of these:

- 18,183 women were sent an invitation to screen; all were aged 25–29
- 0 women were sent an invitation to screen where they were eligible to self-collect
- 256 women were sent an invitation to rescreen
- 1,096 women were sent an invitation to rescreen where they were eligible to self-collect; almost all were aged 70–74.

Within 6 months of the date the invitation was sent, 3,874 women had an HPV test for any reason, and 3,463 women had a primary screening HPV test specifically (the latter being a subset of the former). This was 19.8% and 17.7%, respectively, of women aged 25–74 who were sent an invitation in 2018.

Because most invitations were sent to women aged 25–29, small numbers do not support calculation of response to invitation for 5-year age groups.

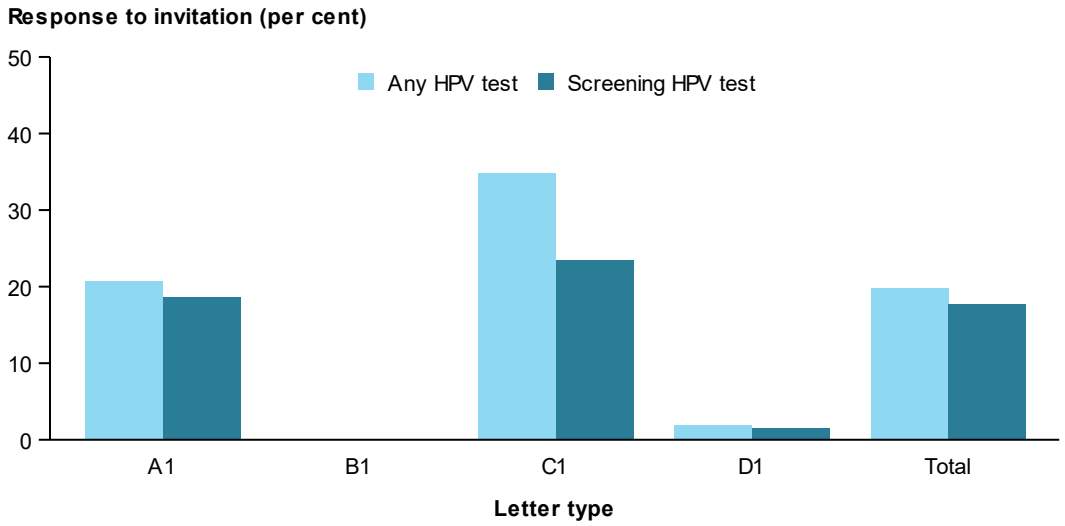
The proportion of women aged 25–74 who screened within 6 months of an invitation to screen or rescreen is shown by letter type in Figure 3.6.

Invitations with the highest response were of the letter type 'C1 Invitation to rescreen'. After the transition, this invitation type will be used for women due for a rescreen 5 years after their last HPV test. During the transition, however, it is most likely used to invite women with prior abnormalities to rescreen. This might explain why a higher proportion of these letters were followed within 6 months by an HPV test for a reason other than a primary screening HPV test.

Invitations with the next highest response were of letter type 'A1 Invitation to screen'. No women were sent 'B1 Invitation to screen eligible to self-collect' and very few were sent 'D1 invitation to rescreen eligible to self-collect', which are invitations sent to women who are eligible to self-collect the sample for their screening HPV test.

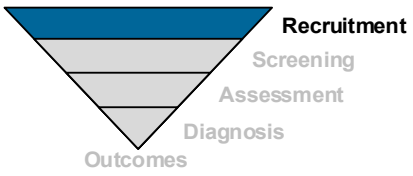
For all letter types other than 'C1 Invitation to rescreen', almost all HPV tests performed within 6 months of the letter being sent were for the purpose of primary screening.

Figure 3.6: Proportion of women who screened within 6 months of invitation to screen or rescreen, by letter type, women aged 25–74, 2018



A1 = invitation to screen; B1 = invitation to screen eligible to self-collect; C1 = invitation to rescreen; D1 = invitation to rescreen eligible to self-collect.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A2.3



Performance indicator 3: Rescreening

Summary of rescreening data

Of the women aged 25–74 screened in 2018 who had a normal Pap test within the preceding 5 years:

- 8.0% rescreened early
- 75.7% rescreened appropriately
- 16.3% rescreened late.

Definition

The percentage of women aged 25–69 whose screening HPV test in the index calendar year did not detect oncogenic HPV who rescreened within a specified period of time.

Rationale

The proportion of the target population screened within the recommended screening interval is a key determinant of the success of a screening program; screening more often than recommended increases costs, with minimal or no reduction in incidence and/or mortality; screening less often than recommended decreases overall participation in screening and means that fewer women with precancerous abnormalities can be treated—necessary to achieve the overall aim of reducing incidence and mortality from cervical cancer. This indicator measures the proportion of women who rescreened early, appropriately, or late.

Guide to interpretation

A higher rescreen rate within an appropriate interval is better.

Data considerations

More than 5 years need to have passed since the inception of the renewed NCSP to allow this performance indicator to be measured as per the definition, since it is intended to measure rescreening within 5.5 years of a screen under the renewed NCSP. In the interim, an alternative method of deriving rescreening has been used, which is to select a cohort of women who screened in 2018 who had a normal Pap test in the preceding 5 years under the previous NCSP to determine time between their last normal Pap test and their first HPV test:

- early rescreen—a woman's previous normal Pap test was fewer than 21 months before her first screen in 2018 under the renewed NCSP
- appropriate rescreen—a woman's previous normal Pap test was between 21 months and 3 years before her first screen in 2018 under the renewed NCSP (this will capture those women who screened after receiving a reminder letter 27 months after their last Pap test)
- late rescreen—a woman's previous normal Pap test was between 3 and 5 years before her first screen in 2018 under the renewed NCSP.

In this report this indicator requires complete screening test data from 1 January 2013 to 31 December 2018 to capture all screens that occurred in 2013, 2014, 2015, 2016, 2017 and 2018.

Results using alternative methodology

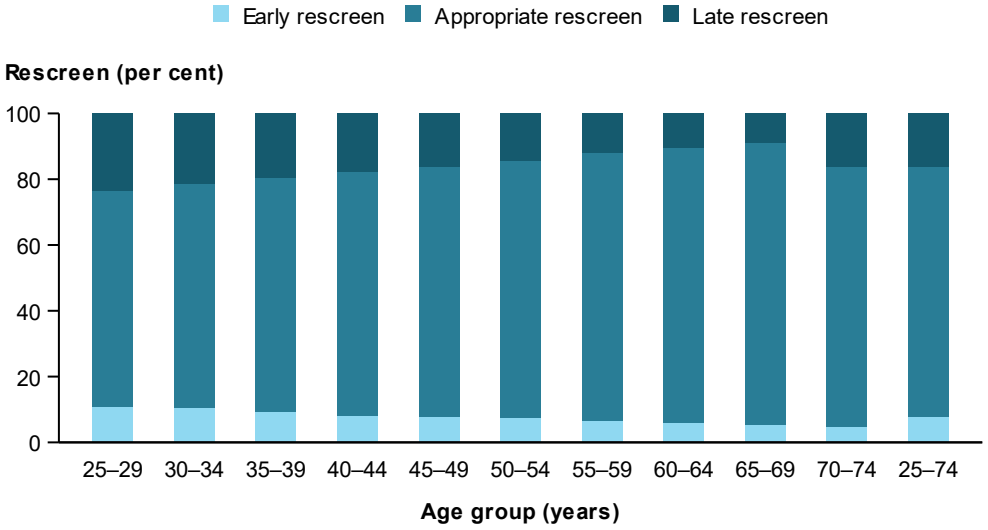
These results use an alternative methodology to calculate rescreening during the transition.

There were 1,149,602 women aged 25–74 screened in 2018 under the renewed NSCP who had a normal Pap test within the preceding 5 years under the previous NCSP. Of these:

- 91,656 (8.0%) had an early rescreen in 2018
- 870,466 (75.7%) had an appropriate rescreen in 2018
- 187,480 (16.3%) had a late rescreen in 2018.

These data are shown for 5-year age groups and for all women aged 25–74 in Figure 3.7.

Figure 3.7: Proportion of women aged 25–74 who rescreened in 2018 after a previous normal Pap test, by rescreening category



Early rescreen = fewer than 21 months; Appropriate rescreen = between 21 and 3 years; Late rescreen = between 3 and 5 years.

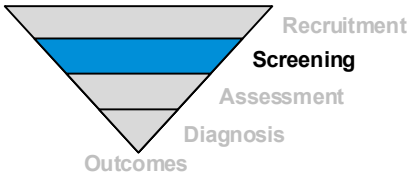
Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A3.1.

Younger women and women aged 70–74 were more likely to rescreen late.

The latter may be related to the change in the upper end of the target age group from 69 (under the previous NCSP) to 74 (under the renewed NCSP); that is, women aged 70–74 may have completed screening under the previous NCSP before being invited to screen again under the renewed NCSP. For a proportion of women in this age group, this would have been more than 2 years after their previous normal Pap test.

Across all age groups few women rescreened early, which is a favourable outcome.

The majority of women (75.7%) rescreened between 21 months and 3 years of their previous normal Pap test. This will include women who rescreened within 27 months (considered 2-yearly rescreening) and those who rescreened after receiving a reminder to rescreen letter 27 months after her previous normal Pap test. Women aged 55–69 had the highest rate of appropriate rescreening, with more than 80% of women of this age who screened in 2018 doing so between 21 months and 3 years of their previous normal Pap test.



3.2 Screening

Performance indicator 4: Screening results

Summary of primary screening episode data

Of the 1,523,868 primary screening episodes in 2018 in women aged 25–74:

- 91.1% were low risk
- 6.2% were intermediate risk
- 2.5% were higher risk
- 0.2% could not be assigned a risk.

Definition

The percentage of primary screening episodes in each risk category in a calendar year in women aged 25–74.

Rationale

Distribution of primary screening episode results is a key measure for the screening program and any changes in these distributions over time will require investigation within the broader context of the screening program.

Guide to interpretation

There are 3 risk categories (low, intermediate and higher) for a primary screening test, determined by different combinations of HPV test results and (where indicated) LBC test results. Risk refers to the risk for significant cervical abnormality. Determination of risk and its consequences are shown in the screening pathway (see Figure 2.1):

- An HPV test that does not detect oncogenic HPV indicates low risk for significant cervical abnormality, and no reflex LBC is performed.
- An HPV test that detects oncogenic HPV type 16 or 18 indicates higher risk for significant cervical abnormality, and while reflex LBC is performed, the outcome of this test does not affect the risk.
- An HPV test that detects an oncogenic HPV type other than 16 or 18 does not indicate a risk on its own, but requires reflex LBC to be performed to determine whether risk is intermediate or higher.

There are also some primary screening episodes for which a risk cannot be allocated, usually due to unsatisfactory tests. Repeat screening episodes are required to allocate a risk.

A reflex LBC will be performed only when the HPV test detects oncogenic HPV. LBC test results are the same as Pap test results from the previous NCSP. Possible test results are:

- negative (no squamous abnormality detected)
- low-grade squamous abnormality (possible or definite low-grade intraepithelial lesion)
- high-grade squamous abnormality (possible or definite high-grade intraepithelial lesion or squamous cell carcinoma)
- glandular abnormality (any possible or definite abnormality or adenocarcinoma).

The reflex LBC can also be unsatisfactory for evaluation.

For primary screening episodes where the HPV test detected an oncogenic HPV type other than 16 or 18 (and therefore requires reflex LBC for a risk to be allocated):

- a reflex LBC test result of negative or low-grade squamous abnormality indicates intermediate risk
- a reflex LBC test result of high-grade squamous abnormality or glandular abnormality indicates higher risk.

Data considerations

In this report this indicator requires complete screening test data to 31 December 2018 to capture all screens that occurred in 2018.

Results

In 2018, there were 1,549,899 primary screening episodes, 1,523,868 of which occurred in women in the target age group 25–74. These 1,523,868 primary screening episodes were assigned to 1 of the 3 risk categories of low, intermediate or higher (or were unable to be assigned) based on the combination of the HPV test result and (where indicated) the reflex LBC test result (Table 3.2). This is fully explained in the 'Guide to interpretation' for this performance indicator.

In Table 3.2, low risk is indicated by light blue shading, intermediate risk by medium blue shading, and higher risk by darker blue shading. Primary screening episodes for which a risk could not be assigned have no shading.

Table 3.2: Screening HPV ± LBC test results, women aged 25–74, 2018

	Primary screening HPV test result			
Reflex LBC test result	Unsatisfactory*	Oncogenic HPV not detected*	Oncogenic HPV (not 16/18) detected	Oncogenic HPV 16/18 detected
LBC not indicated	2,082	1,387,906	. .	. .
LBC Unsatisfactory	. .	. .	1,472	689
LBC Negative	. .	. .	65,304	19,282
LBC Squamous low-grade abnormality	. .	. .	28,925	7,020
LBC Squamous high-grade abnormality or squamous cell carcinoma	. .	. .	5,933	4,800
LBC Glandular abnormality or adenocarcinoma	. .	. .	96	237
LBC not performed after oncogenic HPV detected**	. .	. .	78	43

* LBC not performed after an HPV test that was unsatisfactory or where oncogenic HPV was not detected.

** LBC not performed after oncogenic HPV detected (only applies to self-collected samples; LBC for these screening episodes only includes those with a reason of 'C2 = Cytology after detection of oncogenic HPV in self-collected sample'; no risk is allocated for these episodes).

Note: One primary screening HPV test did not have an HPV test result (and LBC was not performed) so this primary screening episode could not be allocated to a screening HPV ± LBC test result category.

Overall, of the 1,523,868 primary screening episodes in 2018 in women aged 25–74:

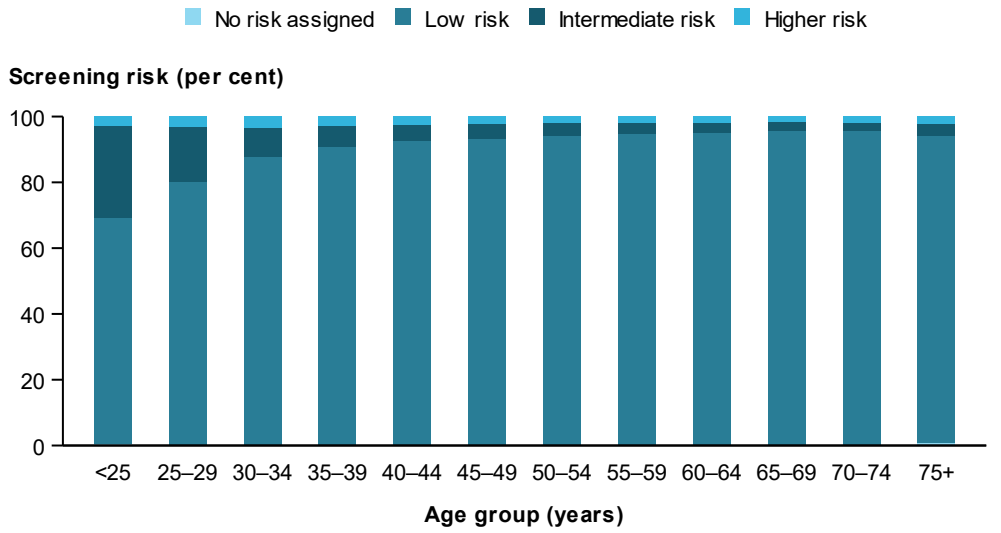
- 1,387,906 (91.1%) were low risk for a high-grade cervical abnormality
- 94,229 (6.2%) were intermediate risk for a high-grade cervical abnormality
- 38,100 (2.5%) were higher risk for a high-grade cervical abnormality
- 3,632 (0.2%) could not be assigned a risk because either they were unsatisfactory for evaluation, or there was no LBC test performed following a self-collected sample for which the HPV test detected an oncogenic HPV type other than 16 or 18.

Risk categories for each age group are shown in Figure 3.8.

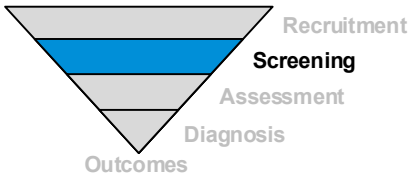
The proportion of primary screening episodes that were low risk was lower, and the proportion that were intermediate risk was higher, for younger women. This indicates that, in women aged less than 35 (and increasingly so with decreasing age), it was relatively common that an oncogenic HPV type other than 16 or 18 was detected during the screening episode, and that the LBC test result was either negative or low-grade (see Figure 2.1).

The proportion of primary screening episodes for which risk could not be assigned was very low for all age groups (too low to be visible in Figure 3.8).

Figure 3.8: Primary screening episode risk categories, by age group, 2018



Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A4.1.



Performance indicator 5: Correlation of screening results

Summary of correlation of screening data

No data reported for this performance indicator.

Definition

The level of agreement between screening results in a calendar year and subsequent histology test results within 6 months in women aged 25–74.

Rationale

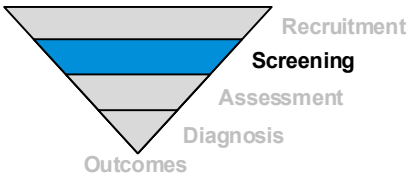
The correlation between a positive screening test result and the histology test or 'truth' (where this is performed) is a key measure of the accuracy of the HPV test, LBC test, and overall risk assigned to a screening episode.

Data considerations

Calculation of this performance indicator requires histology data, the coding of which was not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete histology data to 30 June 2019 to capture all histology tests that occurred within 6 months of screens in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 6: Screening HPV test positivity

Summary of screening HPV test positivity data

Of the 1,523,868 primary screening HPV tests performed in 2018 in women aged 25–74:

- 2.1% were positive for oncogenic HPV types 16 or 18
- 6.7% were positive for oncogenic HPV types other than 16 or 18.

Definition

The percentage of screening HPV tests that are positive for HPV in a calendar year in women aged 25–74.

Rationale

Monitoring the positivity rate provides important information about a screening test.

There are 3 measures of positivity relevant to the NCSP: 'any oncogenic HPV positivity' (proportion of HPV tests positive for any oncogenic HPV type), 'oncogenic HPV 16/18 positivity' (proportion of HPV tests positive for oncogenic HPV type 16 or 18), and 'oncogenic HPV (not 16/18) positivity' (proportion of HPV tests positive for oncogenic HPV types other than 16 or 18). Screening HPV test positivity is calculated only for primary screening HPV tests. Repeat screening HPV tests and HPV tests performed for other reasons are not included as these may be more likely to be positive than primary screening HPV tests.

Data considerations

HPV vaccination was introduced in Australia on 1 April 2007. As some HPV vaccinated individuals are now at the age at which they are participating in cervical screening, it is necessary to consider the impact of HPV vaccination on screening HPV test positivity.

It is useful to distinguish between women who were offered HPV vaccination (since these women are more likely to be vaccinated against HPV), and those who were not.

Date of birth was used to determine whether HPV vaccination had been offered. Women born after 30 June 1980 were considered to have been offered HPV vaccination as these women were eligible for HPV vaccination when the school program commenced in April 2007 and the primary care catch up program commenced in July 2007. Women born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these women were outside the eligible age for HPV vaccination.

The oncogenic HPV types against which women are likely to have been vaccinated is also highly relevant. Before 2018, the HPV vaccine used was against oncogenic HPV 16 and 18, which means that the majority of HPV vaccinated women will be protected against only these 2 oncogenic HPV types, with some limited cross protection against closely related types.

From 2018, an HPV vaccine effective against the oncogenic HPV types 16, 18, 31, 33, 45, 52 and 58 was introduced (the latter 5 are the next 5 most common HPV types, after types

16 and 18, that cause cervical cancer.) However, it will be some time before individuals vaccinated against these oncogenic HPV types start cervical screening.

In this report this indicator requires complete screening test data to 31 December 2018 to capture all screens that occurred in 2018.

Results

There were 1,549,898 primary screening HPV tests in 2018, with 1,523,868 of these in women in the target age group 25–74.

Screening HPV test positivity was determined for women aged 25–74, as well as separately for women who had been offered or not offered HPV vaccination, according to their age.

Screening HPV test positivity was also calculated as an overall positivity for any type of oncogenic HPV, as well as separately for HPV tests that were positive for oncogenic HPV types 16 or 18 and those that were positive for oncogenic HPV types other than 16 or 18.

Screening HPV test positivity results for these 9 permutations are shown in Table 3.3.

The results indicate that screening HPV test positivity for oncogenic HPV types 16 or 18 was low, irrespective of age, with oncogenic HPV 16 or 18 detected in around 2% of primary screening HPV tests (2.1% of primary screening HPV tests in women aged 25–74, 2.3% in women offered HPV vaccination, and 2.0% in women not offered HPV vaccination).

In contrast, screening HPV test positivity for oncogenic HPV types other than 16 or 18 varied considerably, depending on whether women were of an age at which HPV vaccination was offered or not offered. Screening HPV test positivity was 12.8% of primary screening HPV tests for women young enough to have been offered HPV vaccination and 4.1% in women too old to have been offered HPV vaccination.

Table 3.3: Screening HPV test positivity, by age and by oncogenic HPV type, 2018

	Screening HPV test positivity (%)		
Age	**Oncogenic HPV 16/18 detected**	**Oncogenic HPV (not 16/18) detected**	**Oncogenic HPV (any type) detected**
Target age group 25–74	2.1	6.7	8.8
Age indicates were offered HPV vaccination[(a)]	2.3	12.8	15.1
Age indicates were not offered vaccination[(b)]	2.0	4.1	6.1

(a) Women born after 30 June 1980 were considered to have been offered HPV vaccination as these women were eligible for the school or catch-up program during 2007.

(b) Women born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these women were outside the eligible age for HPV vaccination.

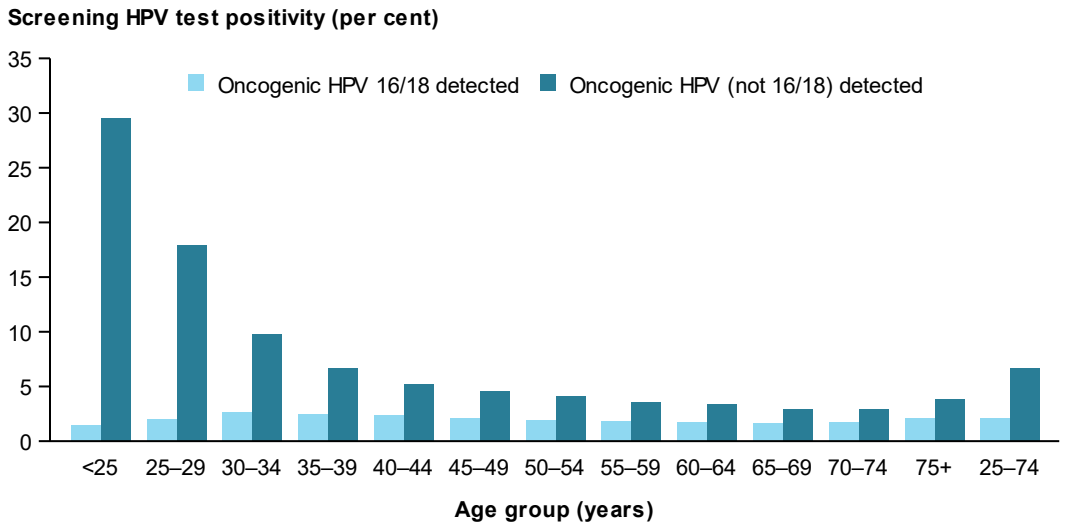
Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Higher screening HPV test positivity in women who had been offered HPV vaccination seems counterintuitive, but is an expected result for screening HPV test positivity for oncogenic HPV types other than 16 and 18, since the higher infection rates of HPV in younger women (that thereafter decline with increasing age) would not be affected by HPV vaccination for these oncogenic HPV types, as only 16 or 18 were included in the HPV vaccine that the majority of these women would have received (Brotherton et al. 2019b).

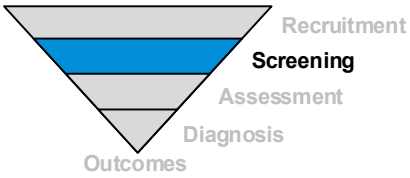
With age being such an important factor for this performance indicator, screening HPV test positivity was further examined by 5-year age groups (see Figure 3.9). Here, the effect of HPV vaccination on screening HPV test positivity described earlier is apparent: positivity of HPV types 16 and 18 (included in the HPV vaccine these women received) is low across all age groups, and positivity of HPV types other than 16 and 18 (not included in the vaccine)

shows the more typical pattern before HPV vaccination was introduced—namely, that the rates of these other HPV types was highest among the youngest women (<25 years) and thereafter decreased with increasing age.

Figure 3.9: Screening HPV test positivity, by age group and by oncogenic HPV type, 2018



Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A6.1.



Performance indicator 7: Cervical cancer diagnosed after a low risk screening test result

Summary false negative rate of the screening HPV test data

No data reported for this performance indicator.

Definition

The percentage of women aged 25–74 who are diagnosed with cervical carcinoma within 5 years of a screening HPV test that did not detect oncogenic HPV.

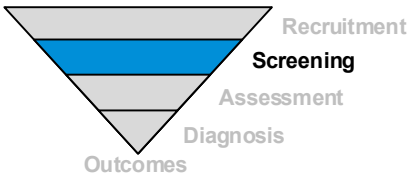
Rationale

This measures the false negative rate of the screening HPV test.

Data considerations

Calculation of this performance indicator requires data linkage between the NCSR and the Australian Cancer Database (ACD), which will be undertaken in future monitoring reports.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 8: Self-collection women positive for oncogenic HPV (not 16/18) who have an LBC test within 6 months

Summary data for women who have an LBC test within 6 months of a self-collected sample in which an oncogenic HPV type other than 16 or 18 is detected

In 2018, of the 115 women aged 30–74 who had a self-collected sample that detected an oncogenic HPV type other than 16 or 18, 75 (65.2%) had an LBC test within 6 months.

Definition

The percentage of women aged 30–74 who self-collect and test positive for oncogenic HPV (not 16/18) in a calendar year who have an LBC test within 6 months.

Rationale

Under the renewed NCSP, women aged 30 or over who are 2 years or more overdue for cervical screening are eligible to self-collect a vaginal sample which is tested for oncogenic HPV. However, this sample is not suitable for reflex LBC. This becomes an issue if the HPV test result is 'Oncogenic HPV (not 16/18) detected', as the woman needs to have a separate sample collected for a reflex LBC test to determine whether her risk is intermediate or higher (if the HPV test result is 'Oncogenic HPV 16/18 detected', the woman is considered higher risk and referred for colposcopy, with the reflex LBC then performed at colposcopy).

Women who self-collect and test positive for an oncogenic HPV type other than 16 or 18 are recommended to have a practitioner-collected sample taken within 6 weeks. This indicator monitors compliance with this recommendation within 6 months, by which time it is considered most women would have been able to attend an appointment with a practitioner.

Guide to interpretation

A higher percentage is better.

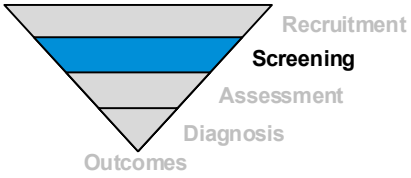
Data considerations

Women are eligible to self-collect only when they reach age 30. Therefore, this performance indicator is calculated for women aged 30–74 rather than 25–74. Some women may have colposcopy and/or histology in the absence of LBC which would increase the percentage followed up. However, these tests are outside the scope of this performance indicator.

In this report this indicator requires complete screening test data to 30 June 2019 to capture all LBC tests that occurred within 6 months of self-collected screens in 2018.

Results

In 2018, there were 1,427 women aged 30–74 who self-collected the sample for their primary screening HPV test, with 115 women found to be positive for an oncogenic HPV type other than 16 or 18. Of these 115 women, 75 (65.2%) had an LBC test within 6 months of their primary screening HPV test. The small numbers do not support any further breakdowns for this performance indicator.



Performance indicator 9: Self-collection women positive for oncogenic HPV 16/18 who have a colposcopy within 6 months

Summary data for women who have a colposcopy within 6 months of a self-collected sample in which an oncogenic HPV type 16 or 18 is detected

No data reported for this performance indicator.

Definition

The percentage of women aged 30–74 who self-collect and test positive for oncogenic HPV 16/18 in a calendar year who have a colposcopy within 6 months.

Rationale

Under the renewed NCSP, women aged 30 or over who are 2 years or more overdue for cervical screening are eligible to self-collect a vaginal sample which is tested for oncogenic HPV. If the HPV test result is 'Oncogenic HPV 16/18 detected', the woman is considered higher risk and referred for colposcopy.

Women who self-collect and who test positive for oncogenic HPV type 16 or 18 are recommended to have a colposcopy within 8 weeks. This indicator monitors compliance with this recommendation within 6 months, by which time it is considered most women would have been able to attend an appointment with a colposcopist.

Guide to interpretation

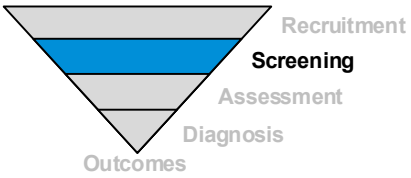
A higher percentage is better.

Data considerations

Calculation of this performance indicator requires colposcopy and histology data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy and histology data to 30 June 2019 to capture all colposcopies that occurred within 6 months of self-collected screens in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 10: Adherence to recommendation for follow-up

Summary adherence to recommendation for follow-up data

No data reported for this performance indicator.

Definition

The percentage of women aged 25–74 who are determined to be of intermediate risk as the result of a screening episode in a calendar year who have a follow-up/repeat HPV test between 9 and 15 months.

Rationale

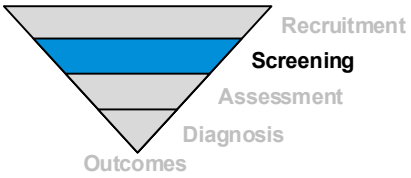
Women who test positive for oncogenic HPV (not 16/18) and have a negative or pLSIL/ LSIL reflex LBC test result are considered to be of intermediate risk, and are recommended to have a follow-up/repeat HPV test in 12 months. This indicator monitors compliance with this recommendation (allowing 3 months either side of the recommended 12 months).

Data considerations

Calculation of this performance indicator requires 15 months to have passed after the end of the reporting period (currently 31 December 2018) to know if women had their follow-up HPV test between 9 and 15 months after their screening episode in 2018. When this report was prepared, data were available to October 2019, which is only 10 months after the end of the reporting period. Therefore, this performance indicator cannot be calculated at this time.

In this report this indicator requires complete screening test data to 31 March 2020 to capture all follow-up HPV tests that occurred within 15 months of screens in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 11: Follow-up results

Summary repeat screening episode data

Of the 2,747 repeat screening episodes in 2018 in women aged 25–74:

- 32.4% were low risk
- 67.5% were higher risk
- 0.1% could not be assigned a risk.

Definition

The percentage of repeat screening episodes in each risk category in a calendar year in women aged 25–74.

Rationale

Follow-up results are the repeat screening HPV test result and reflex LBC test result (where indicated) that occur around 12 months (defined as between 9 and 15 months) after an intermediate risk screening episode result. Distribution of repeat screening episode results is a key measure for the screening program and any changes in these distributions over time will require investigation within the broader context of the screening program.

Guide to interpretation

There are 2 possible risk categories (low and higher) for a repeat screening test that is determined by the HPV test result. Although the LBC test result does not affect risk, reflex LBC is still performed where this is indicated. Risk refers to the risk for significant cervical abnormality, illustrated in the screening pathway in Figure 2.1:

- Because women who have a repeat screening test have already tested positive for an oncogenic HPV type, women who test positive for any oncogenic HPV type at their repeat screening HPV test are considered to be at higher risk.
- Women whose repeat screening HPV test does not detect oncogenic HPV are considered to have cleared their HPV infection and are considered to be low risk and are returned to 5-yearly screening.

Only in the case of an unsatisfactory HPV test will a risk be unable to be allocated.

A reflex LBC will be performed only when the HPV test detects oncogenic HPV. LBC test results are the same as Pap test results from the previous NCSP. Possible test results are:

- negative (no squamous abnormality detected)
- low-grade squamous abnormality (possible or definite low-grade intraepithelial lesion)
- high-grade squamous abnormality (possible or definite high-grade intraepithelial lesion or squamous cell carcinoma)
- glandular abnormality (any possible or definite abnormality or adenocarcinoma)

The reflex LBC can also be unsatisfactory for evaluation.

Data considerations

A repeat screening test occurs 12 months after a woman is deemed to be at intermediate risk as a result of her primary screening HPV test and reflex LBC test results.

In this report this indicator requires complete screening test data to 31 December 2018 to capture all follow-up HPV tests that occurred in 2018.

Results

In 2018, there were 3,121 repeat screening episodes, 2,747 of which occurred in women in the target age group 25–74; these episodes were assigned to 1 of the 2 risk categories of low or higher (or were unable to be assigned to a risk category) (Table 3.4). This is fully explained in the 'Guide to interpretation' for this performance indicator.

In Table 3.4, low risk is indicated by light blue shading and higher risk is indicated by darker blue shading. Screening episodes for which a risk could not be assigned have no shading.

Table 3.4: Repeat screening HPV ± LBC test results, women aged 25–74, 2018

	Repeat screening HPV test result			
Reflex LBC test result	Unsatisfactory*	Oncogenic HPV not detected*	Oncogenic HPV (not 16/18) detected	Oncogenic HPV (16/18) detected
LBC not indicated	2	890	. .	. .
LBC Unsatisfactory	. .	. .	21	1
LBC Negative	. .	. .	1,031	29
LBC Squamous low-grade abnormality	. .	. .	620	19
LBC Squamous high-grade abnormality or squamous cell carcinoma	. .	. .	130	3
LBC Glandular abnormality or adenocarcinoma	. .	. .	1	0

* LBC not performed after an HPV test that was unsatisfactory or where oncogenic HPV was not detected.

Note: One repeat screening HPV test detected oncogenic HPV (not 16/18) but did not have an LBC test result.

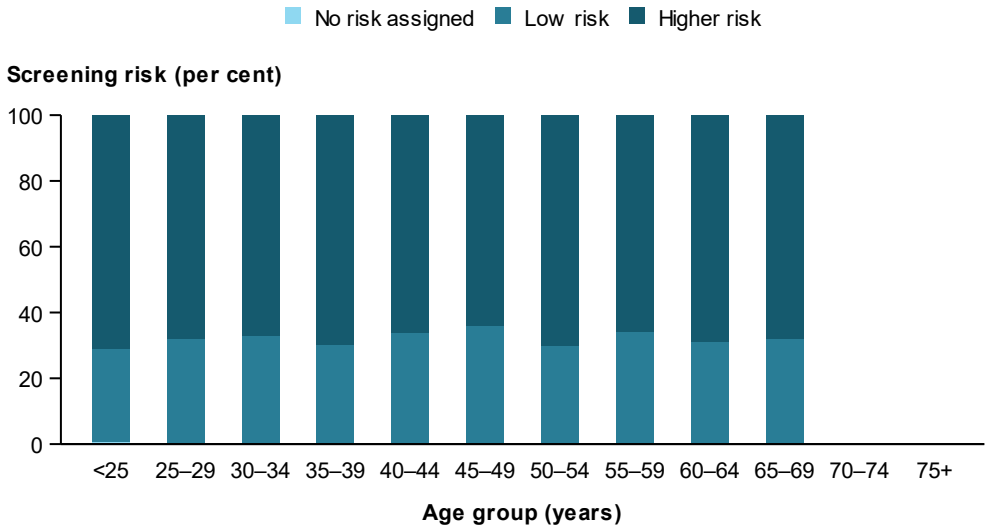
Overall, of the 2,747 repeat screening episodes in 2018 in women aged 25–74:

- 890 (32.4%) were low risk for a high-grade cervical abnormality
- 1,855 (67.5%) were higher risk for a high-grade cervical abnormality
- 2 (0.1%) could not be assigned a risk because they were unsatisfactory for evaluation.

There is no intermediate risk category for repeat screening episodes—except for unsatisfactory episodes. Women are deemed to be either low risk if no oncogenic HPV is detected or higher risk if any oncogenic HPV is detected at this 12 months repeat HPV test.

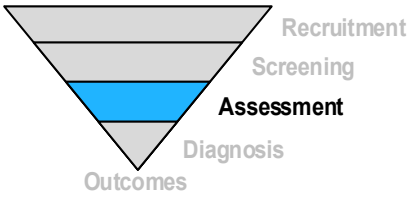
Risk categories for each age group are shown in Figure 3.10. The proportion of screening episodes that were low risk and higher risk was similar across age groups. The proportion of screening episodes for which risk could not be assigned was too low to be visible in the figure.

Figure 3.10: Repeat screening episode risk categories, by age group, 2018



Note: The age groups 70–74 and 75+ are not shown as these include rates based on fewer than 100 screening episodes in the denominator and/or fewer than 5 screening episodes in the numerator.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019). Data for this figure are available in Table A11.1.



3.3 Assessment

Performance indicator 12: Colposcopy rate

Summary colposcopy rate data

No data reported for this performance indicator.

Definition

The percentage of women aged 25–74 who are referred for colposcopy who attend colposcopy within 3 months.

Rationale

The success of a screening program relies on assessment being performed when required. This measures compliance with referral for colposcopy based on a screening episode result that places women at higher risk for significant cervical abnormality, and should be calculated for each screening episode result.

Guide to interpretation

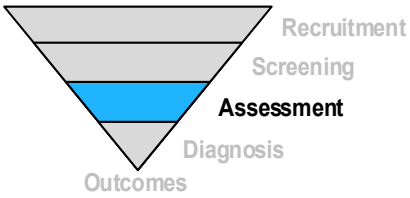
A higher colposcopy rate is better.

Data considerations

Calculation of this performance indicator requires colposcopy data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy data to 31 March 2019 to capture all colposcopies that occurred within 3 months of screens in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 13: Time to colposcopy

Summary time to colposcopy data

No data reported for this performance indicator.

Definition

For women aged 25–74 who have a screening episode result that places them at higher risk for significant cervical abnormality, the time between the screening result and colposcopy, measured as median and 90th percentile values, as well as within specified time frames.

Rationale

Women who receive a screening episode result that places them at higher risk for significant cervical abnormality will be referred for colposcopy. The recommended timeframe within which the woman should undergo colposcopic assessment is as per the NCSP 2016 Guidelines (Cancer Council Australia & Cervical Cancer Screening Guidelines Working Party 2016). Monitoring actual time between screening result and colposcopy provides important information on whether women are receiving timely assessment, as delay in assessment may lead to poorer outcomes.

Guide to interpretation

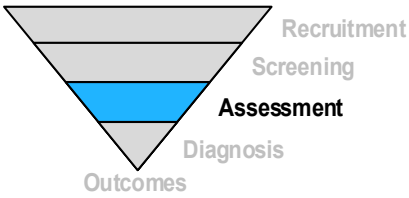
A lower time to colposcopy is better.

Data considerations

Calculation of this performance indicator requires colposcopy data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy data to 30 June 2019 to capture all colposcopies that occurred within 26 weeks of screens in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 14: Biopsy rate

Summary biopsy rate data

No data reported for this performance indicator.

Definition

The percentage of colposcopies in women aged 25–74 in which a biopsy was performed.

Rationale

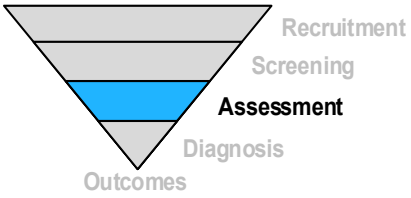
Although there are reasons why a biopsy would not be performed at colposcopy, a lower than expected biopsy rate would require further investigation.

Data considerations

Calculation of this performance indicator requires colposcopy data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy data to 31 December 2018 to capture all colposcopies that occurred in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 15: Yield of high-grade abnormalities on biopsy among women who attend colposcopy after higher risk screening results

Summary data on yield of high-grade abnormalities on biopsy among women who attend colposcopy after higher risk screening results

No data reported for this performance indicator.

Definition

Percentage of women aged 25–74 with a higher risk screening result who had a colposcopy in a calendar year who were diagnosed with a high-grade abnormality or cervical cancer on histology within 6 months of colposcopy.

Rationale

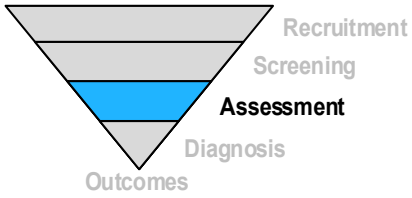
As women who are referred for colposcopy are at higher risk for significant cervical abnormality, it is expected that a proportion of these women will be diagnosed with a high-grade abnormality or cervical cancer. This indicator can be used as a measure of the accuracy of colposcopy in identifying and sampling a high-grade abnormality or cervical cancer that is present.

Data considerations

Calculation of this performance indicator requires colposcopy data and histology data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy data to 31 December 2018 and complete histology data to 30 June 2019 to capture all histology that occurred within 6 months of colposcopies in 2018 after higher risk screens.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 16: Positive predictive value of colposcopy

Summary positive predictive value of colposcopy data

No data reported for this performance indicator.

Definition

Percentage of women aged 25–74 with a higher risk screening result who had a colposcopic impression of high-grade abnormality or cervical cancer in a calendar year who were diagnosed with a high-grade abnormality or cervical cancer on histology within 6 months of colposcopy.

Rationale

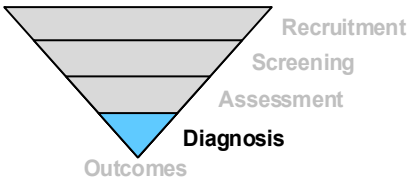
This indicator correlates the colposcopic impression with histological findings to determine the predictive value of colposcopy for high-grade cervical abnormalities. This is an important measure of the quality of colposcopy.

Data considerations

Calculation of this performance indicator requires colposcopy data and histology data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete colposcopy data to 31 December 2018 and complete histology data to 30 June 2019 to capture all histology that occurred within 6 months of colposcopies in 2018.

Data are not yet available to support the reporting of this performance indicator.



3.4 Diagnosis

Performance indicator 17a: High-grade cervical abnormality detection rate

Summary high-grade cervical abnormality detection rate data

No data reported for this performance indicator.

Definition

Number of women aged 25–74 with a high-grade abnormality detected on histology in a calendar year per 1,000 women screened.

Rationale

The detection of high-grade abnormalities is an indicator of program performance. High-grade abnormalities have a greater probability of progressing to invasive cancer than low-grade lesions. Therefore, one of the aims of the NCSP is to set a screening interval that detects most of these lesions before they progress and become invasive.

High-grade abnormalities of the cervix include cervical intraepithelial neoplasia (CIN) that has been graded as moderate (CIN 2) or severe (CIN 3), or for which the grade has not been specified, as well as adenocarcinoma in situ.

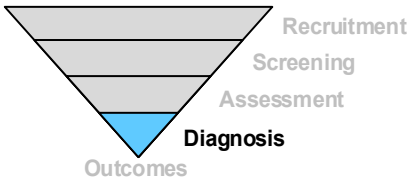
Detection of high-grade abnormalities provides an opportunity for treatment before cancer can develop; thus, the NCSP aims to detect high-grade abnormalities in line with its broader aim to reduce the incidence of cervical cancer.

Data considerations

Calculation of this performance indicator requires histology data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete histology data to 31 December 2018 to capture all histology tests in 2018.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 17b: Cervical cancer detection rate

Summary cervical cancer detection rate data

No data reported for this performance indicator.

Definition

Number of women aged 25–74 with cervical carcinoma on histology per 1,000 women screened.

Rationale

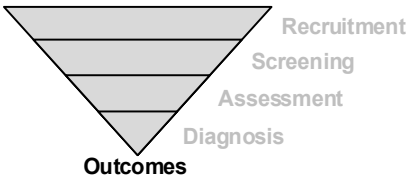
The cancer detection rate will be measured alongside the high-grade detection rate.

Data considerations

Calculation of this performance indicator requires histology data, which were not complete in the NCSR data (RDE 3.3 18/10/2019) available at the time of report production.

In this report this indicator requires complete histology data to 31 December 2018 to capture all histology tests in 2018.

Data are not yet available to support the reporting of this performance indicator.



3.5 Outcomes

Performance indicator 18: Cervical cancers diagnosed by time since last screen

Summary data on cervical cancers diagnosed by time since last screen

No data reported for this performance indicator.

Definition

Number of women aged 25–74 diagnosed with cervical carcinoma categorised into never screened, lapsed screening and adequately screened based on time since last screen.

Rationale

A measure of the burden of disease through non-participation in the screening program. Time since last screen is used to categorise all women diagnosed with cervical carcinoma as never screened, lapsed screening, or adequately screened. Most cervical carcinomas have historically been diagnosed in never screened women, which is evidence of the benefit of participation in cervical screening (AIHW 2019a).

Only cervical carcinomas (cervical cancers of epithelial origin) are included, as cervical cancers not of epithelial origin are not expected to be detected through cervical screening.

Never screened is defined as no record of having had a screening test in Australia prior to cancer diagnosis.

Lapsed screening is defined as last screening test > 5.5 years before cancer diagnosis, and is further broken down into the subcategories of between 5.5 and 7.5 years, between 7.5 and 10 years, and more than 10 years before cancer diagnosis.

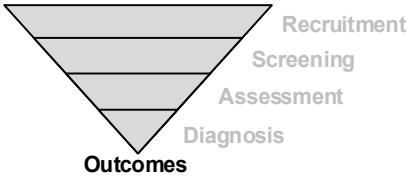
Adequately screened is defined as last screening test ≤5.5 years prior to cancer diagnosis.

Data considerations

During the transition, different definitions will need to be used for these to be relevant to women whose previous screen was a 2-yearly Pap test, rather than a 5-yearly HPV test.

Calculation of this performance indicator requires data linkage between the NCSR and the Australian Cancer Database (ACD), which will be undertaken in future monitoring reports.

Data are not yet available to support the reporting of this performance indicator.



Performance indicator 19: Incidence of cervical cancer

Summary cervical cancer incidence data

757 women aged 25–74 were diagnosed with cervical cancer in 2015 (the latest available data), which is an incidence rate of 10.3 new cases per 100,000 women.

Definition

Number of new cases of cervical cancer in women aged 25–74 per 100,000 estimated resident population in a calendar year.

Rationale

Incidence data provide contextual information about the number of new cases of cervical cancer in the population that is an indicator of program performance against its aim to reduce cervical cancer through organised screening.

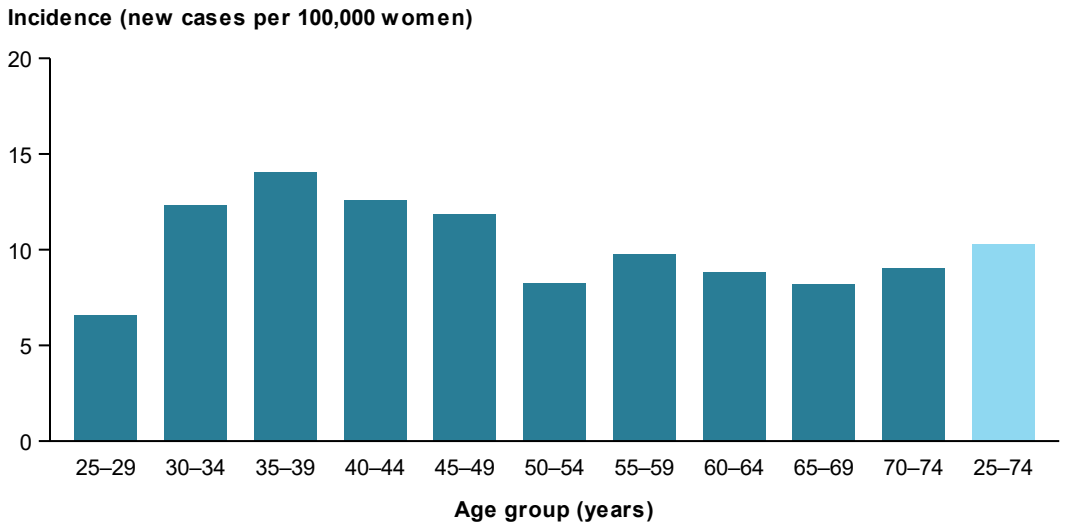
Guide to interpretation

Lower cervical cancer incidence is better. These results predate the renewal of the NCSP.

Results

In 2015, the latest year of national data available in the Australian Cancer Database (ACD), there were 857 new cases of cervical cancer diagnosed, which is 7.1 new cases per 100,000 women. Of these, 757 new cases of cervical cancer were diagnosed in women aged 25–74, which is equivalent to an incidence rate of 10.3 new cases per 100,000 women. Cervical cancer incidence by age is shown in Figure 3.11.

Figure 3.11: Cervical cancer incidence, by age group, 2015



Source: AIHW Australian Cancer Database 2015. Data for this figure are available in Table A19.1.

Incidence by histological type

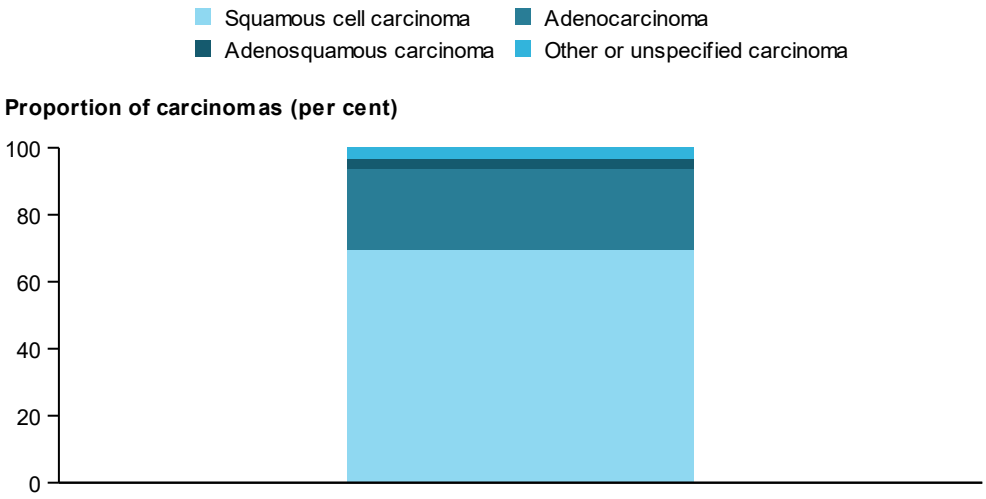
While all cervical cancers share the site code C53 under the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), there are several histological subtypes within the category of cervical cancer, with clear differences in clinical behaviour (Blomfield & Saville 2008). Histology codes for cancers are collected in the ACD, which allows the analysis of trends in cervical cancer incidence for different histological types. The histological types presented are based on the histological groupings for cervical cancer set out in Chapter 4 of *Cancer incidence in five continents*: vol. IX (Curado et al. 2007), with histological types marked by the type of cell in which the cancer originates.

Thus, cervical cancer has been disaggregated into the broad histological types of carcinoma (cancers of epithelial origin), sarcoma (cancers originating in connective tissue such as bone, muscle and fat), and other specified and unspecified malignant neoplasms (unusual cancers and cancers too poorly differentiated to be classified). Carcinoma has been further split into squamous cell carcinoma (which arises from the squamous cells that cover the outer surface of the cervix), adenocarcinoma (which arises from the glandular (columnar) cells in the endocervical canal), adenosquamous carcinoma (which contains malignant squamous and glandular cells), and other carcinoma.

In 2015, of the 757 cervical cancers diagnosed in women aged 25–74, 740 (97.7%) were carcinomas, 2 (0.3%) were sarcomas and 15 (2.0%) were classified as 'Other specified and unspecified malignant neoplasms'.

The proportion of each histological type of the 740 cervical carcinomas is shown in Figure 3.12. Squamous cell carcinomas comprised the greatest proportion of all cervical carcinomas at 69.6%, followed by adenocarcinomas at 24.3% and adenosquamous carcinomas at 2.7%. Other specified and unspecified carcinomas comprised 3.3% of all cervical carcinomas.

Figure 3.12: Cervical cancer incidence, by histological type, women aged 25–74, 2015



Source: AIHW Australian Cancer Database 2015. Data for this figure are available in Table A19.2.

The NCSP has been successful in preventing squamous cell carcinomas by detecting high-grade squamous abnormalities, these being readily identified by repeated cervical cytology (Blomfield & Saville 2008). As a result, squamous cell carcinomas now comprise 68% of cervical cancers, which is much reduced from their historical proportion of 95% (Blomfield & Saville 2008). In contrast, adenocarcinomas have not been reduced by cervical screening to the same degree. These glandular carcinomas were proportionately a rarer disease, but now comprise 24% of all cervical cancers—not because there are more adenocarcinomas than before, but because there are fewer squamous cell carcinomas. The nett effect is a reduction in the size of the 'pool' of cervical cancers.

Incidence by remoteness area

In 2010–2014, cervical cancer incidence for women aged 25–74 increased with increasing remoteness (Figure 3.13).

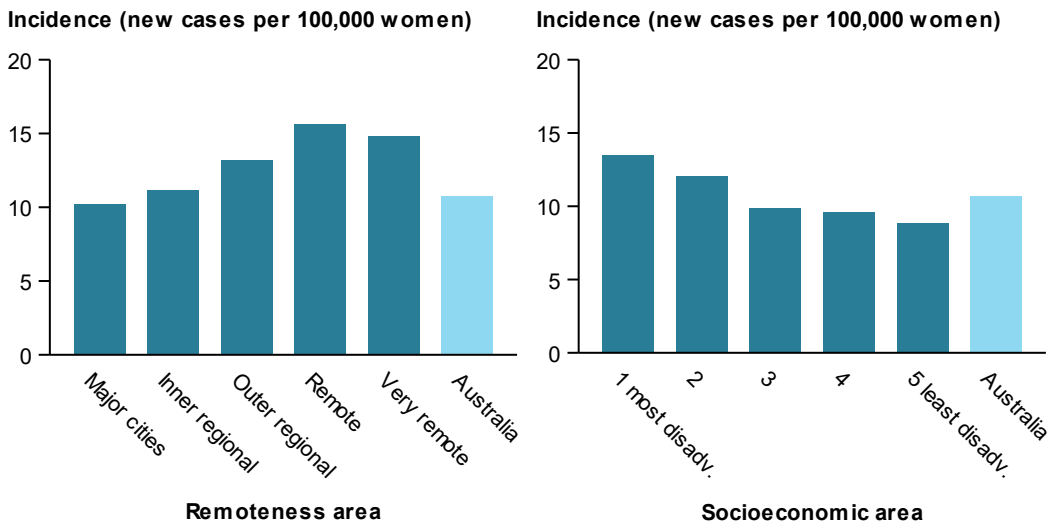
Incidence of cervical cancer in women aged 25–74 in 2010–2014 was similar for women residing in *Major cities* and *Inner regional* areas, being 10.2 and 11.1 new cases per 100,000 women, respectively. It was higher for women residing in *Outer regional* areas at 13.2 new cases per 100,000, and highest for women residing in *Remote* and *Very remote* areas at 15.6 and 14.8 new cases per 100,000, respectively.

Incidence by socioeconomic area

In 2010–2014, cervical cancer incidence for women aged 25–74 increased with increasing socioeconomic disadvantage (Figure 3.13).

In 2010–2014, cervical cancer incidence in women aged 25–74 was highest for women residing in areas of highest socioeconomic disadvantage at 13.5 new cases per 100,000 women; thereafter, it decreased with decreasing socioeconomic disadvantage and was lowest for women residing in areas of lowest socioeconomic disadvantage at 8.8 new cases per 100,000.

Figure 3.13: Cervical cancer incidence, by remoteness area and socioeconomic area, women aged 25–74, 2010–2014



Source: AIHW Australian Cancer Database 2015. Data for this figure are available in tables A19.4 and A19.5.

Incidence by Indigenous status

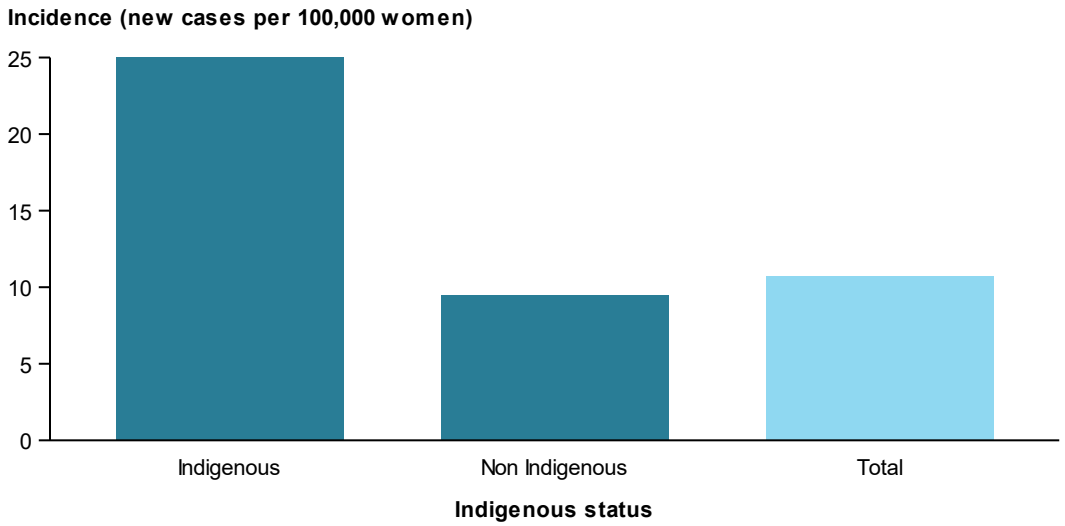
The level of identification of Indigenous Australians in cancer registry data is considered sufficient to enable analysis in 5 jurisdictions—New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

While the majority (89.9%) of Australian Indigenous people live in these 5 jurisdictions, the degree to which data for these jurisdictions are representative of data for all Indigenous people is unknown (ABS 2012). It is also unclear how many Indigenous Australians are misclassified as non-Indigenous, or how many people diagnosed with cancer whose Indigenous status is not known should be classified as Indigenous.

Analysis of data from these 5 jurisdictions showed that, over the 5 years 2010–2014, 163 Indigenous women aged 25–74 were diagnosed with cervical cancer.

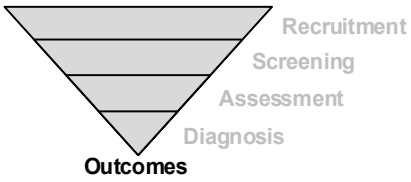
The age-standardised incidence rate for women aged 25–74 of 25.0 new cases per 100,000 for Indigenous women is more than twice that of non-Indigenous women, with an age-standardised incidence rate of 9.5 new cases per 100,000 women (Figure 3.14).

Figure 3.14: Cervical cancer incidence, by Indigenous status, women aged 25–74, 2010–2014



Note: Data shown for 'Indigenous', 'Non-Indigenous' and 'Total' are for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory only; data from these jurisdictions were considered to have adequate levels of Indigenous identification in cancer registration data at the time this report was prepared.

Source: AIHW Australian Cancer Database 2015. Data for this figure are available in Table A19.6.



Performance indicator 20: Mortality from cervical cancer

Summary cervical cancer mortality data

158 women aged 25–74 died from cervical cancer in 2017 (the latest available data), which is a mortality rate of 2.1 deaths per 100,000 women.

Definition

Number of deaths from cervical cancer in women aged 25–74 per 100,000 estimated resident population in a calendar year.

Rationale

Mortality data provide contextual information on the number of deaths from cervical cancer in the population that is an indicator of program performance against its aim to reduce mortality from cervical cancer through organised screening.

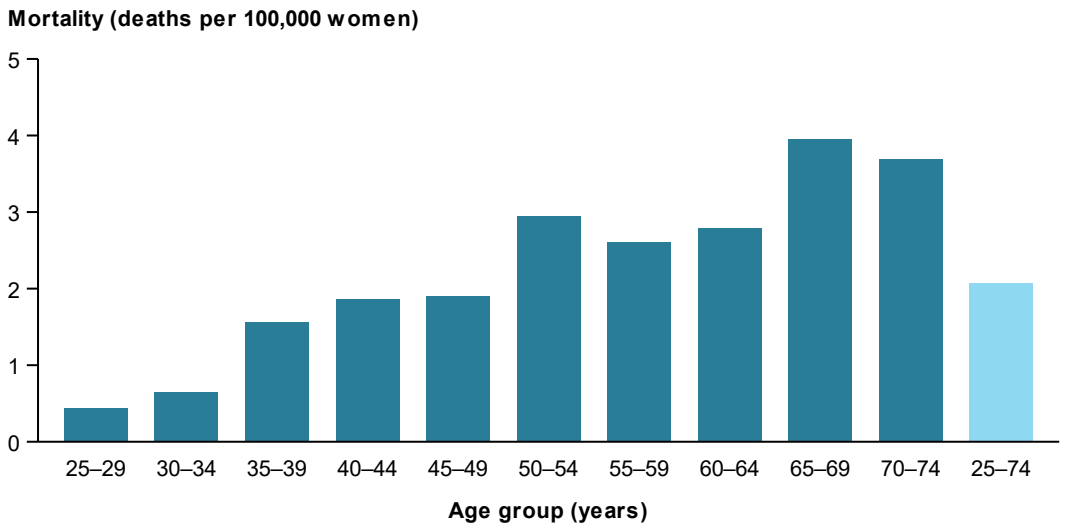
Guide to interpretation

Lower cervical cancer mortality is better. These results mostly predate the renewal of the NCSP (that is, 11 of the 12 months of 2017).

Results

In 2017, the latest year of national data available in the AIHW National Mortality Database, there were 230 deaths from cervical cancer, which is 1.9 new cases per 100,000 women. Of these deaths, 158 occurred in women aged 25–74, which is equivalent to a mortality rate of 2.1 deaths per 100,000 women. Cervical cancer mortality by age is shown in Figure 3.15.

Figure 3.15: Cervical cancer mortality, by age group, 2017



Source: AIHW National Mortality Database. Data for this figure are available in Table A20.1.

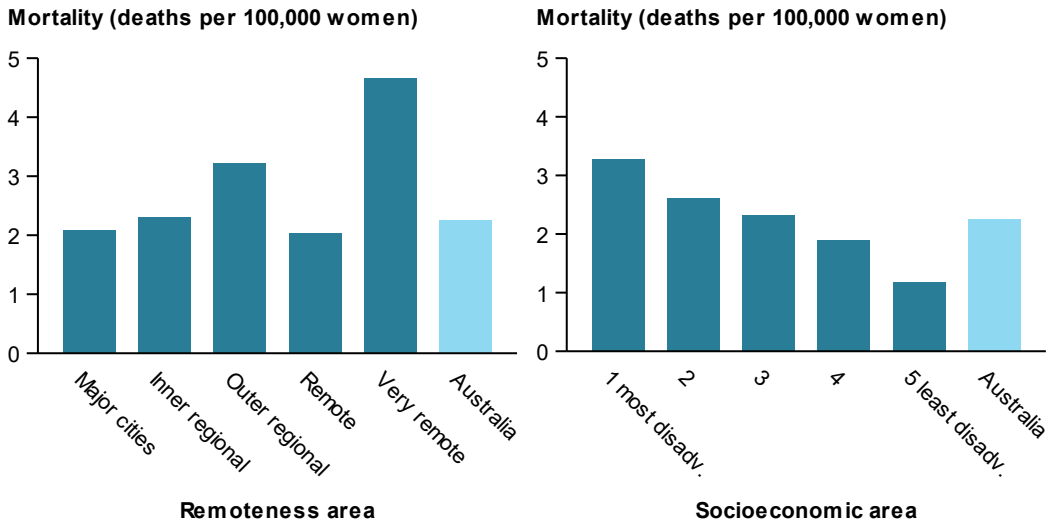
Mortality by remoteness area

In 2013–2017, cervical cancer mortality for women aged 25–74 increased with increasing remoteness (Figure 3.16). It was lowest for women residing in *Major cities* and *Inner regional* areas at 2.1 and 2.3 deaths, respectively, per 100,000 women. Mortality was higher for women residing in *Outer regional* areas at 3.2 deaths per 100,000 and highest in *Very remote* areas at 4.7 deaths per 100,000.

Mortality by socioeconomic area

In 2013–2017, cervical cancer mortality for women aged 25–74 increased with increasing socioeconomic disadvantage (Figure 3.16). It was highest for women residing in areas of highest socioeconomic disadvantage at 3.3 deaths per 100,000 women, and lowest for women residing in areas of lowest socioeconomic disadvantage at 1.2 deaths per 100,000.

Figure 3.16: Cervical cancer mortality, by remoteness area and socioeconomic area, women aged 25–74, 2013–2017



Source: AIHW National Mortality Database. Data for this figure are available in Table A20.3 and A20.4.

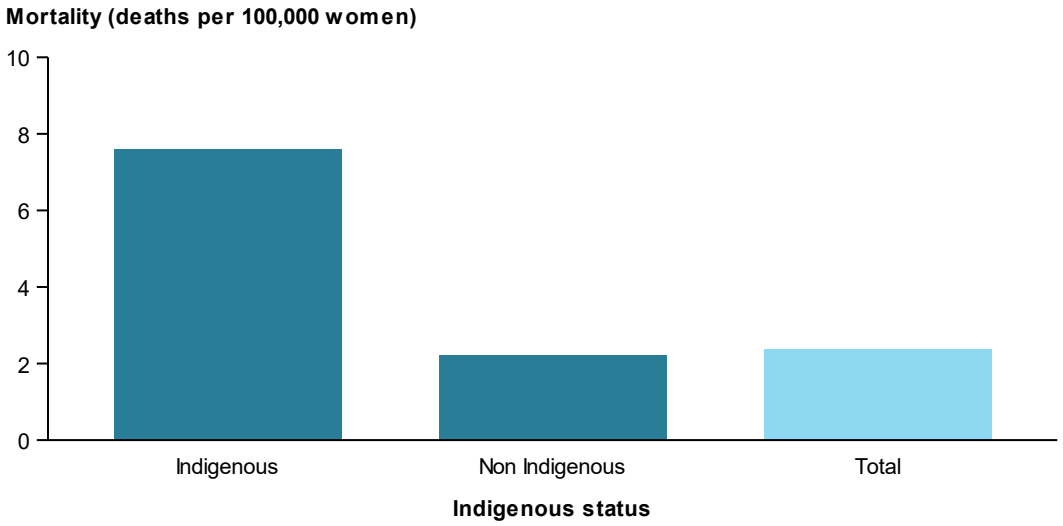
Mortality by Indigenous status

The level of identification of Indigenous Australians in the Australian Institute of Health and Welfare (AIHW) National Mortality Database (NMD) is considered to be adequate for reporting for 5 jurisdictions—New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

Over the 5 years 2013–2017, 49 Indigenous women aged 25–74 died from cervical cancer.

The age standardised mortality rate for women aged 25–74 of 7.6 deaths per 100,000 for Indigenous women is more than 3 times that for non-Indigenous women, with an age-standardised mortality rate of 2.2 deaths per 100,000 women (Figure 3.17).

Figure 3.17: Cervical cancer mortality, by Indigenous status, women aged 25–74, 2013–2017



Note: Data shown for 'Indigenous', 'Non-Indigenous' and 'Total' are for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only; data from these jurisdictions were considered to have adequate levels of Indigenous identification in cancer mortality data at the time this report was prepared.

Source: AIHW National Mortality Database. Data for this figure are available in Table A20.5.

Appendix A: Additional data tables

A1 Participation

Participation: alternative results for women aged 25–69 who had any cervical screening test (cytology or HPV) in 2017–2018 (2 years) or 2016–2018 (3 years)

Table A1.1: Preliminary participation in cervical screening, by age, 2017–2018 and 2016–2018

Years	Age group									
	25–29	**30–34**	**35–39**	**40–44**	**45–49**	**50–54**	**55–59**	**60–64**	**65–69**	**25–69**
2017–2018										
Number	406,942	447,696	429,211	406,823	414,937	363,017	338,991	283,314	224,388	**3,315,319**
Crude rate (%)	44.2	48.9	53.0	55.7	57.5	57.9	57.2	56.2	52.2	**53.0**
2016–2018										
Number	542,833	583,036	545,952	526,621	518,463	457,594	412,829	338,872	266,552	**4,192,752**
Crude rate (%)	59.5	64.4	68.6	71.7	72.7	72.9	70.4	68.0	62.3	**67.6**

Notes

1. Number is the number of women aged 25–69 who had at least one cervical screening test (Pap test before 1 December 2017, or HPV test, LBC test or conventional cytology test from 1 December 2017 onwards) between 1 January 2017 and 31 December 2018 (for 2017–2018) or between 1 January 2016 and 31 December 2018 (for 2016–2018). Includes pre-renewal and post-renewal data.
2. Crude rate is the number of women aged 25–69 who had at least one cervical screening test in 2017–2018 or 2016–2018 as a percentage of the ABS estimated resident population for women aged 25–69, adjusted to exclude the estimated number of women who have had a hysterectomy (using hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A1.2: Preliminary participation in cervical screening, by state and territory, women aged 25–69, 2017–2018 and 2016–2018

State or territory	Reporting period					
	2017–2018			2016–2018		
	Number	Crude rate (%)	AS rate (%)	Number	Crude rate (%)	AS rate (%)
NSW	1,041,241	51.8	52.2	1,351,030	67.8	68.2
Vic	851,150	53.5	54.2	1,063,104	67.7	68.5
Qld	646,963	51.6	51.8	811,699	65.3	65.5
WA	363,185	55.0	55.3	451,439	68.5	68.8
SA	249,460	58.0	58.0	307,360	71.5	71.8
Tas	71,256	54.7	55.0	88,279	68.0	68.6
ACT	56,181	51.5	52.2	73,966	68.4	69.1
NT	32,396	49.8	50.2	42,162	65.1	65.2
Australia	**3,315,319**	**53.0**	**53.4**	**4,192,752**	**67.6**	**68.1**

Notes

1. Women were allocated to a state or territory using their state or postcode at the time of their test (for migrated pre-renewal data) or associated with their test as advised by the NCSR (for post-renewal data). Caution is advised, as the state or postcode may not represent their location of residence, and some postcodes cross state and territory boundaries.
2. Number is the number of women aged 25–69 who had at least one cervical screening test (Pap test before 1 December 2017, or HPV test, LBC test or conventional cytology test from 1 December 2017 onwards) between 1 January 2017 and 31 December 2018 (for 2017–2018) or between 1 January 2016 and 31 December 2018 (for 2016–2018). Includes pre-renewal and post-renewal data.
3. Crude rate is the number of women aged 25–69 who had at least one cervical screening test in 2017–2018 or 2016–2018 as a percentage of the ABS estimated resident population for women aged 25–69, adjusted to exclude the estimated number of women who have had a hysterectomy (using hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants. Age-standardised (AS) rate is the crude rate, age standardised to the Australian population at 30 June 2001.
4. Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A1.3: Preliminary number of cervical screening tests, by month, women aged 25–69, 2016 to 2018

Month	Year		
	2016	2017	2018
January	138,302	138,206	143,385
February	181,943	167,051	160,443
March	171,826	182,829	158,010
April	164,977	125,069	134,580
May	181,692	183,814	175,374
June	162,502	158,357	150,167
July	153,595	149,939	155,296
August	171,720	163,613	160,469
September	152,673	142,817	132,486
October	156,773	155,553	156,827
November	172,016	140,671	157,824
December	127,913	132,083	115,392

Note: Number is the number of cervical screening tests (Pap test before 1 December 2017, or HPV test, LBC test or conventional cytology test from 1 December 2017 onwards) in women aged 25–69 between 1 January 2016 and 31 December 2016, 1 January 2017 and 31 December 2017, or 1 January 2018 and 31 December 2018.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Participation: estimated results for women aged 25–74 who had an HPV test in 2018

Table A1.4: Preliminary estimated participation in cervical screening, by age, 2018

Age group	Number	Crude rate (%)
<25	67,257	. .
25–29	215,741	46.4
30–34	239,143	51.6
35–39	230,663	55.7
40–44	213,033	58.3
45–49	219,972	60.4
50–54	189,942	60.4
55–59	179,068	59.8
60–64	149,912	58.6
65–69	118,803	54.7
70–74	39,118	21.5
75+	6,966	. .
25–74	**1,795,395**	**53.7**

Notes

1. Number is the number of women aged 25–74 who had at least one HPV test between 1 January 2018 and 31 December 2018.
2. Crude rate is the number of women aged 25–74 who had at least one HPV test in 2018 as a percentage of the ABS estimated resident population for women aged 25–74, adjusted to exclude the estimated number of women who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants, and divided by 2.
3. Participation rates using this method are only estimates of what the true rates may be. There may be large differences between these estimates and future estimates as additional data are available for use in producing estimates, and therefore caution should be applied.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A1.5: Preliminary estimated participation in cervical screening, by state and territory, women aged 25–74, 2018

State or territory	Number	Crude rate (%)	AS rate (%)
NSW	545,954	51.0	51.5
Vic	458,702	53.2	53.8
Qld	363,815	54.4	54.6
WA	199,168	57.2	57.2
SA	139,340	60.4	60.8
Tas	40,358	57.3	58.2
ACT	28,124	48.8	49.1
NT	17,164	51.4	50.9
Australia	**1,795,395**	**53.7**	**54.1**

Notes

1. Women were allocated to a state or territory using the state or postcode associated with their test as advised by the NCSR. Caution is advised, as the state or postcode may not represent their location of residence, and some postcodes cross state and territory boundaries.
2. Number is the number of women aged 25–74 who had at least one HPV test between 1 January 2018 and 31 December 2018.
3. Crude rate is the number of women aged 25–74 who had at least one HPV test in 2018 as a percentage of the ABS estimated resident population for women aged 25–74, adjusted to exclude the estimated number of women who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants, and divided by 2. Age-standardised (AS) rate is the crude rate, age standardised to the Australian population at 30 June 2001.
4. Participation rates using this method are only estimates of what the true rates may be. There may be large differences between these estimates and future estimates as additional data become available for use in producing estimates, and therefore caution should be applied.
5. Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A1.6: Preliminary estimated participation in cervical screening, by remoteness area, women aged 25–74, 2018

Remoteness area	Number	Crude rate (%)	AS rate (%)
Major cities	1,310,499	53.7	54.1
Inner regional	295,843	51.7	53.7
Outer regional	134,313	50.3	52.1
Remote	18,977	50.1	50.7
Very remote	10,423	43.2	43.1
Australia	**1,795,395**	**53.7**	**54.1**

Notes

1. Women were allocated to a remoteness area using their postcode at the time of their screen, according to the Australian Statistical Geography Standard (ASGS) for 2016. Caution is advised when examining differences across remoteness areas, as postcodes used to allocate women may not represent their location of residence.
2. Number is the number of women aged 25–74 who had at least one HPV test between 1 January 2018 and 31 December 2018.
3. Crude rate is the number of women aged 25–74 who had at least one HPV test in 2018 as a percentage of the ABS estimated resident population for women aged 25–74, adjusted to exclude the estimated number of women who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants, and divided by 2. Age-standardised (AS) rate is the crude rate, age standardised to the Australian population at 30 June 2001.
4. Participation rates using this method are only estimates of what the true rates may be. There may be large differences between these estimates and future estimates as additional data become available for use in producing estimates, and therefore caution should be applied.
5. 'Australia' does not match the total number of women across different remoteness areas because some women were not allocated to a remoteness area.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A1.7: Preliminary estimated participation in cervical screening, by socioeconomic area, women aged 25–74, 2018

Socioeconomic area	Number	Crude rate (%)	AS rate (%)
1 (most disadvantage)	294,544	47.0	47.5
2	327,433	50.0	51.7
3	344,671	51.0	52.4
4	379,136	54.2	55.6
5 (least disadvantage)	407,752	58.5	59.9
Australia	**1,795,395**	**53.7**	**54.1**

Notes

1. Women were allocated to a socioeconomic area using their postcode at the time of their screen, according to the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Disadvantage for 2016. Caution is advised when examining differences across socioeconomic areas, as postcodes used to allocate women may not represent their location of residence.
2. Number is the number of women aged 25–74 who had at least one HPV test between 1 January 2018 and 31 December 2018.
3. Crude rate is the number of women aged 25–74 who had at least one HPV test in 2018 as a percentage of the ABS estimated resident population for women aged 25–74, adjusted to exclude the estimated number of women who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database) and COMPASS participants, and divided by 2. Age-standardised (AS) rate is the crude rate, age standardised to the Australian population at 30 June 2001.
4. Participation rates using this method are only estimates of what the true rates may be. There may be large differences between these estimates and future estimates as additional data become available for use in producing estimates, and therefore caution should be applied.
5. 'Australia' does not match the total number of women across different socioeconomic areas because some women were not allocated to a socioeconomic area.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A2 Response to invitation

Table A2.1: Response to invitation to screen or rescreen, by age, 2018

	Invitations	Any HPV test within 6 months		Screening HPV test within 6 months	
Age group	Number	Number	Crude rate (%)	Number	Crude rate (%)
<25	5	1	. .	0	. .
25–29	18,188	3,766	20.7	3,388	18.6
30–34	40	13	. .	8	. .
35–39	37	11	. .	6	. .
40–44	27	12	. .	9	. .
45–49	42	12	. .	5	. .
50–54	22	6	. .	5	. .
55–59	33	15	. .	11	. .
60–64	24	10	. .	7	. .
65–69	23	4	. .	4	. .
70–74	1,099	25	2.3	20	1.8
75+	4	0	. .	0	. .
25–74	**19,535**	**3,874**	**19.8**	**3,463**	**17.7**

Note: Rates based on fewer than 100 invitations and/or 5 HPV tests are not shown as these are not reliable.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A2.2: Response to invitation to screen or rescreen, by state and territory, women aged 25–74, 2018

	Invitations	Any HPV test within 6 months		Screening HPV test within 6 months	
State or territory	Number	Number	Crude rate (%)	Number	Crude rate (%)
NSW	6,444	1,042	16.2	919	14.3
Vic	3,891	858	22.1	811	20.8
Qld	3,216	669	20.8	559	17.4
WA	2,010	437	21.7	378	18.8
SA	1,163	295	25.4	273	23.5
Tas	117	39	33.3	36	30.8
ACT	1,493	314	21.0	291	19.5
NT	1,030	189	18.3	169	16.4
Australia	**19,535**	**3,874**	**19.8**	**3,463**	**17.7**

Note: Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors. These invitations to screen or rescreen only represent new invitation letters sent as part of the transition period; this has resulted in the apparent low data for Tasmania, which are expected to be far higher in the longer-term.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A2.3: Response to invitation to screen or rescreen, by letter type, women aged 25–74, 2018

	Letter type				
	A1	**B1**	**C1**	**D1**	**Total**
Invitations	18,183	0	256	1,096	**19,535**
Any HPV test within 6 months					
Number	3,764	0	89	21	**3,874**
Crude rate (%)	20.7	0.0	34.8	1.9	**19.8**
Screening HPV test within 6 months					
Number	3,386	0	60	17	**3,463**
Crude rate (%)	18.6	0.0	23.4	1.6	**17.7**

A1 = invitation to screen; B1 = invitation to screen eligible to self-collect; C1 = invitation to rescreen; D1 = invitation to rescreen eligible to self-collect.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A3 Rescreening

Table A3.1: Rescreening, by age, 2018

	Rescreening					
	Early rescreen		Appropriate rescreen		Late rescreen	
Age group	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
25–29	11,647	10.7	71,899	65.9	25,635	23.5
30–34	13,967	10.5	90,640	68.1	28,491	21.4
35–39	13,011	9.4	98,802	71.1	27,170	19.5
40–44	10,655	7.9	99,453	74.1	24,048	17.9
45–49	11,104	7.7	109,138	75.9	23,575	16.4
50–54	9,776	7.5	102,067	78.0	18,947	14.5
55–59	8,751	6.7	105,816	81.2	15,783	12.1
60–64	6,704	5.9	95,664	83.7	11,970	10.5
65–69	4,996	5.4	79,648	85.7	8,298	8.9
70–74	1,045	4.8	17,339	79.0	3,563	16.2
25–74	**91,656**	**8.0**	**870,466**	**75.7**	**187,480**	**16.3**

Early rescreen = fewer than 21 months; Appropriate rescreen = between 21 months and 3 years; Late rescreen = between 3 and 5 years.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

Table A3.2: Rescreening, by state and territory, women aged 25–74, 2018

	Rescreening					
	Early rescreen		Appropriate rescreen		Late rescreen	
State or territory	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
NSW	31,222	9.1	260,914	76.0	51,333	14.9
Vic	19,778	6.8	222,132	76.0	50,279	17.2
Qld	19,319	8.3	171,659	73.7	41,799	18.0
WA	9,849	7.8	98,453	77.8	18,306	14.5
SA	7,279	7.5	73,657	76.3	15,645	16.2
Tas	1,889	6.6	22,158	77.3	4,615	16.1
ACT	1,201	6.7	13,832	76.7	3,011	16.7
NT	998	9.8	6,969	68.1	2,262	22.1
Australia	**91,656**	**8.0**	**870,466**	**75.7**	**187,480**	**16.3**

Early rescreen = fewer than 21 months; Appropriate rescreen = between 21 months and 3 years; Late rescreen = between 3 and 5 years.

Note: Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A4 Screening results

Table A4.1: Risk for a high-grade cervical abnormality, primary screening tests, by age, 2018

	Risk for a high-grade cervical abnormality							
	Low risk		Intermediate risk		Higher risk		No risk assigned	
Age group	Number	Crude rate %	Number	Crude rate %	Number	Crude rate %	Number	Crude rate %
<25	15,864	68.8	6,419	27.8	654	2.8	113	0.5
25–29	141,022	80.0	29,191	16.6	5,511	3.1	471	0.3
30–34	172,490	87.4	17,649	8.9	6,651	3.4	472	0.2
35–39	173,479	90.8	11,699	6.1	5,494	2.9	368	0.2
40–44	163,104	92.4	8,496	4.8	4,667	2.6	306	0.2
45–49	171,757	93.2	7,845	4.3	4,272	2.3	353	0.2
50–54	152,835	93.9	6,219	3.8	3,399	2.1	354	0.2
55–59	149,211	94.5	5,255	3.3	3,024	1.9	451	0.3
60–64	128,549	94.8	4,141	3.1	2,528	1.9	434	0.3
65–69	103,374	95.3	2,850	2.6	1,927	1.8	332	0.3
70–74	32,085	95.2	884	2.6	627	1.9	91	0.3
75+	2,788	93.6	103	3.5	68	2.3	21	0.7
25–74	**1,387,906**	**91.1**	**94,229**	**6.2**	**38,100**	**2.5**	**3,632**	**0.2**

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A6 Screening HPV test positivity

Table A6.1: Screening HPV test positivity, by age and birth cohort, 2018

	Screening HPV test positivity					
	Oncogenic HPV 16/18 detected		Oncogenic HPV (not 16/18) detected		Oncogenic HPV (any type) detected	
Age group	Number	Positivity (%)	Number	Positivity (%)	Number	Positivity (%)
All women aged 25–74						
<25	337	1.5	6,813	29.6	7,150	31.0
25–29	3,484	2.0	31,482	17.9	34,966	19.8
30–34	5,242	2.7	19,245	9.8	24,487	12.4
35–39	4,606	2.4	12,713	6.7	17,319	9.1
40–44	4,125	2.3	9,119	5.2	13,244	7.5
45–49	3,848	2.1	8,372	4.5	12,220	6.6
50–54	3,138	1.9	6,628	4.1	9,766	6.0
55–59	2,842	1.8	5,643	3.6	8,485	5.4
60–64	2,389	1.8	4,511	3.3	6,900	5.1
65–69	1,808	1.7	3,123	2.9	4,931	4.5
70–74	589	1.7	972	2.9	1,561	4.6
75+	63	2.1	115	3.9	178	6.0
25–74	**32,071**	**2.1**	**101,808**	**6.7**	**133,879**	**8.8**
Age indicates were offered HPV vaccination[(a)]						
<25	337	1.5	6,813	29.6	7,150	31.0
25–29	3,484	2.0	31,482	17.9	34,966	19.8
30–34	5,242	2.7	19,245	9.8	24,487	12.4
35–39	2,642	2.3	8,235	7.1	10,877	9.3
Total	**11,705**	**2.3**	**65,775**	**12.8**	**77,480**	**15.1**
Age indicates were not offered vaccination[(b)]						
35–39	1,964	2.6	4,478	6.0	6,442	8.7
40–44	4,125	2.3	9,119	5.2	13,244	7.5
45–49	3,848	2.1	8,372	4.5	12,220	6.6
50–54	3,138	1.9	6,628	4.1	9,766	6.0
55–59	2,842	1.8	5,643	3.6	8,485	5.4
60–64	2,389	1.8	4,511	3.3	6,900	5.1
65–69	1,808	1.7	3,123	2.9	4,931	4.5
70–74	589	1.7	972	2.9	1,561	4.6
75+	63	2.1	115	3.9	178	6.0
Total	**20,766**	**2.0**	**42,961**	**4.1**	**63,727**	**6.1**

(a) Women born after 30 June 1980 were considered to have been offered HPV vaccination as these women were eligible for the school or catch-up program during 2007.

(b) Women born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these women were outside the eligible age for HPV vaccination.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019)

Table A6.2: Screening HPV test positivity, by state and territory and birth cohort, 2018

State or territory	Screening HPV test positivity					
	Oncogenic HPV 16/18 detected		Oncogenic HPV (not 16/18) detected		Oncogenic HPV (any type) detected	
	Number	Positivity (%)	Number	Positivity (%)	Number	Positivity (%)
All women aged 25–74						
NSW	9,487	2.1	28,281	6.2	37,768	8.3
Vic	7,994	2.0	29,129	7.2	37,123	9.1
Qld	7,504	2.5	20,181	6.7	27,685	9.2
WA	3,022	1.8	11,437	6.9	14,459	8.7
SA	2,598	2.2	7,304	6.2	9,902	8.3
Tas	568	1.6	2,274	6.5	2,842	8.2
ACT	377	1.6	1,507	6.4	1,884	8.0
NT	389	2.7	1,336	9.1	1,725	11.8
Australia	**32,071**	**2.1**	**101,808**	**6.7**	**133,879**	**8.8**
Age indicates were offered HPV vaccination[(a)]						
NSW	3,405	2.3	17,722	11.8	21,127	14.1
Vic	2,877	2.1	19,298	14.2	22,175	16.3
Qld	2,660	2.6	13,089	12.7	15,749	15.3
WA	1,314	2.2	7,404	12.4	8,718	14.6
SA	875	2.3	4,699	12.5	5,574	14.8
Tas	190	1.9	1,289	12.8	1,479	14.7
ACT	148	1.7	1,049	11.8	1,197	13.5
NT	153	2.4	943	14.5	1,096	16.9
Australia	**11,705**	**2.3**	**65,775**	**12.8**	**77,480**	**15.1**
Age indicates were not offered vaccination[(b)]						
NSW	6,188	2.0	11,951	3.9	18,139	5.9
Vic	5,224	1.9	12,115	4.3	17,339	6.2
Qld	4,950	2.4	8,645	4.2	13,595	6.6
WA	1,745	1.6	4,832	4.4	6,577	6.0
SA	1,753	2.1	3,227	3.9	4,980	6.0
Tas	384	1.5	1,056	4.2	1,440	5.8
ACT	230	1.5	521	3.5	751	5.0
NT	242	2.8	510	5.9	752	8.7
Australia	**20,766**	**2.0**	**42,961**	**4.1**	**63,727**	**6.1**

(a) Women born after 30 June 1980 were considered to have been offered HPV vaccination as these women were eligible for the school or catch-up program during 2007.

(b) Women born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these women were outside the eligible age for HPV vaccination.

Note: Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A11 Follow up results

Table A11.1: Risk for a high-grade cervical abnormality, repeat screening tests, by age, 2018

	Risk for a high-grade cervical abnormality							
	Low risk		Intermediate risk		Higher risk		No risk assigned	
Age group	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
<25	106	28.6	. .	. .	263	70.9	2	. .
25–29	258	31.9	. .	. .	548	67.8	2	. .
30–34	170	33.0	. .	. .	345	67.0	0	0.0
35–39	93	30.3	. .	. .	214	69.7	0	0.0
40–44	72	34.0	. .	. .	140	66.0	0	0.0
45–49	80	35.9	. .	. .	143	64.1	0	0.0
50–54	61	29.9	. .	. .	143	70.1	0	0.0
55–59	58	34.3	. .	. .	111	65.7	0	0.0
60–64	44	31.2	. .	. .	97	68.8	0	0.0
65–69	40	32.0	. .	. .	85	68.0	0	0.0
70–74	14	32.6	. .	. .	29	. .	0	0.0
75+	0	0.0	. .	. .	3	. .	0	0.0
25–74	**890**	**32.4**	**. .**	**. .**	**1,855**	**67.5**	**2**	**. .**

Note: Rates based on fewer than 100 screening episodes in the denominator and/or fewer than 5 screening episodes in the numerator are not shown as these are not reliable.

Source: AIHW analysis of NCSR data (NCSR RDE 3.3 18/10/2019).

A19 Cervical cancer incidence

Table A19.1: Cervical cancer incidence, by age, 2015

Age group	New cases	Crude rate
25–29	58	6.6
30–34	108	12.3
35–39	111	14.0
40–44	105	12.6
45–49	94	11.8
50–54	65	8.3
55–59	72	9.7
60–64	58	8.8
65–69	48	8.2
70–74	39	9.0
25–74	**757**	**10.3**

Note: Crude rate is the number of new cases of cervical cancer per 100,000 women. Data for 2015 are estimated for New South Wales.

Source: AIHW Australian Cancer Database 2015.

Table A19.2: Cervical cancer incidence, by histological type, women aged 25–74, 2015

Type of cervical cancer	New cases	Crude rate	AS rate	% of cervical cancers	% of carcinomas
1: Carcinoma	740	10.0	10.2	97.7	100.0
1.1: Squamous cell carcinoma	515	7.0	7.1	68.0	69.6
1.2: Adenocarcinoma	180	2.4	2.5	23.7	24.3
1.3: Adenosquamous carcinoma	20	0.3	0.3	2.7	2.7
1.4: Other specified and unspecified carcinoma	25	0.3	0.3	3.3	3.3
2: Sarcoma	2	0.0	0.0	0.3	. .
3: Other specified and unspecified malignant neoplasm	15	0.2	0.2	2.0	. .
Total	**757**	**10.3**	**10.5**	**100.0**	**. .**

AS = age-standardised

'Carcinoma' = International Classification of Diseases for Oncology, third edition (ICD-O-3) codes 8010–8380, 8382–8576

'Squamous cell carcinoma' = ICD-O-3 codes 8050–8078, 8083–8084

'Adenocarcinoma' = ICD-O-3 codes 8140–8141, 8190–8211, 8230–8231, 8260–8263, 8382–8384, 8440–8490, 8570–8574, 8310, 8380, 8576

'Adenosquamous carcinoma' = ICD-O-3 code 8560

'Other specified and unspecified carcinoma' = ICD-O-3 codes for carcinoma, excluding those for squamous cell carcinoma, adenocarcinoma and adenosquamous carcinoma

'Sarcoma' = ICD-O-3 codes 8800–8811, 8840–8921, 8990–8991, 9040–9044, 9120–9133, 9540–9581, 8830, 9150

'Other specified and unspecified malignant neoplasm' = ICD-O-3 codes for cervical cancer, excluding those for carcinoma and sarcoma

Note: Crude rate is the number of new cases of cervical cancer per 100,000 women. AS rate is the number of new cases of cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001. Rates based on fewer than 20 new cases should be interpreted with caution. Numbers may not add to total due to rounding. Data for 2015 are estimated for New South Wales.

Source: AIHW Australian Cancer Database 2015.

Table A19.3: Cervical cancer incidence, by state and territory, women aged 25–74, 2010–2014

State or territory	New cases	Crude rate	AS rate
NSW	1,164	10.3	10.4
Vic	825	9.4	9.5
Qld	859	12.4	12.5
WA	399	10.9	11.1
SA	261	10.2	10.7
Tas	96	12.1	12.7
ACT	43	7.3	7.6
NT	47	13.8	13.6
Australia	**3,694**	**10.6**	**10.7**

Note: Crude rate is the number of new cases of cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2015.

Table A19.4: Cervical cancer incidence, by remoteness area, women aged 25–74, 2010–2014

Remoteness area	New cases	Crude rate	AS rate
Major cities	2,507	10.1	10.2
Inner regional	683	10.8	11.1
Outer regional	396	12.8	13.2
Remote	70	15.5	15.6
Very remote	36	13.8	14.8
Australia	**3,694**	**10.6**	**10.7**

Notes

1. Remoteness classification is based on area of usual residence (Statistical Local Area Level 2) at the time of diagnosis.
2. 'Australia' does not match the total number of women across different remoteness areas because some women were not allocated to a remoteness area.
3. Crude rate is the number of new cases of cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2015.

Table A19.5: Cervical cancer incidence, by socioeconomic area, women aged 25–74, 2010–2014

Socioeconomic area	New cases	Crude rate	AS rate
1 (most disadvantaged)	882	13.3	13.5
2	817	11.8	12.1
3	684	9.7	9.8
4	683	9.6	9.6
5 (least disadvantaged)	626	8.7	8.8
Australia	**3,694**	**10.6**	**10.7**

Notes

1. Socioeconomic area was allocated using the ABS Index of Relative Socio-Economic Disadvantage based on area of usual residence (Statistical Local Area Level 2) at the time of diagnosis.
2. 'Australia' does not match the total number of women across different socioeconomic because some women were not allocated to a socioeconomic area.
3. Crude rate is the number of new cases of cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2015.

Table A19.6: Cervical cancer incidence, by Indigenous status, women aged 25–74, 2010–2014

Indigenous status	New cases	Crude rate	AS rate
Indigenous	163	23.8	25.0
Non-Indigenous	2,855	9.4	9.5
Not stated	276	. .	. .
Total	3,294	10.6	10.8
Australia	**3,694**	**10.6**	**10.7**

Notes

1. Data shown for 'Indigenous', 'Non-Indigenous' and 'Total' are for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory only; data from these jurisdictions were considered to have adequate levels of Indigenous identification in cancer registration data at the time this report was prepared.
2. Some states and territories use an imputation method for determining Indigenous cancers, which may lead to differences between these data and those shown in jurisdictional cancer incidence reports.
3. Crude rate is the number of new cases of cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2015.

A20 Cervical cancer mortality

Table A20.1: Cervical cancer mortality, by age, 2017

Age group	Deaths	Crude rate
25–29	4	0.4
30–34	6	0.6
35–39	13	1.6
40–44	15	1.9
45–49	16	1.9
50–54	23	2.9
55–59	20	2.6
60–64	19	2.8
65–69	24	4.0
70–74	18	3.7
25–74	**158**	**2.1**

Notes

1. Deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. Crude rate is the number of deaths from cervical cancer per 100,000 women. Rates based on fewer than 20 deaths should be interpreted with caution.

Source: AIHW National Mortality Database.

Table A20.2: Cervical cancer mortality, by state and territory, women aged 25–74, 2013–2017

State or territory	Deaths	Crude rate	AS rate
NSW	259	2.2	2.1
Vic	182	1.9	1.9
Qld	208	2.8	2.7
WA	98	2.5	2.5
SA	71	2.7	2.5
Tas	26	3.2	3.1
ACT	11	1.8	1.7
NT	10	2.8	3.1
Australia	**865**	**2.3**	**2.2**

Notes

1. Deaths from 2013 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on the revised version; and deaths registered in 2016 and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. Crude rate is the number of deaths from cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001. Rates based on fewer than 20 deaths should be interpreted with caution.

Source: AIHW National Mortality Database.

Table A20.3: Cervical cancer mortality, by remoteness area, women aged 25–74, 2013–2017

Remoteness area	Deaths	Crude rate	AS rate
Major cities	559	2.1	2.1
Inner regional	169	2.5	2.3
Outer regional	109	3.4	3.2
Remote	9	2.1	2.0
Very remote	12	4.3	4.7
Australia	**865**	**2.3**	**2.2**

Notes

1. Remoteness classification is based on area of usual residence (Statistical Local Area Level 2) at time of death.
2. 'Australia' does not match the total number of women across different remoteness areas, because some women were not allocated to a remoteness area.
3. Deaths from 2013 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on the revised version; and deaths registered in 2016 and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
4. Crude rate is the number of deaths from cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001. Rates based on fewer than 20 deaths should be interpreted with caution.

Source: AIHW National Mortality Database.

Table A20.4: Cervical cancer mortality, by socioeconomic area, women aged 25–74, 2013–2017

Socioeconomic area	Deaths	Crude rate	AS rate
1 (most disadvantaged)	234	3.4	3.3
2	202	2.8	2.6
3	182	2.4	2.3
4	147	1.9	1.9
5 (least disadvantaged)	93	1.2	1.2
Australia	**865**	**2.3**	**2.2**

Notes

1. Socioeconomic area was allocated using the ABS Index of Relative Socio-Economic Disadvantage based on area of usual residence (Statistical Local Area Level 2) at time of death.
2. 'Australia' does not match the total number of women across different socioeconomic areas, because some women were not allocated to a socioeconomic area.
3. Deaths from 2013 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration registered in 2015 are based on the revised version; and deaths registered in 2016 and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
4. Crude rate is the number of deaths from cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW National Mortality Database.

Table A20.5: Cervical cancer mortality, by Indigenous status, women aged 25–74, 2013–2017

Indigenous status	Deaths	Crude rate	AS rate
Indigenous	49	6.7	7.6
Non-Indigenous	593	2.3	2.2
Not stated	4	. .	. .
Total	646	2.5	2.4
Australia	**865**	**2.3**	**2.2**

Notes

1. Data shown for 'Indigenous', 'Non-Indigenous' and 'Total' are for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only; data from these jurisdictions were considered to have adequate levels of Indigenous identification in cancer mortality data at the time this report was prepared.
2. Deaths from 2013 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on the revised version; and deaths registered in 2016 and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
3. Crude rate is the number of deaths from cervical cancer per 100,000 women. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 women, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW National Mortality Database.

Appendix B: HPV vaccination coverage

While it is a separate program from the NCSP, the National Immunisation Program (NIP) supports the cervical screening program through the provision of free HPV vaccines for young Australians. Through vaccination against HPV, the NIP provides primary prevention of cervical cancer; secondary prevention is provided by cervical screening through the NCSP.

In addition to the shared aim of reducing the incidence of cervical cancer, HPV vaccination has a significant impact on the outcomes of the NCSP, such as the effect of HPV vaccination on high-grade abnormalities. It is therefore relevant to report on HPV vaccination rates in Australia in this publication. These are sourced from the coverage data that were published routinely by the VCS Foundation, which operated the National HPV Vaccination Program Register until it was closed on 31 December 2018 (National HPV Vaccination Program Register 2018) HPV vaccination data were thereafter provided to the Australian Immunisation Register.

As shown in Table B1, as at September 2018, national HPV vaccination coverage in 2017 for female adolescents turning 15 years of age was high. HPV vaccination coverage has been increasing since 2012, with an 80.2% 3-dose coverage rate for females recorded in 2017. As expected, coverage decreases with increasing number of doses; in 2017 vaccine coverage for 1 dose was 88.9%, for 2 doses 86.0%, and for 3 doses 80.2% (National HPV Vaccination Program Register 2018).

Table B1: National HPV vaccination coverage for female adolescents turning 15 years of age

Year	Coverage dose 1	Coverage dose 2	Coverage dose 3
2012	82.7	79.2	71.5
2013	82.1	78.4	71.7
2014	83.7	80.3	74.1
2015	86.4	83.7	78.0
2016	86.5	83.8	78.6
2017	88.9	86.0	80.2

Notes

1. Coverage is calculated as doses administered and reported to the HPV Register/Estimated Resident Population, expressed as a percentage.
2. Year is the year in which females turn 15 years of age; 15 years of age is used as the age for routine review of vaccination coverage that provides the best comparison to allow for these varying ages in administration, as per World Health Organization recommendations.

Sources: National HPV Vaccination Register 2018; VCS Foundation 2018.

In 2018, Australia commenced using the nonavalent HPV vaccine, *Gardasil9,* replacing the quadrivalent vaccine, *Gardasil,* thereby protecting against an additional 5 types of HPV (types 6, 11, 16, 18, 31, 33, 45, 52 and 58). The program began in line with the school year, and reduced the number of doses from 3 to 2 (spaced 6–12 months apart). The introduction of this vaccine will further improve the protection that females vaccinated against HPV have against the development of CIN and cervical cancer. A recent study suggested that up to 93% of cervical cancers in Australia are associated with the HPV types covered by the new vaccine (Brotherton et al. 2017). In addition, by moving to the nonavalent vaccine, and decreasing the number of recommended doses, the rate of compliance with the vaccination schedule is expected to increase.

Appendix C: Data sources

The multiple data sources used for this report are summarised in Table C1.

Table C1: Data sources for *National Cervical Screening Program monitoring report 2019*

Indicators used to monitor cervical screening in Australia	Data source
Performance indicator 1 Participation	National Cancer Screening Register; Australian Bureau of Statistics population data
Performance indicator 2 Response to invitation	National Cancer Screening Register
Performance indicator 3 Rescreening	National Cancer Screening Register
Performance indicator 4 Screening results	National Cancer Screening Register
Performance indicator 5 Correlation of screening results	. .
Performance indicator 6 Screening HPV test positivity	National Cancer Screening Register
Performance indicator 7 Cervical cancer diagnosed after a low risk screening test result	. .
Performance indicator 8 Self-collection women positive for oncogenic HPV (not 16/18) who have an LBC test within 6 months	National Cancer Screening Register
Performance indicator 9 Self-collection women positive for oncogenic HPV 16/18 who have a colposcopy within 6 months	. .
Performance indicator 10 Adherence to recommendation for follow-up	. .
Performance indicator 11 Follow-up results	National Cancer Screening Register
Performance indicator 12 Colposcopy rate	. .
Performance indicator 13 Time to colposcopy	. .
Performance indicator 14 Biopsy rate	. .
Performance indicator 15 Yield of high-grade abnormalities on biopsy among women who attend colposcopy with higher risk screening results	. .
Performance indicator 16 Positive predictive value of colposcopy	. .
Performance indicator 17a High-grade cervical abnormality detection rate	. .
Performance indicator 17b Cervical cancer detection rate	. .
Performance indicator 18 Cervical cancers diagnosed by time since last screen	. .
Performance indicator 19 Incidence of cervical cancer	AIHW Australian Cancer Database; Australian Bureau of Statistics population data
Performance indicator 20 Mortality from cervical cancer	AIHW National Mortality Database; Australian Bureau of Statistics population data

National Cancer Screening Register

Data for most performance indicators were calculated using NCSR data, according to definitions and data specifications in the *National Cervical Screening Program data dictionary* (AIHW 2017). Information about data quality and completeness appear in Box 2.1 and Table 3.1.

The Data Quality Statement for NCSP data can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/724642.

AIHW Australian Cancer Database

All forms of cancer, except basal and squamous cell carcinomas of the skin, are notifiable diseases in each Australian state and territory. Legislation in each jurisdiction requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry. An agreed subset of the data collected by these cancer registries is supplied annually to the Australian Institute of Health and Welfare (AIHW), where it is compiled into the Australian Cancer Database (ACD).

The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2014 for all states and territories, and for 2015 cases for all jurisdictions except New South Wales. Cancer reporting and registration is a dynamic process, and records in the state and territory cancer registries may be modified if new information is received. Hence, the number of cancer cases reported by the AIHW for any particular year may change slightly over time and may not always align with state and territory reporting for that year.

The Data Quality Statement for the ACD 2015 can be found at https://meteor.aihw.gov.au/content/index.phtml/itemId/716147.

AIHW National Mortality Database

The AIHW National Mortality Database (NMD) contains information provided by the registries of births, deaths and marriages and the National Coronial Information System (coded by the ABS), for deaths from 1964 to 2017. The Registry of Births, Deaths and Marriages in each state and territory is responsible for the registration of deaths. These data are then collated and coded by the ABS and maintained at the AIHW in the NMD.

In the NMD, both the year in which death occurred and the year in which it was registered are provided. For the purposes of this report, actual mortality data are based on the year the death occurred, except for the most recent year (2017), for which the number of people whose death was registered is used. Previous investigation has shown that the year of death and its registration coincide for the most part. However, in some instances, deaths at the end of each calendar year may not be registered until the following year. Thus, year-of-death information for the latest available year is generally an underestimate of the actual number of deaths that occurred in that year.

In this report, deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on the revised version; and deaths registered in 2016 and 2017 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.

The data quality statements underpinning the AIHW NMD can be found at:

- ABS quality declaration summary for Deaths, Australia, 2017 (ABS cat. no. 3302.0) http://www.abs.gov.au/ausstats/abs%40.nsf/mf/3302.0/
- ABS quality declaration summary for Causes of death, Australia, 2017 (ABS cat. no. 3303.0) http://www.abs.gov.au/ausstats/abs%40.nsf/mf/3303.0/.

For more information on the AIHW NMD and deaths data, see https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/deaths-data.

Aboriginal and Torres Strait Islander deaths

The ABS Death Registrations collection identifies a death as Aboriginal and Torres Strait Islander where the deceased is recorded as Aboriginal, Torres Strait islander, or both, on the Death Registration Form. Since 2007, the Indigenous status of the deceased has also been derived from the Medical Certificate of Cause of Death for South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory. For New South Wales and Victoria, the Indigenous status of the deceased is derived from the Death Registration Form only. If the Indigenous status reported in this form does not agree with that in the Medical Certificate of Cause of Death, an identification from either source that the deceased was an Aboriginal and/or Torres Strait Islander person is given preference over identifying them as non-Indigenous.

National HPV Vaccination Program Register

The National HPV Vaccination Program Register supported the National HPV Vaccination Program funded by the Australian Government and played an essential role in monitoring and evaluating the program by recording information about HPV vaccine doses administered in Australia. The National HPV Vaccination Program Register was operated by the VCS Foundation until 31 December 2018, after which it was incorporated into the Australian Immunisation Register.

Links to HPV vaccination coverage data in this report are available at http://www.hpvregister.org.au/.

Australian Bureau of Statistics population data

Throughout this report, population data were used to derive rates of participation in cervical screening, cervical cancer incidence and cervical cancer mortality. The population data were sourced from the ABS using the most up-to-date estimates available at the time of analysis.

To derive its estimates of the resident populations, the ABS uses the 5-yearly Census of Population and Housing data, adjusted as follows:

- all respondents in the Census are placed in their state or territory, Statistical Area and postcode of usual residence; overseas visitors are excluded
- an adjustment is made for persons missed in the Census
- Australians temporarily overseas on Census night are added to the usual residence Census count.

Estimated resident populations are then updated each year from the Census data, using indicators of population change, such as births, deaths and net migration. More information is available from the ABS website at www.abs.gov.au.

For the Indigenous comparisons of incidence and mortality in this report, Indigenous experimental estimated resident populations, as released by the ABS, were used. Those estimates were based on the 2011 Census of Population and Housing.

Hysterectomy fractions

Hysterectomy fractions represent the proportion of women with an intact uterus (and cervix) at a particular age and are used to adjust the population for participation calculations. This is because women who have had a hysterectomy with their cervix removed are not at risk of cervical cancer and thus do not require screening. Since a substantial proportion (20%–30%) of middle-aged and older women in Australia do not have an intact cervix, the population is adjusted to remove these women, so that true participation in cervical screening can be more accurately estimated.

The National Hospital Morbidity Database is based on summary records of patient separations, referring to episodes of care in public and private hospitals; it allows relatively complete hysterectomy numbers and rates for financial years from the mid-1990s to be viewed. These data were used, with projections forward and backward where required, to generate estimates of current hysterectomy prevalence for women aged 25–74. Published hysterectomy incidence trends, as well as data from the 1995, 2001 and 2004–05 NHS, were drawn on to ensure accurate assumptions.

The results of these combined approaches are robust hysterectomy fractions that reflect both historical and current hysterectomy trends, which can be used in the calculation of participation in cervical screening for the most recent participation data.

Table C2: National hysterectomy fractions, women aged 25–74, 2016

Age group (years)	Proportion of women who have not had a hysterectomy
25–29	0.998
30–34	0.991
35–39	0.962
40–44	0.916
45–49	0.859
50–54	0.810
55–59	0.772
60–64	0.736
65–69	0.706
70–74	0.703

Source: AIHW analysis of the National Hospital Morbidity Database.

COMPASS

COMPASS is a clinical trial comparing 2.5-yearly Pap test screening with 5-yearly HPV screening by the Victorian Cytology Service in collaboration with Cancer Council NSW. Cervical screening tests conducted as part of the COMPASS trial are not recorded in the NCSR, which means that these women are unable to be counted in the numerator for participation.

To adjust for this, the number of women participating in COMPASS in a given year are removed from the denominator for that year, prior to the calculation of participation.

For further information on COMPASS, see http://www.compasstrial.org.au/.

Appendix D: Classifications

Age

The data in this report are stratified by the age of the woman at the time of the specified test or at the time an invitation was sent (for cervical screening data), at the time of diagnosis (for cancer incidence data), or at the time of death (for cancer mortality data).

State or territory

The state or territory reported is the one where screening took place or where an invitation was sent (for cervical screening data), where the diagnosis was made (for cancer incidence data), or the place of usual residence (for cancer mortality data).

For cervical screening data, women were allocated to a state or territory using their state or postcode at the time of their test (for migrated pre-renewal data) or the state or territory associated with their test as advised by the NCSR (for post-renewal data). Caution is advised, however, as the state or postcode used to allocate women may not represent their location of residence, and some postcodes cross state and territory boundaries.

Further, direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions, including population, area, geographical structure, policies and other factors.

Remoteness area

Remoteness areas divide Australia into broad geographical regions that share common characteristics of remoteness for statistical purposes. The remoteness structure divides each state and territory into several regions on the basis of their relative access to services. There are 6 classes of remoteness area: *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory*. The category *Major cities* includes Australia's capital cities, except for Hobart and Darwin, which are classified as *Inner regional*. Remoteness areas are based on the Accessibility and Remoteness Index of Australia, produced by the Australian Population and Migration Research Centre at the University of Adelaide.

For participation calculations, women were allocated to a remoteness area using their postcode, as supplied at the time of screening. Caution is required when examining differences across remoteness areas for the following reasons: firstly, postcodes used to allocate women may not represent their location of usual residence; secondly, as these are based on the 2016 Census, the accuracy of remoteness area classifications diminishes, due to subsequent changes in demographics; thirdly, some postcodes (and hence some individual women) are unable to be allocated to a remoteness area.

Socioeconomic area

The Index of Relative Socio-Economic Disadvantage (1 of 4 Socio-Economic Indexes for Areas developed by the ABS) is based on factors such as average household income, education levels and unemployment rates. It is not a person-based measure but an area-based measure of socioeconomic disadvantage in which small areas of Australia are classified on a continuum from disadvantaged to affluent. This information is used as a proxy

for the socioeconomic disadvantage of people living in those areas and may not be correct for each person in that area.

In this report, the first socioeconomic area (quintile 1) corresponds to geographical areas containing the 20% of the population with the greatest socioeconomic disadvantage according to the Index of Relative Socio-Economic Disadvantage, and the fifth group (quintile 5) corresponds to the 20% of the population with the least socioeconomic disadvantage.

For participation, women were allocated to a socioeconomic area using their postcode, as supplied at the time of screening. Caution is required when examining differences across socioeconomic areas for the following reasons: firstly, postcodes used to allocate women may not represent their location of residence; secondly, as these are based on the 2016 Census, the accuracy of socioeconomic area classifications diminishes due to subsequent changes in demographics; thirdly, many postcodes (and hence women) are unable to be allocated to a socioeconomic area.

Classification of cervical cancer by histology

Histology codes to classify cervical cancer into histological groups are listed in Table D1.

Table D1: Cervical cancer by histological type

Type of cervical cancer	ICD-O-3 codes
1: Carcinoma	8010–8380, 8382–8576
1.1: Squamous cell carcinoma	8050–8078, 8083–8084
1.2: Adenocarcinoma	8140–8141, 8190–8211, 8230–8231, 8260–8263, 8382–8384, 8440–8490, 8570–8574, 8310, 8380, 8576
1.3: Adenosquamous carcinoma	8560
1.4: Other specified and unspecified carcinoma	ICD-O-3 codes for carcinoma excluding those for squamous cell carcinoma, adenocarcinoma and adenosquamous carcinoma
2: Sarcoma	8800–8811, 8840–8921, 8990–8991, 9040–9044, 9120–9133, 9540–9581, 8830, 9150
3: Other specified and unspecified malignant neoplasm	ICD-O-3 codes for cervical cancer, excluding those for carcinoma and sarcoma

Appendix E: Statistical methods

Crude rates

A ‘crude rate’ is defined as the number of events over a specified period of time (for example, a year), divided by the total population. For example, a crude cancer incidence rate is similarly defined as the number of new cases of cancer in a specified period of time divided by the population at risk. Crude mortality rates and cancer incidence rates are expressed in this report as number of deaths or new cases per 100,000 population. ‘Crude participation rate’ is expressed as a percentage.

Age-specific rates

Age-specific rates provide information on the incidence of a particular event in an age group, relative to the total number of people at risk of that event in the same age group. It is calculated by dividing the number of events occurring in each specified age group by the corresponding ‘at-risk’ population in the same age group, and then multiplying the result by a constant (for example, 100,000) to derive the rate. Age-specific rates are often expressed per 100,000 population.

Age-standardised rates

A crude rate (see earlier) provides information on the number of; for example, new cases of cancer or deaths from cancer in the population at risk in a specified period. No age adjustments are made when calculating a crude rate. Since the risk of cancer is heavily dependent on age, crude rates are not suitable for looking at trends or making comparisons across groups in cancer incidence and mortality.

More meaningful comparisons can be made by using age-standardised rates, with such rates adjusted for age in order to facilitate comparisons between populations that have different age structures; for example, between Indigenous people and other Australians. This standardisation process effectively removes the influence of age structure on the summary rate.

Two methods are commonly used to adjust for age: direct and indirect standardisation. In this report, the direct standardisation approach presented by Jensen and colleagues (1991) is used. To age-standardise using the direct method, the first step is to obtain population numbers and numbers of cases (or deaths) in age ranges, typically 5-year age ranges. The next step is to multiply the age-specific population numbers for the standard population (in this case, the Australian population as at 30 June 2001) by the age-specific incidence rates (or death rates) for the population of interest (such as those in a certain socioeconomic area or those who lived in *Major cities*). The next step is to sum across the age groups and divide this sum by the total of the standard population, to give an age-standardised rate for the population of interest. Finally, this is expressed per 1,000 or 100,000, as appropriate.

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Abbreviations

ABS	Australian Bureau of Statistics
ACD	Australian Cancer Database
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
CALD	culturally and linguistically diverse
AIS	adenocarcinoma in situ
AS	age-standardised
ASC	adenosquamous carcinoma
ASGS	Australian Statistical Geography Standard
CIN 1	cervical intraepithelial neoplasia grade 1
CIN 2	cervical intraepithelial neoplasia grade 2
CIN 3	cervical intraepithelial neoplasia grade 3
CST	Cervical Screening Test
d	definite
ERP	estimated resident population
DNA	deoxyribonucleic acid
HPV	human papillomavirus
HPV NAT	human papillomavirus nucelic acid testing
HSIL	high-grade squamous intraepithelial lesion
ICD	International Classification of Disease
ICD-O-3	International Classification of Diseases for Oncology, 3rd Edition
LBC	liquid based cytology
LSIL	low-grade squamous intraepithelial lesion
NCSP	National Cervical Screening Program
NCSR	National Cancer Screening Register
NHMD	National Hospital Morbidity Database
nKPI	national Key Performance Indicator
NMD	National Mortality Database
NOS	not otherwise specified
NIP	National Immunisation Program
NSW	New South Wales

NT	Northern Territory
p	possible
PPV	positive predictive value
Qld	Queensland
RA	remoteness area
RDE	raw data extract
SA	South Australia
SCC	squamous cell carcinoma
SEIFA	Socio-Economic Indexes for Areas
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

. .	not applicable
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
<	less than
>	greater than

Glossary

Aboriginal or Torres Strait Islander: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Indigenous**.

age-specific rate: A rate for a specific age group. The numerator and denominator relate to the same age group.

age-standardised rate: A rate derived by removing the influence of age when comparing populations with different age structures. This is usually necessary as the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure, which allows disease rates to be compared.

Australian Statistical Geography Standard: Common framework defined by the Australian Bureau of Statistics for collecting and disseminating geographically classified statistics; it replaced the Australian Standard Geographical Classification in July 2011.

biopsy: Small sample of tissue taken to obtain a definitive diagnosis of an abnormality.

cancer (malignant neoplasm): A large range of diseases in which some of the body's cells become defective and begin to multiply out of control. These cells can invade and damage the area around them and can also spread to other parts of the body to cause further damage.

cancer death: A death where the underlying cause of death is indicated as **cancer**. People with cancer who die of other causes are not counted in the **mortality** statistics in this publication.

cervical screening test (CST): Consists of an human papillomavirus (HPV) test with partial genotyping and, if the HPV test detects oncogenic HPV, liquid based cytology (LBC).

cytology: The 'study of cells'; in the context of cervical **screening**, the cells from the cervix that are collected and examined for abnormalities.

endocervical abnormality (cytology): An endocervical result of 'E2 Atypical endocervical cells of uncertain significance', 'E3 Possible high-grade endocervical glandular lesion', 'E4 Adenocarcinoma in situ', 'E5 Adenocarcinoma in situ with possible microinvasion/invasion' or 'E6 Adenocarcinoma', regardless of the corresponding squamous result for that **cytology** test.

endocervical abnormality (histology): An endocervical result of 'HE02 Endocervical atypia', 'HE03.1 Endocervical dysplasia', 'HE03.2 Adenocarcinoma in situ', 'HE04.1 Microinvasive adenocarcinoma', 'HE04.2 Invasive adenocarcinoma', 'HE04.3 Adenosquamous carcinoma' or 'HE04.4 Carcinoma of the cervix (other)', regardless of any squamous result. Note that 'HE04.3 Adenosquamous carcinoma' and 'HE04.4 Carcinoma of the cervix (other)' are included as endocervical abnormalities for data reporting purposes, but that the former is not solely of endocervical origin, and the latter comprises rarer carcinomas of other epithelial origin.

false negative: A test that incorrectly indicates that the disease is not present.

false positive: A test that incorrectly indicates that the disease is present.

genotyping: The process of determining which genetic variants an individual possesses. In the context of cervical **screening**, it is used to determine whether an **HPV** test that is positive for **oncogenic HPV** is positive for HPV types 16 or 18.

histology: Examination of tissue from the cervix through a microscope, which is the primary diagnostic tool of the National Cervical Screening Program. Also referred to as **histological**.

histological: See **histology**.

HPV: An abbreviation for human papillomavirus, a virus that affects both males and females. There are around 100 types of HPV, with around 40 types known as 'genital HPV', which are contracted through sexual contact. Persistent infection with **oncogenic HPV** types can lead to cervical cancer, whereas infection with non-oncogenic types of HPV can cause genital warts.

incidence: The number of new cases (for example, of an illness or event) occurring during a given period, usually 1 year.

Indigenous: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Aboriginal or Torres Strait Islander**.

in situ: A Latin term meaning 'in place or position'; undisturbed.

morbidity: Illness.

mortality: The number of deaths occurring during a given period.

National HPV Vaccination Program: A program introduced on 1 April 2007, initially for females. At inception, it comprised an ongoing vaccination program for girls aged 12–13 (administered through schools) and a catch-up program for females aged 13–26 between 2007 and 2009, with girls aged 13–17 vaccinated through schools and women aged 18–26 vaccinated through the community. From February 2013, the current school-based program for girls aged 12–13 was extended to boys aged 12–13, with a catch-up program in 2013 and 2014 for boys aged 14–15.

negative cytology: A cervical **cytology** test where the squamous result is 'S1 Negative' and the endocervical result is either 'E0 No endocervical component' or 'E1 Negative'.

new cancer case: A person who has a new **cancer** diagnosed for the first time. One person may have more than 1 cancer and therefore may be counted twice in **incidence** statistics if it is decided that the 2 cancers are not of the same origin. This decision is based on a series of principles, set out in more detail in a publication by Jensen and others (1991).

no endocervical component: Defines a cervical **cytology** test with any squamous result and an endocervical result of 'E0 No endocervical component'. This means that no endocervical cells are present in the sample, and thus only the squamous cells in the sample can be assessed for the presence of abnormalities or cancer.

oncogenic: Cancer-causing.

oncogenic HPV: Those types of **HPV** associated with the development of cervical cancer. Currently, 15 oncogenic types of HPV are recognised. HPV types 16, 18, and 45 are most commonly associated with cervical cancer.

Pap test: A shortened expression for Papanicolaou smear—a procedure used to detect **cancer** and precancerous conditions of the female genital tract, and which was the **screening** test of the National Cervical Screening Program before 1 December 2017. During a Pap test, cells are collected from the transformation zone of the cervix—the area where the squamous cells from the outer opening of the cervix and glandular cells from the endocervical canal meet. This is the site where most cervical abnormalities and cancers are detected. For conventional **cytology**, these cells are transferred onto a slide, and sent to a pathology laboratory for assessment. Collected cells are then examined under a microscope to look for abnormalities.

previous NCSP: The National Cervical Screening Program that used the **Pap test** as its primary **screening** tool; it ceased on 30 November 2017, to be replaced by the **renewed NCSP**.

primary screening episode: Encompasses a primary screening HPV test and an LBC if this is required.

renewed NCSP: The National Cervical Screening Program that uses **HPV** testing as its primary **screening** tool; it commenced on 1 December 2017.

repeat (follow-up) screening episode: Encompasses a follow-up HPV test (repeat HPV test after negative or pLSIL/LSIL reflex LBC) and an LBC if this is required. Usually occurs at 12 months (or between 9 and 15 months) after the primary screening episode.

screening: The application of a test to a population with no overt signs or symptoms of the disease in question to detect disease at a stage when treatment is more effective. The screening test is used to identify people who require further investigation to determine the presence or absence of disease, and is not primarily a diagnostic test.

The purpose of screening an asymptomatic individual is to detect early evidence of an abnormality or abnormalities—such as pre-malignant changes (for example, by **Cervical Screening Test**) or early invasive malignancy in order to recommend preventive strategies or treatment that will provide a better health outcome than if the disease were diagnosed at a later stage.

squamous abnormality (cytology): A squamous result of ‘S2 Possible low-grade squamous intraepithelial lesion’, ‘S3 Low-grade squamous intraepithelial lesion’, ‘S4 Possible high-grade squamous intraepithelial lesion’, ‘S5 High-grade squamous intraepithelial lesion’, ‘S6 High-grade intraepithelial lesion with possible microinvasion/invasion’ or ‘S7 Squamous cell carcinoma’, regardless of the corresponding endocervical result for that **cytology** test.

squamous abnormality (histology): A squamous result of ‘HS02 Low-grade squamous abnormality’, ‘HS03.1 Cervical intraepithelial neoplasia (CIN) not otherwise specified (NOS)’, ‘HS03.2 CIN 2’, ‘HS03.3 CIN 3’, ‘HS04.1 Microinvasive squamous cell carcinoma’ or ‘HS04.2 Invasive squamous cell carcinoma’, regardless of any endocervical result.

unsatisfactory cytology: A cervical **cytology** test where the squamous result is ‘SU Unsatisfactory’ and the endocervical result is ‘EU Unsatisfactory’, or where the squamous result is ‘SU Unsatisfactory’ and the endocervical result is either ‘E0 No endocervical component’ or ‘E1 Negative’. While not a true result per se, ‘unsatisfactory cytology’ means that, due to the unsatisfactory nature of the cells sampled, the pathologist is unable to determine a clear result. This may be due to either too few or too many cells, or to the presence of blood or other factors obscuring the cells, or to poor staining or preservation.

References

ABS (Australian Bureau of Statistics) 2012. Census of Population and Housing: characteristics of Aboriginal and Torres Strait Islander Australians, 2011. ABS cat. no. 2076.0. Canberra: ABS. Viewed 5 September 2014, http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/2076.0main+features1102011.

AIHW (Australian Institute of Health and Welfare) 2017. National Cervical Screening Program data dictionary. Version 1.0. Cancer series no. 103. Cat. no. CAN 102. Canberra: AIHW.

AIHW 2018. National Key Performance Indicators for Aboriginal and Torres Strait Islander primary health care: results for 2017. National key performance indicators for Aboriginal and Torres Strait Islander primary health care series no. 5. Cat. no. IHW 200. Canberra: AIHW.

AIHW 2019a. Analysis of cervical cancer and abnormality outcomes in an era of cervical screening and HPV vaccination in Australia. Cancer series no. 126. Cat. no. CAN 129. Canberra: AIHW.

AIHW 2019b. Cervical screening in Australia 2019. Cancer series no. 123. Cat. no. CAN 124. Canberra: AIHW.

Blomfield P & Saville M 2008. Outstanding problems—glandular lesions. Cancer Forum 32(2). Viewed 29 March 2019, https://www.cancer.org.au/content/healthprofessional/CancerForum/issues/2008-July.pdf.

Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA & Jemal A 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA A Cancer Journal for Clinicians 68(6):394–424.

Brotherton JM 2008. How much cervical cancer in Australia is vaccine preventable? A meta-analysis. Vaccine 26(2):250–256.

Brotherton JML, Tabrizi SN, Phillips S, Pyman J, Cornall A, Lambie N et al. 2017. Looking beyond human papillomavirus (HPV) genotype 16 and 18: defining HPV genotype distribution in cervical cancers in Australia before vaccination. International Journal of Cancer 141(8):1576–1584. doi:10.1002/ijc.30871. Epub 2017 July 14.

Brotherton J, Budd A & Saville M 2019a, forthcoming. Understanding the proportion of cervical cancers attributable to HPV. Medical Journal of Australia.

Brotherton JM, Hawkes D, Sultana F, Malloy MJ, Machalek DA, Smith MA, Garland SM & Saville M 2019b. Age-specific HPV prevalence among 116,052 women in Australia's renewed cervical screening program: a new tool for monitoring vaccine impact. Vaccine 2019 (Jan 14) 37(3):412–416. doi: 10.1016/j.vaccine.2018.11.075.

Cancer Council Australia 2014. Cervical cancer prevention policy—cervical cancer: causes. Sydney: Cancer Council Australia. Viewed 14 April 2015, http://wiki.cancer.org.au/policy.

Cancer Council Australia & Cervical Cancer Screening Guidelines Working Party 2016. National Cervical Screening Program: guidelines for the management of screen-detected abnormalities, screening in specific populations and investigation of abnormal vaginal bleeding. Sydney: Cancer Council Australia. Viewed 1 April 2019, https://wiki.cancer.org.au/australia/Guidelines:Cervical_cancer/Screening.

Curado MP, Edwards B, Shin HR, Storm H, Ferlay J, Heanue M et al. (eds) 2007. Cancer incidence in five continents: vol. IX. IARC Scientific Publications no. 160. Lyon, France: International Agency for Research on Cancer (IARC).

Hall MT, Simms KT, Lew JB, Smith MA, Brotherton JM, Saville M, Frazer IH & Canfell K 2019. The projected timeframe until cervical cancer elimination in Australia: a modelling study. Lancet Public Health 2019 (Jan) 4(1):e19–e27. doi: 10.1016/S2468-2667(18)30183-X.

Hodgson A & Park KJ 2019. Cervical adenocarcinomas: a heterogeneous group of tumors with variable etiologies and clinical outcomes. Archives of Pathology & Laboratory Medicine 143:34–46.

Jensen OM, Parkin DM, MacLennan R, Muir CS & Skeet RG (eds) 1991. Cancer registration: principles and methods. IARC Scientific Publication no. 95. Lyon, France: IARC.

National HPV Vaccination Program Register 2018. Coverage data. Canberra: Department of Health. Viewed 8 April 2019, http://www.hpvregister.org.au/research/coverage-data.

Schiffman M, Castle PE, Jeronimo J, Rodriguez AC & Wacholder S 2007. Human papillomavirus and cervical cancer. Lancet 370(9590):890–907.

Schiffman M & Kjaer SK 2003. Natural history of anogenital human papillomavirus infection and neoplasia, Chapter 2. Journal of the National Cancer Institute Monographs (31):14–19.

Standing Committee on Screening 2016. Population Based Screening Framework. Report prepared for the Community Care and Population Health Principal Committee of the Australian Health Ministers' Advisory Council. Canberra: Department of Health. Viewed 12 November 2019, http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/population-based-screening-framework.

Stolnicu S, Barsan I, Hoang L, Patel P, Terinte C, Pesci A et al. 2018. International Endocervical Adenocarcinoma Criteria and Classification (IECC): a new pathogenetic classification for invasive adenocarcinomas of the endocervix. American Journal of Surgical Pathology 42:214–226.

Whop LJ, Garvey G, Baade P, Cunningham J, Lokuge K, Brotherton JM et al. 2016. The first comprehensive report on Indigenous Australian women's inequalities in cervical screening: a retrospective registry cohort study in Queensland, Australia (2000–2011). Cancer 122(10):1560–69.

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Related publications

National Cervical Screening Program monitoring report is an annual report. This and previous *Cervical screening in Australia* reports and their supplementary data tables are available from the AIHW website https://www.aihw.gov.au/reports-data/health-welfare-services/cancer-screening/overview.

The following related publications may also be of interest:

AIHW (Australian Institute of Health and Welfare) 2019. Cervical screening in Australia 2019. Cancer series no. 123. Cat. no. CAN 124. Canberra: AIHW.

AIHW 2019. National cancer screening programs participation data. Canberra: AIHW. Viewed 11 November 2019, https://www.aihw.gov.au/reports/cancer-screening/national-cancer-screening-programs-participation/contents/summary.

AIHW 2019. National Bowel Cancer Screening Program monitoring report 2019. Cancer series no. 125. Cat. no. CAN 125. Canberra: AIHW.

AIHW 2019. BreastScreen Australia monitoring report 2019. Cancer series no. 127. Cat. no. CAN 128. Canberra: AIHW.

AIHW 2018. Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia. Cancer series no. 111. Cat. no. CAN 115. Canberra: AIHW.

AIHW 2019. Analysis of cervical cancer and abnormality outcomes in an era of cervical screening and HPV vaccination in Australia. Cancer series no. 126. Cat. no. CAN 129. Canberra: AIHW.

AIHW 2018. Australian Cancer Incidence and Mortality (ACIM) books: cervical cancer. Canberra: AIHW. Viewed 18 February 2019, https://www.aihw.gov.au/reports/cancer/cancer-data-in-australia/acim-books.

Supplementary online data tables

Additional tables are available as online Excel tables at www.aihw.gov.au, under the 'Data' tab for this report. These tables contain detailed statistics for many of the tables and figures presented in summary form in both the body of the report and in Appendix A. Supplementary data tables have the prefix 'S' (for example, 'Table S1.1').

There are 5 Excel files, 1 for each stage of the screening pathway:

- Recruitment
- Screening
- Assessment
- Diagnosis
- Outcomes.

This is the first report to monitor the National Cervical Screening Program since it introduced 5-yearly HPV tests in 2017. In 2018, among women aged 25–74, 1,795,395 had an HPV test, and 9% of all screening HPV tests performed were positive for HPV types that can cause cervical cancer.

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