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Summary

Cancer screening involves testing for signs of cancer or precancerous conditions in people without obvious symptoms. The National Cervical Screening Program (NCSP) is one of Australia's 3 population-based cancer screening programs. It aims to reduce cervical cancer cases, illness and deaths by detecting precancerous abnormalities before any potential progression to cervical cancer.

The 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 to detect precancerous changes, allowing treatment before any progression to cervical cancer, thereby preventing this disease.

A renewed NCSP was introduced on 1 December 2017 that included a change from 2-yearly Pap tests for the target age group 20–69 to 5-yearly Cervical Screening Tests (CST) for the target age group 25–74. A CST is a human papillomavirus (HPV) test, followed by a liquid based cytology (LBC) test if oncogenic (cancer-causing) HPV is found.

Four years after its commencement, this is the third report to present data for the renewed NCSP. This report presents data against 17 of the 20 performance indicators that will be used to monitor the NCSP going forward.

Data included in this report are for the calendar years 2018, 2019, and 2020.

Terminology

This report uses the terms 'people' and 'participants' when referring to data collected under the NCSP. These data are not restricted by sex or gender, with all participants in cervical screening included in these data. For NCSP data, 'people' is defined as any person with a cervix. This may include women, transgender men, intersex people, and non-binary people.

This report uses the term 'women' to mean 'female' when referring to data collected outside the NCSP as these other data sources are based on sex assigned at birth. These include cancer incidence data, and cancer mortality data. However, it should be noted that some people may not identify with this term.

Impact of COVID-19 on cervical screening in Australia

The COVID-19 pandemic has affected many areas of people's lives, including their access to and use of health services, such as cancer screening programs.

Many of the performance indicators in this report are reported for 2020, which coincided with the start of the COVID-19 pandemic in Australia. The transitional nature of the renewed NCSP makes it difficult to ascertain the short-term impacts of COVID-19 on cervical screening. Potential impacts have been detailed where appropriate in the text in this report, and detailed more thoroughly in earlier reports, *Cancer screening and COVID-19 in Australia* (AIHW 2020; AIHW 2021b), that examined the number of screening tests performed in Australia's three national cancer screening programs from January to September 2020.

Future work will provide a better understanding of the potential long-term, indirect health effects of the COVID-19 pandemic on cancer screening and outcomes.

Participation

Participation is measured over the same number of years as the screening interval. This is 5 years for the renewed NCSP. However, as 5 years have not yet passed since it was introduced, 5-year participation cannot yet be reported. In the interim, participation and coverage have been estimated for the years that are available, 2018–2020.

Over the 3 years 2018–2020, more than 3.8 million people aged 25–74 had a screening HPV test (primary screening or 12-month repeat HPV test). Participation has been estimated to be 56% of the eligible population.

Over the 3 years 2018–2020, more than 4.2 million people aged 25–74 had an HPV or LBC test for any reason. Coverage has been estimated to be 62% of the eligible population.

Response to invitation

Of the people aged 25–74 who were invited to screen or rescreen in 2020, 13% had an HPV test within 6 months. This means that 13% of people responded to an invitation to screen.

These data do not currently include people aged 30–74 whose previous Pap test was normal. While transitioning from 2-yearly to 5-yearly screens, this group are sent a reminder to rescreen after they are overdue, not an invitation to rescreen.

Screening results

Risk refers to the risk of significant cervical abnormality, and is determined by the result of the CST. The risk allocated to the person determines their recommendation: people considered to be at low risk are recommended to rescreen in 5 years; people considered to be at intermediate risk are recommended to have a repeat HPV test in 12 months; people at higher risk are recommended to have a colposcopy.

Of the 665,414 primary screening episodes in 2020 in people aged 25–74:

- 89% were low risk
- 8% were intermediate risk
- 3% were higher risk
- fewer than 1% could not be assigned a risk (due to unsatisfactory or incomplete tests).

Screening HPV test positivity

Screening HPV test positivity measures the proportion of primary screening HPV tests that detected oncogenic HPV.

Of the 665,414 primary screening HPV tests performed in 2020 in people aged 25–74:

- 2% were positive for oncogenic HPV types 16 or 18 (the two types of HPV that cause most cervical cancers)
- 8% were positive for oncogenic HPV types other than 16 or 18.

High-grade cervical abnormality detection rate

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.

In 2020, the high-grade detection rate was 16 people with a high-grade abnormality detected per 1,000 people screened aged 25–74. This means that, for every 1,000 people screened, 16 had a high-grade abnormality detected, providing an opportunity for treatment before possible progression to cervical cancer.

Cervical cancer incidence

There were 743 women aged 25–74 diagnosed with cervical cancer in 2017, which is an incidence rate of 10 new cases per 100,000 women.

Incidence for Aboriginal and Torres Strait Islander women was around twice that for non-Indigenous women, with an age-standardised incidence rate of 20 new cases per 100,000 women compared with 10 new cases per 100,000 women.

Cervical cancer mortality

There were 179 women aged 25–74 who died from cervical cancer in 2019, which is a mortality rate of 2 deaths per 100,000 women.

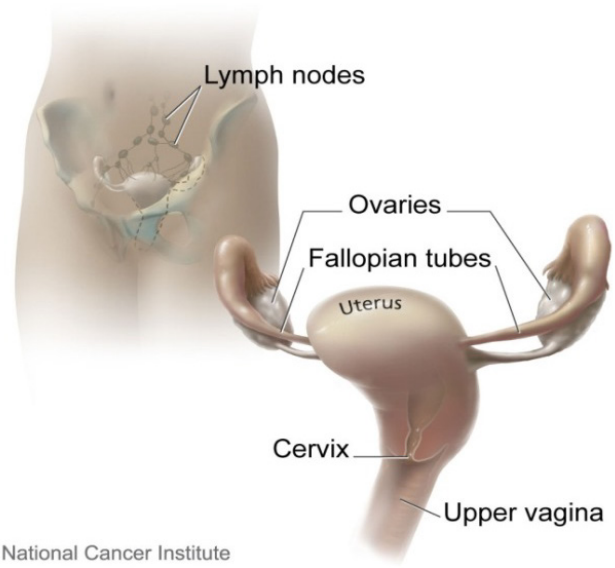
Mortality for Aboriginal and Torres Strait Islander women was more than 3 times that for non-Indigenous women, with an age-standardised mortality rate of 8 deaths per 100,000 women compared with 2 deaths per 100,000 women.

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. Cervical cancer incidence is above 25 new cases per 100,000 women in some such 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 Australia 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 Australian Institute of Health and Welfare (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 at an earlier stage (AIHW 2019).

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. 2020) (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),

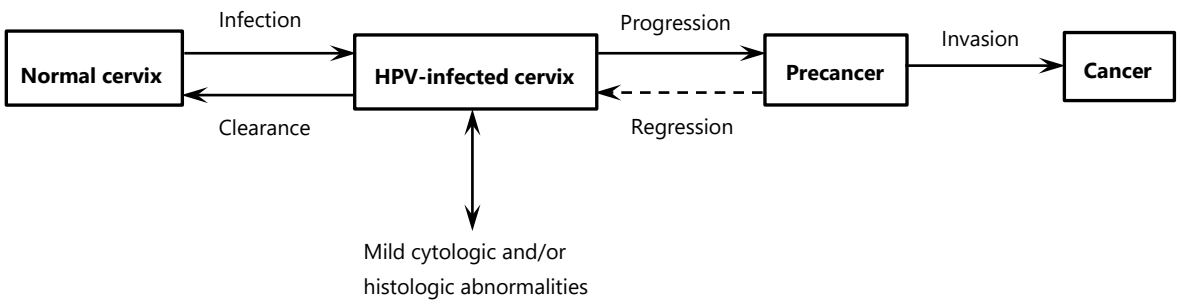
(3) progression to precancerous abnormalities (many of which will also regress with no treatment), and

(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 two 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). The second is a renewed national cervical screening program which commenced on 1 December 2017 and 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 remains a vital secondary prevention strategy for those who are HPV-vaccinated and those who are unvaccinated. It is important that all people with a cervix participate in cervical screening, irrespective of their HPV vaccination status.

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 all squamous cell carcinomas and up to 90% of adenocarcinomas (Brotherton et al. 2020).

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 28% in 2017. 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 HPV being 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. 2020).

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 girls and women aged 14–26. This program was extended to boys from February 2013.

In 2018, Australia commenced using the nonavalent HPV vaccine *Gardasil9,* replacing the quadrivalent vaccine *Gardasil,* protecting against an additional 5 types of HPV (*Gardasil9* protects against types 6, 11, 16, 18, 31, 33, 45, 52 and 58 compared with *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 women developing cervical abnormalities 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

Cancer screening involves testing for signs of cancer or precancerous conditions in people without obvious symptoms. The National Cervical Screening Program (NCSP) is one of Australia's three population-based cancer screening programs. It aims to reduce cervical cancer cases, illness, and deaths by detecting precancerous abnormalities before any potential progression to cervical cancer.

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 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 pathology laboratories through the provision of high-quality cervical cytology, and by state and territory cervical cytology registers through appropriate recommendations for clinical management and provision of a safety net for participants.

Improvements in technology, a greater understanding of the role of 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, to ensure that the NCSP continued to provide Australians with safe and effective cervical screening. As a result of this, a 'renewed' NCSP was introduced on 1 December 2017.

The renewed NCSP means changes to the way that people are screened. Instead of people aged 20–69 having a Pap test every 2 years, people aged 25–74 now have a Cervical Screening Test (CST) every 5 years. The CST is an HPV test, followed by a liquid based cytology (LBC) test if oncogenic HPV is found.

Another change is the collection of cervical screening data by the National Cancer Screening Register (NCSR), which is now the source of these data for the NCSP.

2.1 Screening pathway

Box 2.1: Key terminology used in the screening pathway

People: people with a cervix.

In the context of this report the term 'people' is defined as any person with a cervix. This may include women, transgender men, intersex people, and non-binary people.

Significant cervical abnormality: changes to cells in the cervix that have a higher likelihood of progression to cervical cancer, or cervical cancer itself.

Oncogenic: cancer-causing.

Oncogenic HPV types used to be known as 'high-risk HPV types'. Terminology for these HPV types that cause cervical cancer has been changed from 'high-risk' to 'oncogenic' so as to avoid confusion with the risk levels of the cervical screening pathway, with participants allocated a risk of significant cervical abnormality of 'low', 'intermediate' or 'higher'.

Genotyping: in the context of cervical screening, this is a process to determine the type of oncogenic HPV detected by an HPV test.

Cytology: in the context of cervical screening, this is the process of examining cells that have been collected from the cervix for abnormalities (usually under a microscope).

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

The screening pathway starts with the collection of a sample for a CST, followed by the first step of a CST – an HPV test with partial genotyping.

A positive HPV test means that 1 or more oncogenic types of HPV have 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 detected, which means it not only can detect oncogenic HPV, but also can determine whether the oncogenic HPV 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 a 'reflex 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 risk to be allocated. This can be referred to as triage.

- 'Oncogenic HPV not detected' means that the person is considered to be **low risk**, and a reflex LBC is not required.
- 'Oncogenic HPV (not 16/18) detected' means that the person is not at low risk, and that reflex LBC is required to determine their risk:
  - If the reflex LBC is unsatisfactory, a new sample will need to be collected and the LBC test (only) repeated in 6–12 weeks.
  - If the reflex LBC result indicates there is either no abnormality present or a low-grade abnormality present, the person is considered to be **intermediate risk** and will need to have a repeat HPV test in 12 months.
    - At their repeat HPV test, they are considered **low risk** if there is no oncogenic HPV detected, and **higher risk** if oncogenic HPV 16/18 is detected or oncogenic HPV not 16/18 is detected with a reflex LBC result of high-grade abnormality (including cervical cancer or a glandular abnormality).
    - A person will remain at **intermediate risk** if oncogenic HPV not 16/18 is detected at their repeat HPV test and the reflex LBC result indicates there is either no abnormality present or a low-grade abnormality, and will need to have a further repeat HPV test in another 12 months (the exceptions to this are people 2 or more years overdue for screening at the time of the initial screen, people who identify as Aboriginal or Torres Strait Islander, and people age 50+ years, who will instead be considered **higher risk)**.
    - At this further repeat HPV test, they will be allocated a final risk of **low risk** if there is no oncogenic HPV detected, and **higher risk** if any oncogenic HPV is detected (oncogenic HPV 16/18 or oncogenic HPV not 16/18).
  - If the reflex LBC result indicates there is a high-grade abnormality present (including cervical cancer or a glandular abnormality), the person is considered to be **higher risk**.

- ‘Oncogenic HPV 16/18 detected’ means that the person is considered to be **higher risk**. A reflex LBC is performed on this sample, but the result does not affect the risk.
- ‘Unsatisfactory HPV test’ means that a new sample will need to be collected and tested in 6–12 weeks. No risk is allocated.

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

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

- People considered to be **low risk** are recommended to rescreen in 5 years.
- People considered to be **intermediate risk** are recommended to have a repeat HPV test in 12 months, after which time either their risk will be changed to **low risk** (with a recommendation to rescreen in 5 years) or **higher risk** (referred for colposcopy), or their risk remains as **intermediate risk** (repeat HPV test in 12 months), after which their risk will be changed to **low risk** or **higher risk**.
- People considered to be **higher risk** are referred for colposcopy.

Self-collect screening pathway

There is a slightly different pathway for people who ‘self-collect’ the sample for their cervical screening test (people aged 30 or over who have never participated in cervical screening or are 2 or more years overdue for cervical screening, and who decline a clinician collected sample, are eligible to self-collect a vaginal 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 person is considered low risk and recommended to rescreen in 5 years; however, if the result is ‘Oncogenic HPV (not 16/18) detected’, the person needs to have a separate sample collected by a practitioner for a reflex LBC test to determine their risk.

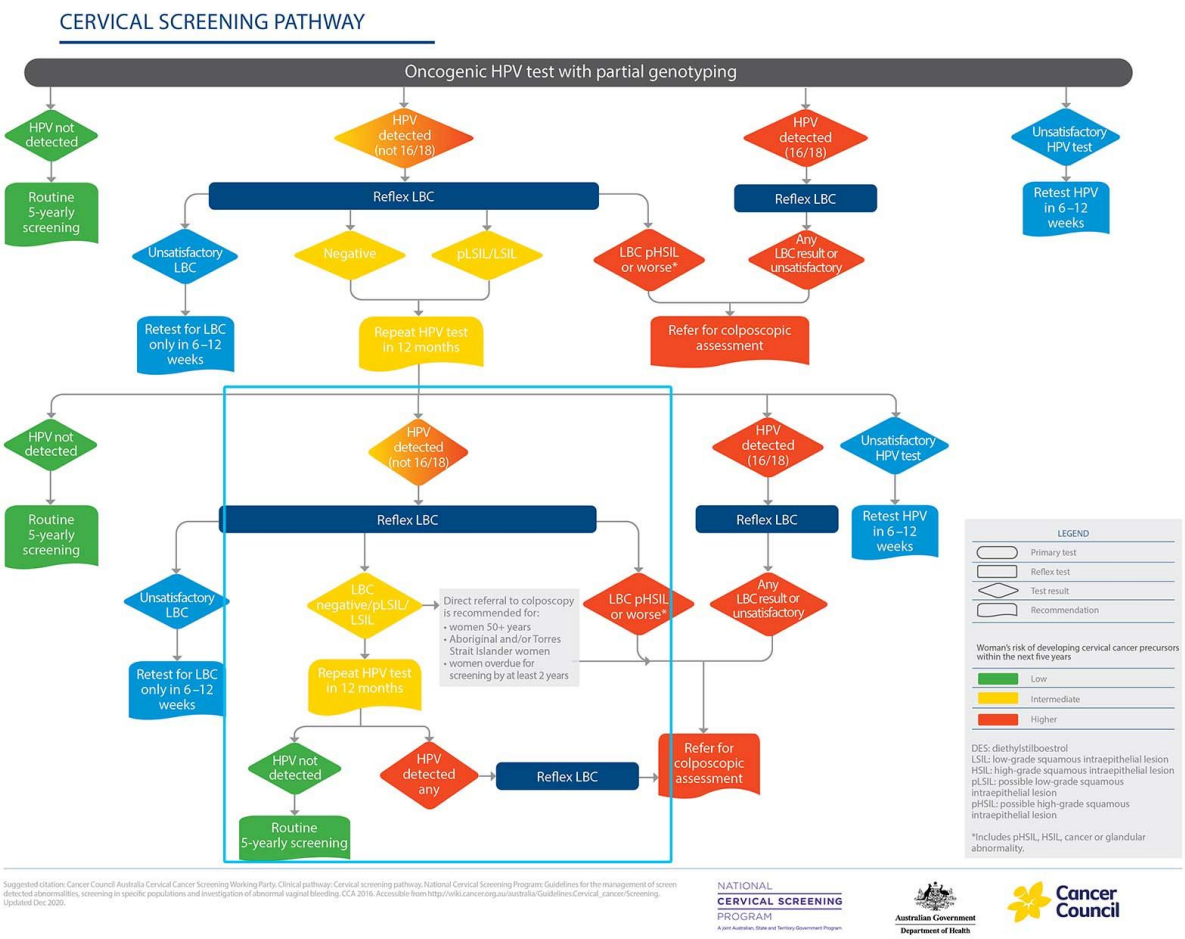
If the HPV test result is ‘Oncogenic HPV 16/18 detected’ the person is considered higher risk and referred for colposcopy as per the standard screening pathway, with the reflex LBC then performed at colposcopy.

Screening pathway used in this report

This screening pathway includes changes that came into effect on 1 February 2021.
Prior to 1 February 2021, people with a cervical screening result of **intermediate risk** were recommended to have a follow-up HPV test at 12 months and be managed as **higher risk** if any oncogenic HPV was detected in their 12-month repeat HPV test. From 1 February 2021, people with a cervical screening result of **intermediate risk** are recommended to have a follow-up HPV test at 12 months, but those with a test result of HPV (not-16/18) detected and an LBC prediction of negative, pLSIL or LSIL remain at **intermediate risk** and undertake a second HPV follow-up test in a further 12 months. The exceptions to this are people who are 2 or more years overdue for screening at the time of the initial screen, people who identify as Aboriginal or Torres Strait Islander, and people aged 50+ years.

As the data in this report pre-date the change to the screening pathway, **this report will use the screening pathway as it existed prior to 1 February 2021**. In this screening pathway, people with a cervical screening result of **intermediate risk** were recommended to have a follow-up HPV test at 12 months and be managed as **higher risk** if any oncogenic HPV was detected in their 12-month repeat HPV test, and **low risk** if their 12-month repeat HPV test did not detect oncogenic HPV.

Figure 2.1: Cervical screening pathway



Note: The National Cervical Screening Program screening pathway changed for people at intermediate risk, effective from 1 February 2021. Prior to 1 February 2021, people with a cervical screening result of *Intermediate risk* were recommended to have a follow-up HPV test at 12 months and be managed as *Higher risk* if any HPV was detected in their 12-month repeat HPV test. From 1 February 2021, people with a cervical screening result of *Intermediate risk* are recommended to have a follow-up HPV test at 12 months, but those with a test result of HPV (not-16/18) detected and an LBC prediction of negative, pLSIL or LSIL remain at *Intermediate risk* and undertake a second HPV follow-up test in a further 12 months. The exceptions to this are people 2 or more years overdue for screening at the time of the initial screen, people who identify as Aboriginal or Torres Strait Islander, and people aged 50+ years. More information is available at https://www.health.gov.au/news/important-changes-to-the-national-cervical-screening-programs-clinical-guidelines-pathway-for-women-at-intermediate-risk

The section of the pathway that has changed is indicated by the pale blue rectangle. As the data in this report pre-date the change to the screening pathway, **this report will use the screening pathway as it existed prior to 1 February 2021**.

Source: Cancer Council Australia Cervical Cancer Screening Guidelines Working Party. 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. [Version URL: https://wiki.cancer.org.au/australiawiki/index.php?oldid=214429, cited 2021 Oct 19]. Available from: https://wiki.cancer.org.au/australia/Guidelines:Cervical_cancer/Screening.

A larger image can be accessed at https://wiki.cancer.org.au/australiawiki/images/4/4b/Flowchart_6_1_NEW.pdf

2.2 Monitoring key aspects of the National Cervical Screening Program

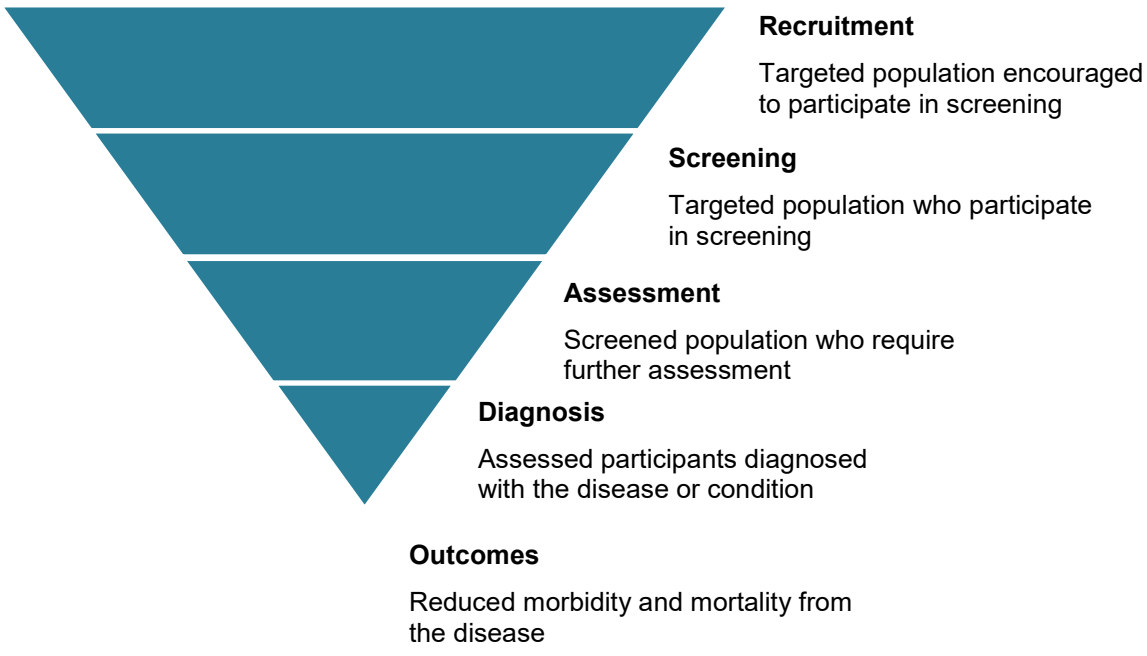
All population-based cancer screening programs require monitoring of their performance, quality, and safety. To facilitate this, the NCSP has performance indicators, quality standards and measures, and safety monitoring protocols. This report presents the latest data for the performance indicators of 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 sits below the triangle, and refers 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.

2.3 National Cervical Screening Program data

The National Cancer Screening Register (NCSR) is the source of cervical screening data for the NCSP 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 people who screen in a different state or territory to which they reside.

The NCSR is intended to be a near-complete record of all cervical tests, including HPV, cytology, colposcopy, and histology. However, while pathology labs and colposcopists are required to notify all cervical test data to the NCSR within 14 days, any tests not notified will not be included in the NCSR, which affects the completeness of the NCSR (and in turn the data in this report). There are also some cervical screening tests performed in Australia that are for COMPASS participants which are not included in the NCSR (see Box 2.2).

Box 2.2: COMPASS participants

COMPASS is a clinical trial comparing 2.5-yearly Pap test screening with 5-yearly HPV screening led by VCS Foundation in collaboration with Cancer Council NSW. More information about the COMPASS trial can be found here https://www.compasstrial.org.au/. There are over 76,000 participants in the COMPASS trial.

Cervical tests for COMPASS participants are not recorded in the NCSR, because, as a clinical trial, notification of COMPASS data is an exemption under the NCSR Rules 2017. This means that any cervical tests conducted as part of the COMPASS trial are not included in the NCSR, or in the data in this report. This affects Victoria more than other jurisdictions.

The NCSR is a live database, which means that data are continually updated over time. As such, data extracted at varying times differ, with later data likely to have a greater level of completeness.

NCSR data in this report were sourced from the August 2021 raw data extract (RDE) of version 3.4.1 of the NCSR.

Box 2.3: The term ‘people’ or ‘participants’ used for NCSR data

This report uses the term ‘people’ or ‘participants’ when referring to NCSR data.

In this context, ‘people’ is defined as any person with a cervix. This may include women, transgender men, intersex people, and non-binary people.

Data on cervical cancer cases and deaths in Australia are sourced from AIHW databases – the Australian Cancer Database and the AIHW National Mortality Database.

Box 2.4: The term ‘women’ used for incidence and mortality data

This report uses the term 'women' to mean ‘female' when referring to incidence and mortality data as these data sources are based on sex assigned at birth, but it should be noted that some people may not identify with this term.

Population data are also used to for the calculation of participation, incidence, and mortality, with hysterectomy fractions additionally used for the calculation of participation.

All data sources used in this report are detailed more fully in Appendix C.

2.4 Impact of COVID-19

Coronaviruses are a common form of virus that can cause respiratory diseases that range from the common cold to much more serious illnesses (Department of Health 2020). These viruses spread from person to person in a number of ways. COVID-19 is a coronavirus disease caused by a new coronavirus called SARS-CoV-2 (short for severe acute respiratory syndrome coronavirus 2) that was first reported to the World Health Organization (WHO) in December 2019 (WHO 2020).

The coronavirus that causes COVID-19 spread quickly after it was first reported, and was declared an international pandemic by WHO on 11 March 2020.

The COVID-19 pandemic has affected many areas of people's lives, including their access to and use of health services, such as cancer screening programs. COVID-19 restrictions were introduced in Australia from March 2020. Many health care services suspended or changed the way they delivered their services at this time. Due to this, there was the potential for people to change their behaviour whilst under restrictions, which may have included access to cervical screening.

Many of the performance indicators in this report are reported for 2020, which coincided with the start of the COVID-19 pandemic in Australia. The transitional nature of the renewed NCSP makes it difficult to ascertain the short-term impacts of COVID-19 on cervical screening. Potential impacts have been detailed where appropriate in the text in this report.

Earlier reports, *Cancer screening and COVID-19 in Australia* (AIHW 2020; AIHW 2021b), have examined the number of screening tests performed in Australia's three national cancer screening programs from January to September 2020 to ascertain the impact of COVID-19 on national population-based cancer screening programs in Australia.

Future work will provide a better understanding of the potential long-term, indirect health effects of the COVID-19 pandemic on cancer screening and outcomes.

3 Performance indicator monitoring

Performance indicators allow key aspects of the renewed NCSP to be monitored. These are listed in Table 3.1, and follow the screening pathway of the NCSP (as it existed prior to 1 February 2021 – see notes under Figure 2.1 for further details). Data are reported against 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, and/or because data linkage is required, as shown in Table 3.1.

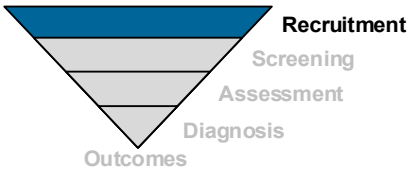
Performance indicators are grouped under each of the 5 population screening pathway stages of 'Recruitment', 'Screening', 'Assessment', 'Diagnosis', and 'Outcomes' (Figure 2.2). Note that in Table 3.1 the screening pathway entries 'Screening', 'Screening HPV test performance', 'Self-collection' and 'Follow-up' all fall within the broader screening pathway stage of 'Screening'.

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		
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 people positive for oncogenic HPV (not 16/18) who have an LBC test within 6 months	✓
	9 Self-collection people 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 people 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.

Note: For all screening pathway groups apart from 'Outcomes', the reported target age group for the performance indicators of 25–74 actually includes people aged from 24 years and 9 months. This is because 24 years and 9 months is the age at which people are invited to screen in the renewed NCSP; inclusion of people aged 24 years and 9 months ensures they are captured in the data if they screen prior to their 25th birthday.



Recruitment

Performance Indicator 1: Participation

Summary of participation data

- 3,802,435 people aged 25–74 had a screening HPV test in 2018–2020. This equates to an estimated participation of 55.7% of the target population.
- 4,250,020 people aged 25–74 had an HPV or LBC test for any reason in 2018–2020. This equates to an estimated coverage of 62.3% of the target population.

Definition:

Number of people aged 25–74 screened in a 5-year period as a percentage of females 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.

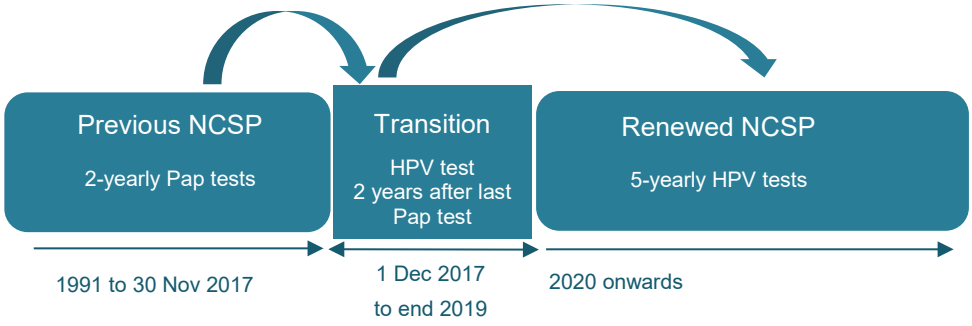
Guide to interpretation:

A higher participation rate is better.

Data considerations:

The first 2 years of the renewed NCSP was a transition period in which people who had had a Pap test under the previous NCSP become due for their first screening HPV test, after which time they moved to a 5-yearly screening interval, as illustrated below (Figure 3.1.1).

Figure 3.1.1: Transition from 2-yearly Pap tests to 5-yearly screening HPV tests in the NCSP



This means that, until the people who had a screening HPV test in 2018 or 2019 are due for their next screening HPV test in 5 years (assuming their first screening HPV test did not detect oncogenic HPV), screening HPV tests from 2020 onwards will comprise those in people who are overdue for their first screening HPV test, and people who are newly eligible for cervical screening – mostly due to people turning 25.

This makes trends that include the year 2020 difficult to interpret, and estimates of participation challenging. The year 2020 also saw the commencement of the COVID-19 pandemic in Australia, the consequences of which are explored in the relevant text.

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. This will first occur when cervical screening data for 2018–2022 are available.

In the interim, two alternative methods of deriving participation have been used: the first method adjusts the population to align with the number of years of screening data available to provide an estimate of participation; the second method does not adjust the population but instead represents the progression of participation towards 5-year participation.

Box 3.1.1: Definition of cervical screening participation and coverage

Since December 2020, participation has been defined as the number of people aged 25–74 who had a screening HPV test (primary screening or 12-month repeat HPV tests) as a proportion of the number of eligible females aged 25–74 in the population.

This includes both the **estimate of participation**, and **progression towards 5-year participation**. This definition restricts participation to screening tests, which aligns with the definition of participation for Australia's other population-based cancer screening programs.

Coverage is the number of people aged 25–74 who had an HPV test or cytology test for any reason as a proportion of the number of eligible females aged 25–74 in the population, and was a measure introduced in December 2020 when the definition of participation was limited to only screening tests. Coverage is similar to the definition of participation for the previous NCSP, which was the proportion of females who had a Pap test for any reason.

Results

Participation in the 3 years 2018–2020

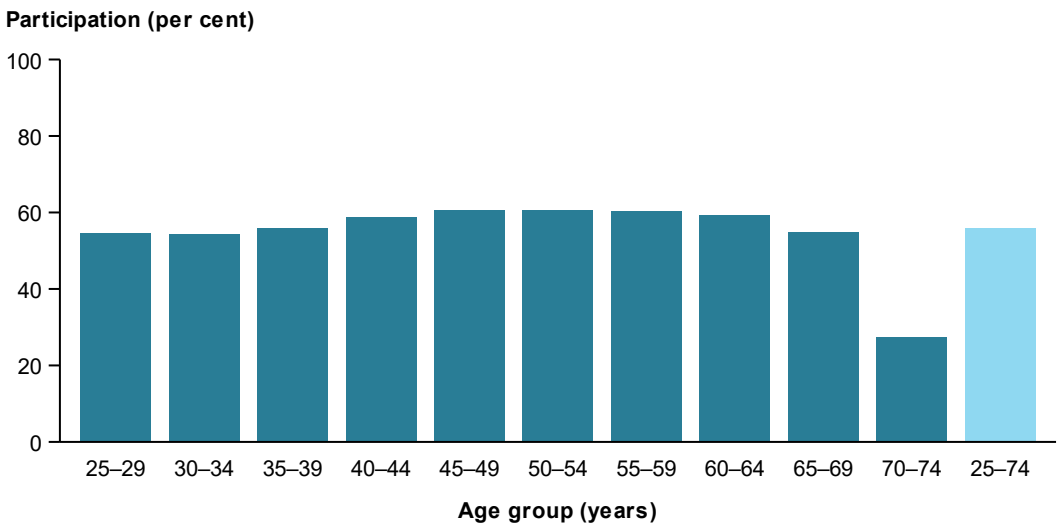
The calculation of participation in cervical screening is restricted to people who had an HPV test in 2018, 2019, or 2020 for which the reason was primary screening or 12-month repeat HPV test. This excludes people who had an HPV test for reasons other than screening (such as investigation of symptoms or test of cure). The denominator for 2018–2020 is the average number of females in the population aged 25–74 in 2018, 2019, and 2020, adjusted to remove the estimated number who have had a hysterectomy. This is known as the eligible population (it would be ideal to also remove those who had a test for another reason from the population as they are not eligible to screen, but this is not done in practice).

In 2018–2020, there were 3,802,435 people aged 25–74 who had a screening HPV test, estimated to be 55.7% of the eligible population (55.9% when age-standardised to allow comparison over time or across population groups).

The highest participation in cervical screening was in people aged 45–59, with around 60% of this age group having a screening test in 2018–2020. Participation was lowest for people aged 70–74, with only 27.4% screening (Figure 3.1.2). Note that people aged 70–74 have re-entered the target age group under the renewed NCSP after leaving the program after age 69 under the previous program, so lower numbers are expected for this age group.

Participation estimates for the earlier reporting periods of 2018 and 2018–2019 from previous reports are available in Supplementary data table S1.1, but are not appropriate for direct comparisons with each other or with the participation estimate for 2018–2020. This is because each reporting period represents an estimate of participation using all the years available at that time, which is all that can be reported until 5 years of data are available for the calculation of participation.

Figure 3.1.2: Participation, by age, 2018–2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A1.1.

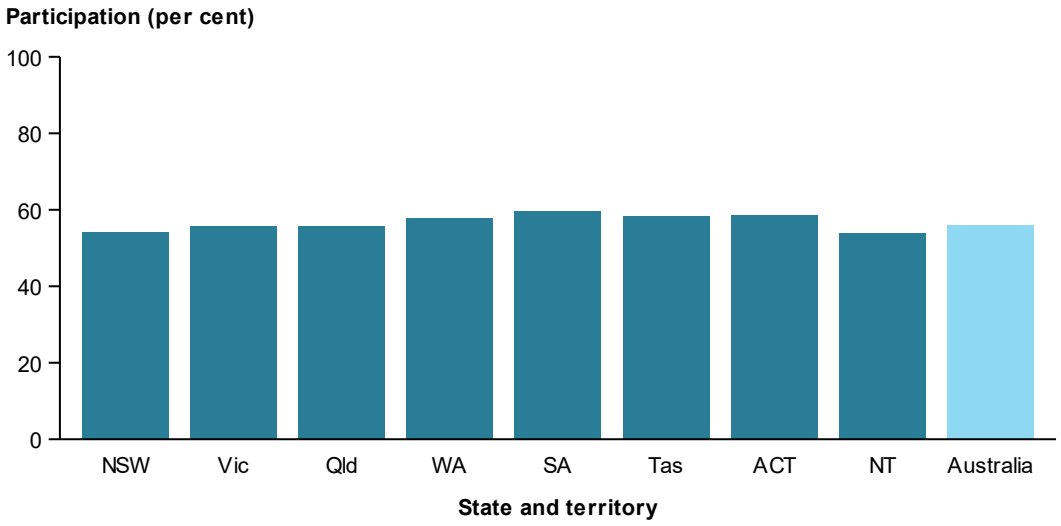
Participation by state and territory in 2018–2020

Participation in cervical screening across states and territories is shown in Figure 3.1.3.

Note that 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.

Even with these differences, participation was very similar across states and territories, ranging between 54.0% and 59.7% (age-standardised).

Figure 3.1.3: Participation, by state and territory, people aged 25–74, 2018–2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A1.2.

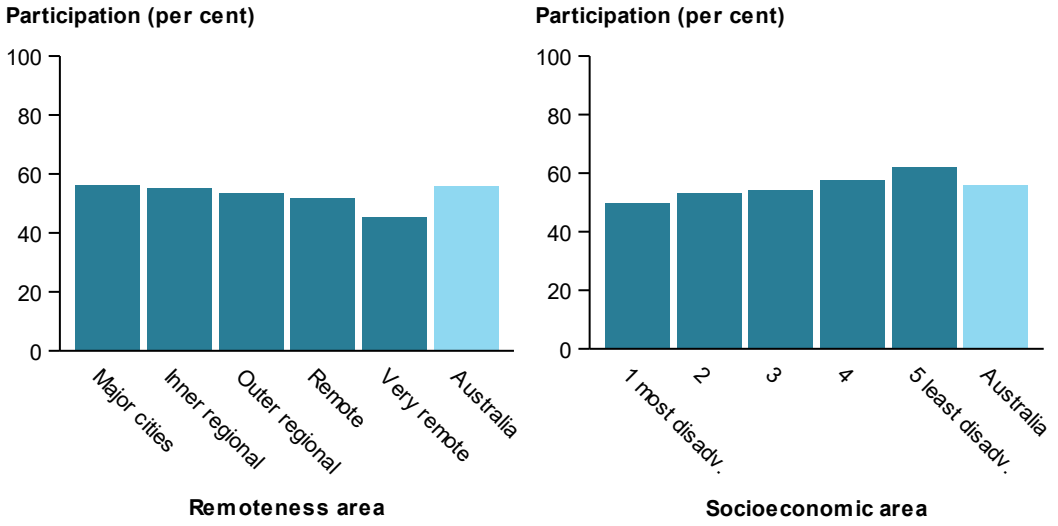
Participation by remoteness area in 2018–2020

Participation in cervical screening decreased with increasing remoteness (Figure 3.1.4). Participation was highest for people residing in *Major cities* at 56.3%, decreasing to 55.2% in *Inner regional*, 53.5% in *Outer regional* and 52.0% in *Remote* areas. Participation was lowest for people residing in *Very remote* areas, at 45.6%.

Participation by socioeconomic area in 2018–2020

Participation in cervical screening decreased with increasing socioeconomic disadvantage (Figure 3.1.4). Participation was lowest for people residing in areas with highest disadvantage at 49.7%; thereafter, participation increased with decreasing socioeconomic disadvantage to be highest for people residing in areas of lowest disadvantage at 62.1%.

Figure 3.1.4: Participation, by remoteness area and socioeconomic area, people aged 25–74, 2018–2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in tables A1.3 and A1.4.

Participation of Aboriginal and Torres Strait Islander people

There is evidence that Aboriginal and Torres Strait Islander people (hereafter respectfully referred to as Indigenous or Indigenous Australians) are under-screened. Recent research, using data linkage between the Queensland Health Admitted Patient Data Collection and 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, the 2-year participation rate 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). This finding was more recently enriched, with 2008–2017 data used to examine spatial and temporal trends in participation. It was found that Indigenous women in Queensland had lower participation than the Queensland average for ≥88% of the small areas examined, and that these spatial inequalities in participation by Indigenous status persisted over time (Dasgupta et al. 2020).

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 for December 2020 indicate that 38.3% of regular

Indigenous clients had a cervical screening test in the previous 5 years (AIHW 2021a). This collection however only covers data collected from Indigenous specific primary health care services.

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, with differences between public and private pathology laboratories.

Box 3.1.2: COVID-19 and Indigenous identification on pathology forms

Indigenous identification on pathology forms is a longstanding issue.

The COVID-19 pandemic in early 2020 highlighted this as a pertinent issue, as the poor level of Indigenous identification on pathology forms used for COVID-19 testing meant that it was not possible to accurately know how many Aboriginal and Torres Strait Islander people were tested for SARS-CoV-2 (the virus that causes COVID-19), and so the true infection rate for Aboriginal and Torres Strait Islander people could not be known.

In May 2020, the National Aboriginal Community Controlled Health Organisation (NACCHO) published a submission on the Australian Government's response to the COVID-19 pandemic, which included a recommendation that the Government 'improve data collection practices in Aboriginal and Torres Strait Islander identification so the information can be used to provide accurate reporting on screening and testing programs, and outcomes of testing, including in pathology' (NACCHO 2020).

In line with this, there has been considerable work undertaken by the states and territories to improve Indigenous identification on pathology forms of both public and private pathology laboratories to address the need to be able to accurately identify Aboriginal and Torres Strait Islander people on pathology forms for COVID-19 testing.

While this work is being performed in response to the COVID-19 pandemic, improved Indigenous identification on pathology forms will also benefit screening and testing programs that rely on pathology forms to enable accurate reporting of outcomes for Aboriginal and Torres Strait Islander people, for example cancer and diabetes.

The NCSR provides two measures of Indigenous status, the majority of which are populated from Medicare (through the Medicare Voluntary Indigenous Identifier), with additional data from pathology forms and colposcopy reports to the NCSR, and from state and territory cervical screening register data that were collected primary from pathology forms before their migration to the NCSR.

These are 'Most recent Indigenous status' which indicates the Indigenous status of the most recent data source within the NCSR, and 'Ever Indigenous status', which indicates if a participant has ever indicated they were of Aboriginal or Torres Strait Islander origin in any one of the data sources for the NCSR. For example, if a participant is identified as Indigenous on one pathology form but on no other data sources, they will be considered Indigenous in these data. Conversely, if a participant has never been identified as Indigenous on any data source, they will be categorised as 'Never indicated Aboriginal or Torres Strait Islander' in these data. This means that there are more Australians identified as Indigenous in the NCSR according to 'Ever Indigenous status' than 'Most recent Indigenous status'.

The level of incomplete Indigenous identification in the NCSR does not support the estimation of participation by Indigenous status using the same methodology used for other population groups – 28% of people aged 25–74 who had a screening HPV test in 2018–2020 had not stated their Indigenous status (according to their 'Most recent Indigenous status'; there is no equivalent 'not stated' category for 'Ever Indigenous status') (Table A1.5).

Further work will need to occur over the coming years to improve Indigenous identification in the NCSR and explore additional methodology to enable participation for Aboriginal and Torres Strait Islander people to be estimated using NCSR data. Any alternative methodology would require appropriate consultation and endorsement by Aboriginal and Torres Strait Islander organisations and advisory groups to ensure that it is robust, useful, and acceptable to Aboriginal and Torres Strait Islander people.

Participation by culturally and linguistically diverse status

There are two fields in the NCSR that relate to the identification of an individual's culturally and linguistically diverse (CALD) status. These are 'Main language other than English spoken at home' and 'Country of birth'.

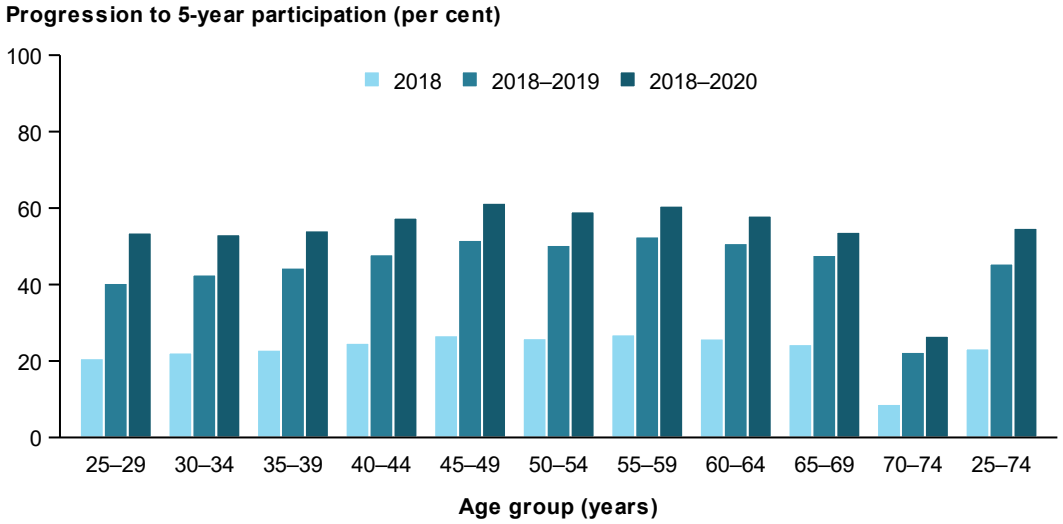
However, these new fields are not currently sufficiently populated in the NCSR to estimate participation by CALD status. The field 'Main language other than English spoken at home' was not populated for 86% of people aged 25–74 who had a screening HPV test in 2018–2020, and the 'Country of birth' field was not populated for 67% (Table A1.6).

Progression towards 5-year participation in the 5 years 2018–2022

This measure of participation uses the population that will be used for 5-year participation over the years 2018–2022, which will be the first data to allow 5-year participation in the renewed NCSP to be calculated. Each year, the numerator is increased by a calendar year, while the denominator remains the same. This measures progression towards 5-year participation. Currently only the years 2018, 2018–2019 and 2018–2020 can be reported. Future years will allow the addition of 2018–2021 and finally, 2018–2022, at which time the 5-year participation for 2018–2022 will be able to be measured.

Using this methodology, there were 1,615,903 people aged 25–74 who participated in 2018, which represents 23.3% of the population for 2018–2022. This increased to 3,155,758 people aged 25–74 in 2018–2019, which represents 45.5% of the population for 2018–2022. This increased again to 3,802,435 people aged 25–74 who participated in 2018–2020, which represents 54.8% of the population for 2018–2022. Progression towards 5-year participation by age is shown in Figure 3.1.5.

Figure 3.1.5: Progression towards 5-year participation, by age, 2018, 2018–2019 and 2018–2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A1.7.

Coverage in the 3 years 2018–2020

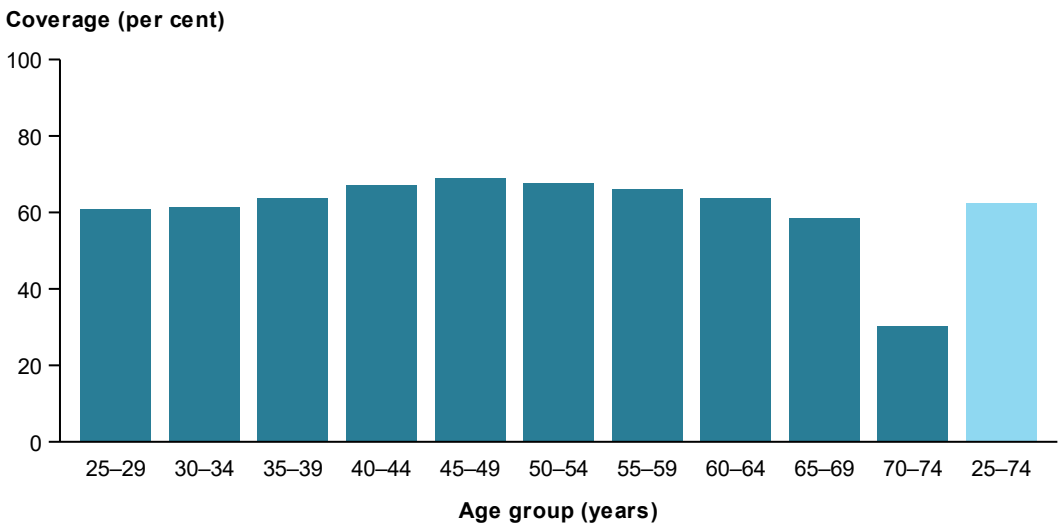
While the calculation of participation is restricted to people who had an HPV test in the reporting period for which the reason was primary screening or 12-month repeat HPV test, it is also useful to measure the proportion of people in the population who are eligible to screen who are 'covered' by the cervical screening program, as some people do not have a screening HPV test because they are following another pathway under the renewed NCSP.

The measure of coverage is calculated using the same methodology as participation, but includes everyone who had an HPV or LBC test for any reason, including primary or repeat screening, investigation of signs or symptoms, test of cure, as part of a colposcopy, or for any other reason as specified in the clinical guidelines for cervical screening.

In 2018–2020, there were 4,250,020 people aged 25–74 who had an HPV or LBC test for any reason. This is an estimated coverage rate of 62.3% of the eligible population (62.6% when age-standardised to allow comparison over time or across population groups).

The highest coverage was in people aged 45–49, with around 69% of this age group having an HPV or LBC test for any reason in 2018–2020. Coverage was lowest at 30% for people aged 70–74 (Figure 3.1.6). As for participation, people aged 70–74 have re-entered the target age group under the renewed NCSP after leaving the program after age 69 under the previous program, so lower numbers are expected in this age group.

Figure 3.1.6: Coverage, by age, 2018–2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A1.8.

The reason why an HPV test and/or an LBC test was performed for those participants who were included in the coverage measure are shown in Table A1.10.

These data show that, while screening was the most common reason an HPV test was performed, a co-test (in which both an HPV test and LBC test are performed irrespective of the HPV test result) for either test of cure or investigation of signs or symptoms comprised the next largest proportion (Table A1.10).

Number of cervical screening tests in the 3 years 2018–2020

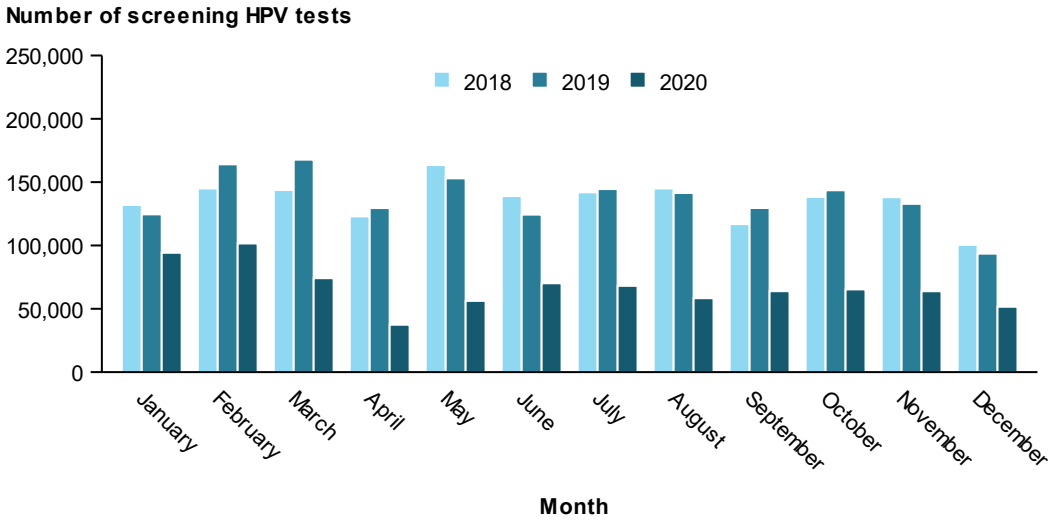
Measures of participation and coverage are based on the number of *people* who had a cervical screening test. However, it is also useful to observe the number of cervical screening *tests* that are performed.

The formal measure of *Activity* was introduced when investigating the impact of COVID-19 on cervical screening in 2020 (AIHW 2020; AIHW 2021b), and is defined as the number of primary screening HPV tests performed. This restricted definition was chosen so as to only include people who were not at increased risk of a significant cervical abnormality, which may have influenced an individual's decision to screen. This measure has continued to be reported every 3 months in *Cancer screening programs: quarterly data* that can be accessed here https://www.aihw.gov.au/reports/cancer-screening/national-cancer-screening-programs-participation/contents/about.

This measure is not replicated in this report. Rather, the number of cervical screening tests that are included in the definition of participation (primary screening and 12-month repeat HPV tests) are shown to provide more information about the reported data.

The number of these screening HPV tests performed each month in 2018, 2019, and 2020 is shown in Figure 3.1.7. All years had similar month-to-month trends, with fewer screening tests in April and December, aligning with national holidays (Easter and Christmas).

Figure 3.1.7: Number of screening HPV tests per month, people aged 25–74, 2018, 2019, and 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A1.11.

The number of screening HPV tests was lower in 2020 than in 2018 and 2019. While there may be some effect of COVID-19, the number of screening HPV tests was expected to be lower in 2020 due to this year being the first year affected by the change from 2-yearly Pap tests to 5-yearly Cervical Screening Tests (see Box 3.1.3).

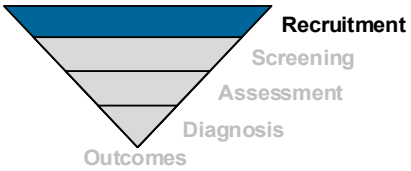
Box 3.1.3: Cervical screening tests expected to be lower in 2020

The number of Cervical Screening Tests conducted was expected to be lower in 2020 than in 2019, irrespective of the COVID-19 pandemic and subsequent restrictions.

This is largely due to the program changing from 2-yearly Pap tests to 5-yearly Cervical Screening Tests from December 2017.

Most screening people were due for their first HPV test 2 years after their last Pap test, which was during the years 2018 and 2019, after which they could move to 5-yearly screening.

This means that, until the people who had a screening HPV test in 2018 or 2019 are due for their next screening HPV test in 5 years (assuming their first screening HPV test did not detect oncogenic HPV), screening HPV tests from 2020 onwards will comprise only those people who are overdue for their first screening HPV test, as well as people who are newly eligible for cervical screening – mostly due to them turning 25 and becoming eligible to screen.



Performance Indicator 2: Response to invitation

Summary of response to invitation data

Of the 170,385 people aged 25–74 sent an invitation to screen or rescreen in 2020, 12.6% had an HPV test within 6 months.

Definition:

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

Rationale:

How many people 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 people (which may differ by age or other factors).

Guide to interpretation:

A higher response rate is better.

Data considerations:

Invitations are restricted to invitations to screen (letter types A1 and B1) and invitations to rescreen (letter types C1 and D1) – reminders to screen or rescreen are excluded.

Invitations sent in the reporting period of this report were generated according to the transition protocol of actions for the renewed NCSP, which means people aged 30–74 whose previous screen (Pap test under the previous NCSP) was negative were not invited to rescreen, but were only reminded to rescreen 27 months after their last negative Pap test (letter type C2). This means that during the transition, letter type C1 only includes a relatively small subset of people who are due to rescreen, likely those with prior abnormalities.

Where a person was sent multiple invitations in the index year, the first invitation that was not followed by a ‘Return to Sender’ notification was selected.

It is not possible to know how many people received an invitation to screen or rescreen, therefore these data are based on invitations sent, not invitations received.

Currently invitations are only sent by letter, so response to invitation according to mode of invitation cannot yet be measured.

Results

In 2020, 170,385 people aged 25–74 were sent an invitation to screen or rescreen. Of these, 21,445 had an HPV test within 6 months of the date the invitation was sent. This was 12.6% of people aged 25–74 who were sent an invitation in 2020.

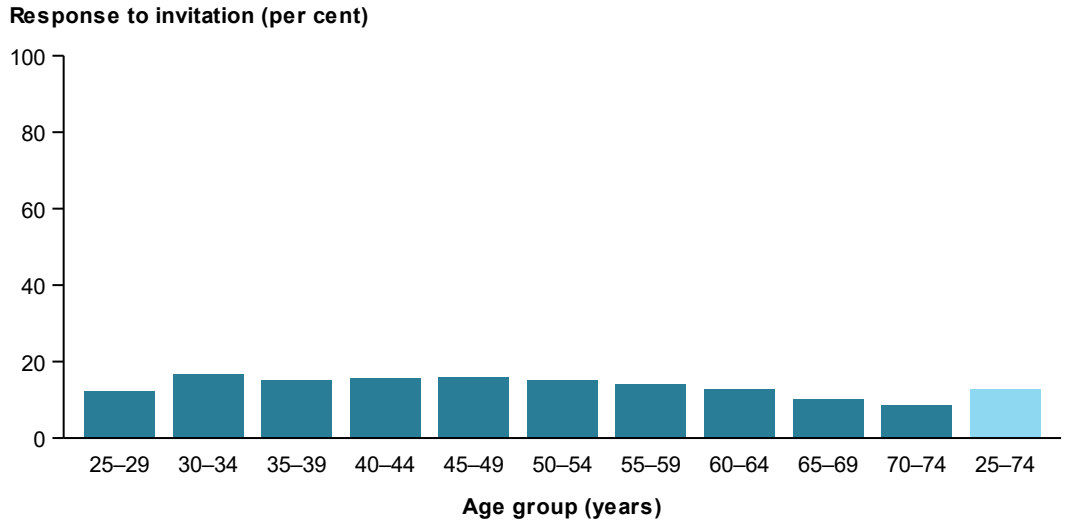
The number of invitations to screen or rescreen sent in 2020 was a lot lower than the number sent in 2019, which is an expected response to the program changing from 2-yearly to 5-yearly screens. This is because most screening people were due for their first HPV test 2 years after their last Pap test during the years 2018 and 2019, and so invitations to screen or rescreen in 2020 will mainly be to people newly-eligible to screen or rescreen. While the per cent who rescreened within 6 months was also lower for 2020 compared with 2019, it is not known if this was a response to the COVID-19 pandemic in 2020 as the cohort of people sent an invitation to screen or rescreen in 2020 is not comparable to the cohort in 2019.

The majority of response to invitation data are for people aged 25–29 who are invited to screen as they reach the target age group; consequently, the response rate of people aged 25–29 has a great impact on the overall response to invitation rate for the target age group.

There were 135,714 young people aged 25–29 invited to screen in 2020, of whom 16,618 had an HPV test (12.2%). The remaining 34,671 people were in other age groups. Response to invitation was around 14%–17% for other age groups between ages <25 and 55–59, falling below 14% for people aged 60 and over (Figure 3.2.1).

These data do not currently include people aged 30–74 whose previous Pap test was normal (while transitioning from 2-yearly to 5-yearly screens, this group are sent a reminder to rescreen after they are overdue, not an invitation to rescreen), and so may not be indicative of the response to invitation rate of all people who screen. Following transition, this group of people will be sent an invitation to rescreen rather than a reminder to rescreen, at which time they will be included in response to invitation data.

Figure 3.2.1: Response to invitation to screen or rescreen within 6 months, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A2.1.

The proportion of people aged 25–74 who screened within 6 months of an invitation to screen or rescreen is shown by letter type in Figure 3.2.2.

Invitations with the highest response were letter type ‘C1 Invitation to rescreen’, with 18.8% of people sent this letter type having an HPV test within 6 months.

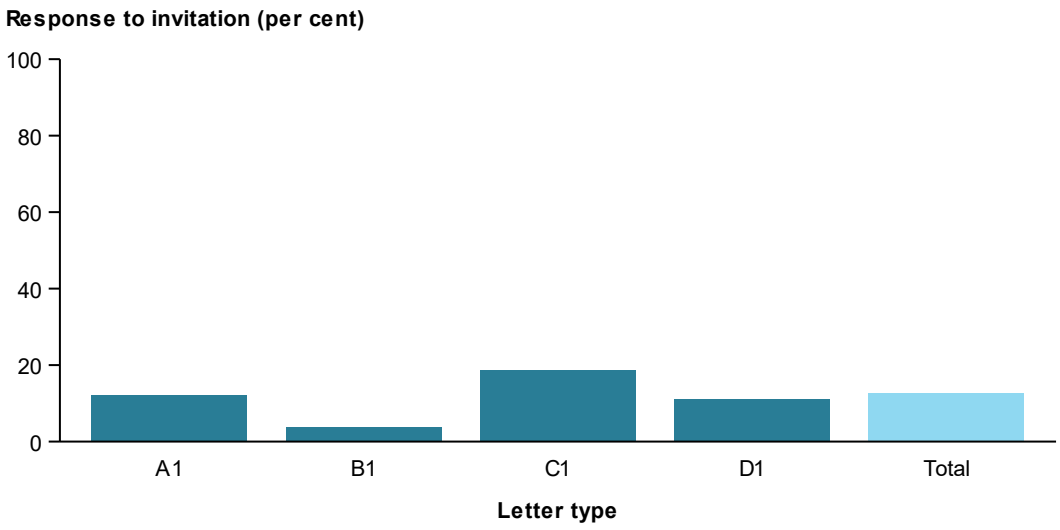
As noted above, after transition, this invitation type will be used for people due for a rescreen 5 years after their last HPV test. During the transition, however, it is most likely used to invite people with prior abnormalities to rescreen. This may have an impact on whether people have an HPV test within 6 months.

Invitations with the next highest response were letter type 'A1 Invitation to screen', with 12.1% of people sent this letter type having an HPV test within 6 months.

These represent people who are invited to screen as they reach the target age group.

Response was lower for people invited to screen or rescreen who were eligible to self-collect – 3.8% of people sent 'B1 Invitation to screen eligible to self-collect' and 11.1% of people sent 'D1 Invitation to rescreen eligible to self-collect'. Self-collection is a strategy introduced to encourage people who are under-screened or who have never screened to participate in cervical screening (Figure 3.2.2).

Figure 3.2.2: Response to invitation to screen or rescreen within 6 months, by letter type, people aged 25–74, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A2.3.

While this performance indicator measures the number of people who had an HPV test within 6 months of being sent an invitation to screen or rescreen, the number who had an HPV test within 3 months and within 12 months was also measured. This is summarised in Table 3.2.1, and is shown for 5-year age groups in Table A2.4.

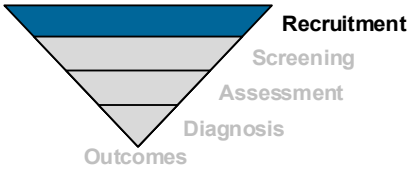
Response to invitation to screen or rescreen for people aged 25–74 increased from 7.6% within 3 months, to 12.6% within 6 months, and to 20.4% within 12 months (Table 3.2.1).

Table 3.2.1: Response to invitation to screen or rescreen, by time to rescreen, people aged 25–74, 2020

	Within 3 months	Within 6 months	Within 12 months
25–74	7.6	12.6	20.4

Note: Invitation refers to the first invitation for a person that was not followed by a 'Return to Sender' notification.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).



Performance Indicator 3: Rescreening

Summary of rescreening data

No data reported for this performance indicator.

Definition:

The percentage of people 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 people 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 people who rescreened early, appropriately, or late**.**

Guide to interpretation:

A higher rescreen rate within an appropriate interval is better.

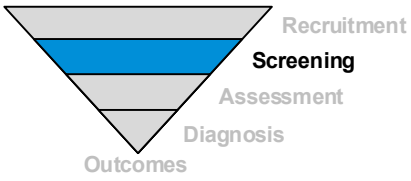
Data considerations:

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 an HPV test under the renewed NCSP.

In the interim, an alternative method of deriving rescreening was used that determined the time between a person's last normal Pap test and their first screening HPV test, and allocated this into early rescreen (fewer than 21 months), appropriate rescreen (between 21 months and 3 years) and late rescreen (between 3 and 5 years). This was possible for the years 2018 and 2019, but is not a useful measure for the year 2020, as the majority of people having their first screening HPV test in 2020 are, by definition, rescreening late.

Therefore, rescreening is no longer able to be usefully measured using this alternative method, and will be deferred until adequate time has passed to measure rescreening as it has been defined.

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



Screening

Performance Indicator 4: Screening results

Summary of primary screening episode data

Of the 665,414 primary screening episodes in 2020 in people aged 25–74:

- 89.4% were low risk
- 7.6% were intermediate risk
- 2.8% were higher risk
- 0.3% could not be assigned a risk

Definition:

The percentage of primary screening episodes in each risk category in a calendar year in people 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 three risk categories (low, intermediate and higher) for a primary screening test that are determined by different combinations of HPV test results and (where indicated) LBC test results. Risk is defined as the risk of a significant cervical abnormality. Determination of risk and its consequences is illustrated in the screening pathway (Figure 2.1).

- A primary screening HPV test that does not detect oncogenic HPV indicates low risk, and no reflex LBC is performed.
- A primary screening HPV test that detects oncogenic HPV type 16 or 18 indicates higher risk, and while reflex LBC is performed, the outcome of this test does not affect the risk.
- A primary screening 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. Note that if a primary screening test is repeated due to an unsatisfactory test, the repeat test will be given the same reason for HPV test (that is, it will also have a ‘reason for HPV test’ of primary screening HPV test).

A reflex LBC will only be performed when the primary screening 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.

Results

In 2020, there were 675,284 primary screening episodes, 665,414 of which occurred in people in the target age group 25–74. These 665,414 primary screening episodes were assigned to one 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 LBC test result (Table 3.4.1). This is fully explained in the 'Guide to interpretation' for this performance indicator.

In Table 3.4.1, 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 3.4.1: Primary screening HPV ± LBC test results, people aged 25–74, 2020

	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
Not indicated	969	594,923	. .	. .
LBC Unsatisfactory			599	229
LBC Negative			34,337	8,635
LBC Squamous low-grade abnormality			16,124	3,681
LBC Squamous high-grade abnormality or squamous cell carcinoma			3,133	2,317
LBC Glandular abnormality or adenocarcinoma			82	166
LBC not performed after oncogenic HPV detected**			136	82

* 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 so this primary screening episode was excluded from this table. Some primary screening HPV tests that did not detect oncogenic HPV were followed by an LBC test. These tests have been allocated to low risk on the basis of their primary screening HPV test result of 'Oncogenic HPV not detected' irrespective of any abnormalities detected in the LBC test.

Overall, of the 665,414 primary screening episodes in 2020 in people aged 25–74:

- 594,923 (89.4%) were low risk
- 50,461 (7.6%) were intermediate risk
- 18,325 (2.8%) were higher risk
- 1,704 (0.3%) 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.

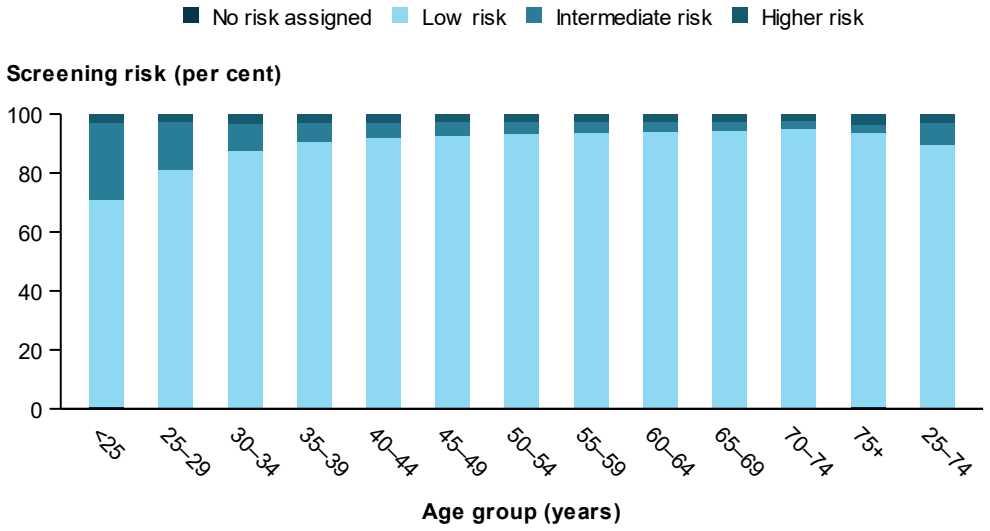
Risk categories for each age group are shown in Figure 3.4.1.

The proportion of primary screening episodes that were low risk was lower, and the proportion that were intermediate risk was higher, for younger people. This indicates that, in people aged less than 35, it was more 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.

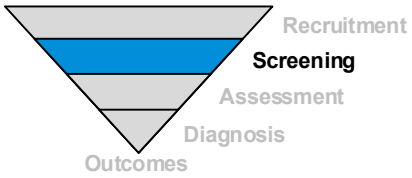
For all age groups, the majority of primary screening episodes were low risk. The proportion that were higher risk was consistently low across all age groups.

The proportion of primary screening episodes for which risk could not be assigned was too low to be visible in the figure.

Figure 3.4.1: Primary screening episode risk categories, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A4.1.



Performance Indicator 5: Correlation of screening results

Summary of correlation of screening data

In 2019 there were 9,662 primary screening tests that had an LBC that predicted a high-grade or glandular abnormality or cervical cancer for people aged 25–74, with 7,454 followed by histology within 6 months. Of these, 7,454 histology tests, 5,015 (67.3%) had a histology result of high-grade cervical abnormality or cervical cancer.

Definition:

The level of agreement between screening results in a calendar year and subsequent histology test results within 6 months in people 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:

A complete assessment of the correlation between screening tests results and the 'truth' would have required all cervical screening tests (including negative) to be followed up by histology, but this is neither feasible nor desirable (as it would be unethical to require all people who had an HPV test to also undergo a biopsy). Rather, this assessment is restricted to cervical screening tests and histology tests available on the NCSR, and is intended to provide measures that can be monitored annually to detect early indications of changes to the correlation between screening tests and histology tests.

These data are restricted to primary screening tests. Histology would usually only be performed following a primary screening test to confirm a suspected abnormality, according to the screening pathway and clinical guidelines. However, it is possible that some of the tests that have been included are not true primary screening tests, but may have been performed for another purpose, such as to investigate signs or symptoms of cervical cancer. In these cases, histology may be an outcome even in the absence of a positive screening test. It is also possible that some people who have had a primary screening test may have a biopsy or surgical removal of tissue that includes cervical tissue for a benign condition (for example a hysterectomy), unrelated to a primary screening test result.

These data do not include primary screening tests not followed by histology, for which it is not possible to know the true disease state, or primary screening tests followed by histology more than 6 months after the screening test. Where there was more than one histology test within 6 months, the most serious histology result has been used. Risk refers to the risk of significant cervical abnormality for the primary screening test, irrespective of previous tests.

This performance indicator is restricted to histology tests notified by pathology laboratories. The NCSR supplements these data with MBS histology data, but as these do not include a result, they are not able to be included in these data.

This performance indicator is based on primary screening tests performed in 2019. This allows 6 months to 30 June 2020 to know whether a histology test occurred, and a further 6 months to 31 December 2020 to ensure that histology data to 30 June 2020 are complete.

Results

A screening test is not intended to be diagnostic, but aims to identify people who are more likely to have a disease and therefore require further investigation from diagnostic tests. These data examine how well the cervical screening test correlates with the histology finding or 'truth', where a histology test has been performed. Correlation between the primary screening test prediction and the histology finding provide valuable information on the accuracy of the screening test of the NCSP.

As stated in the data considerations, a complete assessment of the correlation between screening tests results and the 'truth' would have required all cervical screening tests (including negative tests) to be followed up by histology. This assessment is restricted to cervical screening tests and histology tests available on the NCSR, and is intended to provide measures that can be monitored annually to detect early indications of changes to the correlation between screening tests and histology results.

These data include primary screening tests performed for people aged 25–74 in 2019 where the test was followed by histology within 6 months (either to confirm the presence or absence of disease, or for other reasons). These data do not include primary screening tests not followed by histology, for which it is not possible to know the true disease state, or primary screening tests followed by histology more than 6 months after the screening test.

In 2019 there were 1,540,192 primary screening HPV tests performed for people aged 25–74. Of these, 28,935 (1.9%) were followed by a histology test within 6 months.

Key outcomes are shown in tables 3.5.1 and A5.1, and described in the following text.

In these data, there were 1,408,002 primary screening tests that did not detect oncogenic HPV (low risk of significant cervical abnormality), 9,873 (0.7%) of which had histology performed within 6 months. Primary screening tests that did not detect oncogenic HPV would not usually be followed by histology, so these should not be considered indicative of all people with this test result. Of the 9,873 histology tests performed within 6 months, the majority (96.5%) were negative (and thus were likely due to benign conditions unrelated to cervical screening), 217 (2.2%) were low-grade, 25 (0.3%) were high-grade, and 8 were cervical cancer.

There were 92,847 primary screening tests that detected an oncogenic HPV type other than 16 or 18 for which the reflex LBC result was negative or low-grade (intermediate risk of significant cervical abnormality), 2,230 (2.4%) of which had histology performed within 6 months. Again, these primary screening tests would not usually be followed by histology, so these should not be considered indicative of all people with this screening test result. Of the 2,230 histology tests performed within 6 months, 1,131 were negative, 794 were low-grade, 285 were high-grade, and none were cervical cancer.

There were 5,428 primary screening tests that detected an oncogenic HPV type other than 16 or 18 for which the reflex LBC result was a high-grade or glandular abnormality or cervical cancer (higher risk of significant cervical abnormality), 4,158 (76.6%) of which had histology performed within 6 months. Of the 4,158 histology tests performed within 6 months, 659 were negative, 872 were low-grade, 2,583 were high-grade, and 29 were cervical cancer.

There were 25,214 primary screening tests that detected oncogenic HPV type 16 or 18 for which the reflex LBC result was negative or low-grade (higher risk of significant cervical abnormality), 9,002 (35.7%) of which had histology performed within 6 months. While people with this primary screening test result are recommended to have a colposcopy, a biopsy will only be performed if an abnormality is visible at colposcopy. Of the 9,002 histology tests performed within 6 months, 4,305 were negative, 3,167 were low-grade, 1,369 were high-grade, and 43 were cervical cancer.

There were 4,216 primary screening tests that detected oncogenic HPV type 16 or 18 for which the reflex LBC result was a high-grade or glandular abnormality or cervical cancer (higher risk of significant cervical abnormality), 3,284 (77.9%) of which had histology performed within 6 months. Of the 3,284 histology tests performed within 6 months, 442 were negative, 443 were low-grade, 2,226 were high-grade, and 170 were cervical cancer.

Table 3.5.1: Histology performed within 6 months of a primary screening test, people aged 25–74, screened in 2019

Primary screening test result			Histology result				
HPV test	LBC test	No. tests	Negative	Low-grade	High-grade	Cancer	No result
Not detected	. .	1,408,002	9,523	217	25	8	100
Not 16/18	Negative or low-grade	92,847	1,131	794	285	0	20
Not 16/18	High-grade or glandular	5,428	659	872	2,583	29	15
16/18	Negative or low-grade	25,214	4,305	3,167	1,369	43	118
16/18	High-grade or glandular	4,216	442	443	2,226	170	3

Note: Some screening episodes and histology results are excluded from this table to allow a focus on key outcomes.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

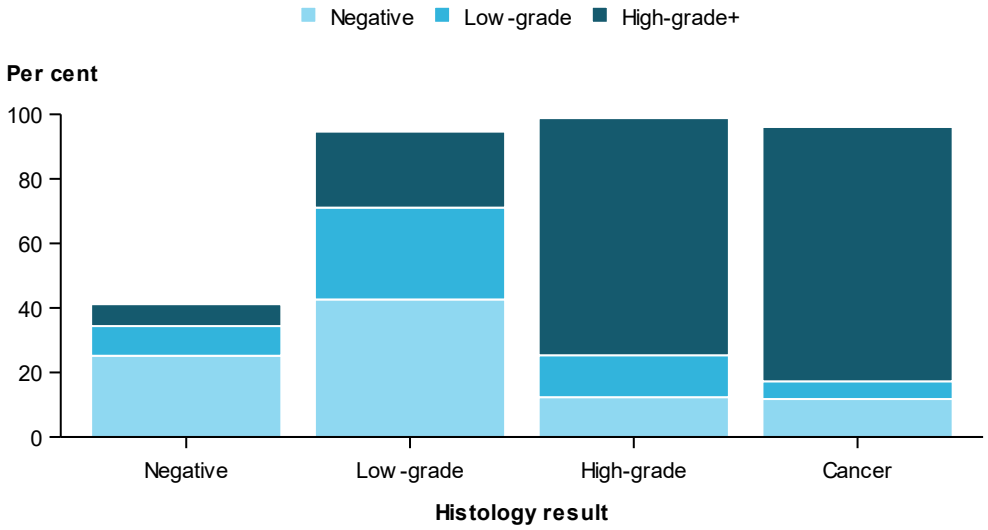
Irrespective of HPV test result, 9,662 primary screening tests had an LBC that predicted a high-grade or glandular abnormality or cervical cancer, with 7,454 followed by histology within 6 months. Of these 7,454 histology tests, 5,015 (67.3%) had a result of high-grade cervical abnormality or cervical cancer.

Figure 3.5.1 shows the proportion of each of the histology results of ‘Negative’, ‘Low-grade’, ‘High-grade’ and ‘Cancer’ that were preceded by an LBC result of ‘Negative’, ‘Low-grade’, or ‘High-grade+’ (high-grade, cancer or glandular).

For the 28,935 histology tests that occurred within 6 months of a primary screening test:

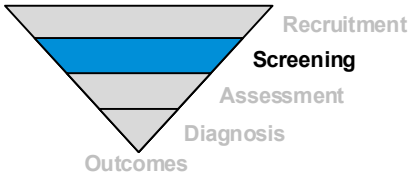
- negative histology was most frequently preceded by an HPV test that did not detect oncogenic HPV, and hence a reflex LBC was usually not performed;
- low-grade histology was most frequently preceded by an LBC test result of ‘Negative’, closely followed by ‘Low-grade’ and then ‘High-grade+’;
- high-grade histology was most frequently preceded by an LBC test result of ‘High-grade+’;
- cervical cancer histology was most frequently preceded by an LBC test result of ‘High-grade+’ (Figure 3.5.1).

Figure 3.5.1: Histology performed within 6 months of a primary screening test, by prior LBC test result, people aged 25–74 screened in 2019



Note: Histology does not equal 100% as cases where LBC was not performed are included in calculations but excluded from this figure.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A5.1.



Performance Indicator 6: Screening HPV test positivity

Summary of screening HPV test positivity data

Of the 665,414 primary screening HPV tests performed in 2020 in people aged 25–74:

- 2.3% were positive for oncogenic HPV types 16 or 18
- 8.2% 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 people aged 25–74.

Rationale:

Monitoring the positivity rate provides important information about a screening test. There are three measures of positivity for 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 people who were offered HPV vaccination (since these people 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. People born after 30 June 1980 were considered to have been offered HPV vaccination as these people were eligible for HPV vaccination when the school program commenced in April 2007 and the primary care catch up program commenced in July 2007. People born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these people were outside the eligible age for HPV vaccination.

The oncogenic HPV types against which people are likely to have been vaccinated is also a highly relevant consideration. Before 2018, the HPV vaccine used was against oncogenic HPV types 16 and 18, which means that the majority of HPV-vaccinated people 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 additional HPV types included are the next 5 most common HPV types that cause cervical cancer after types 16 and 18. However, it will be some time before individuals vaccinated against these oncogenic HPV types start cervical screening.

Results

There were 675,284 primary screening HPV tests in 2020, with 665,414 of these in people in the target age group 25–74.

Screening HPV test positivity was determined for people aged 25–74, as well as separately for people 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 3.6.1.

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 (2.3% of primary screening HPV tests in people aged 25–74, 2.1% in people offered HPV vaccination, and 2.4% in people not offered HPV vaccination).

In contrast, screening HPV test positivity for oncogenic HPV types other than 16 or 18 varied considerably, depending on whether people were of an age at which HPV vaccination was offered or not offered. Screening HPV test positivity was 12.5% of primary screening HPV tests for people young enough to have been offered HPV vaccination and 4.5% in people too old to have been offered HPV vaccination.

Table 3.6.1: Screening HPV test positivity, by oncogenic HPV type, by age, 2020

	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	2.3	8.2	10.4
Age indicates were offered HPV vaccination	2.1	12.5	14.7
Age indicates were not offered vaccination	2.4	4.5	6.9

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

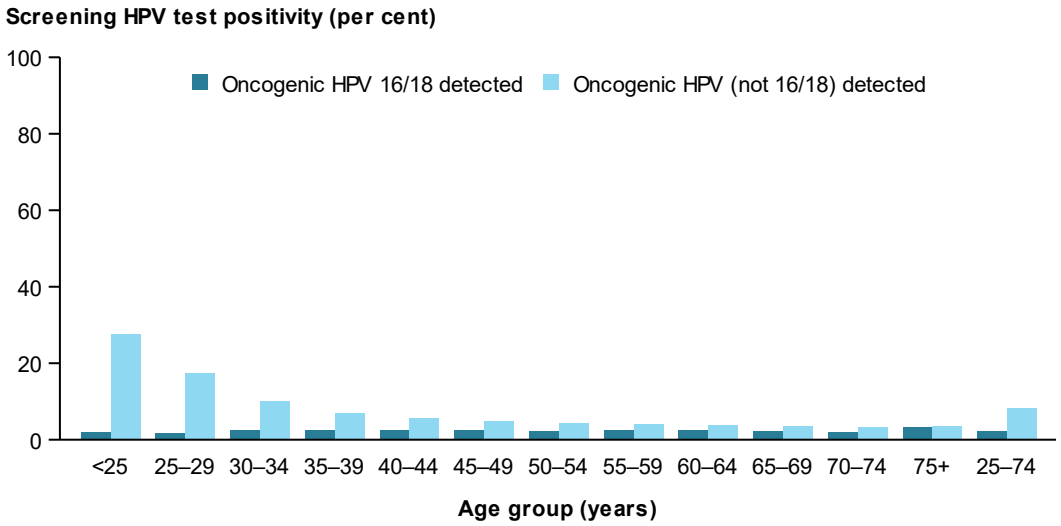
(b) People born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these people were outside the eligible age for HPV vaccination.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

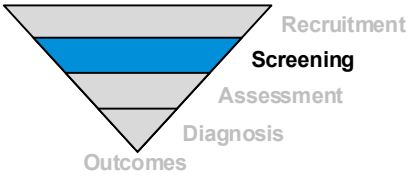
Higher screening HPV test positivity in people who had been offered HPV vaccination seems counterintuitive, but is an expected result for screening HPV test positivity for oncogenic HPV types other than 16 and 18, since the higher infection rates of HPV in younger people (that thereafter decline with 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 people would have received (Brotherton et al. 2019).

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 3.6.1). 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 people 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 people and thereafter decreased with increasing age.

Figure 3.6.1: Screening HPV test positivity, by oncogenic HPV type, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A.6.1.



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

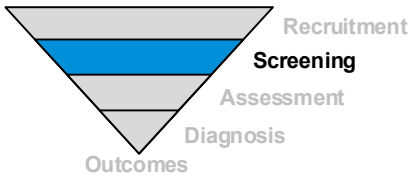
Rationale:

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

Data considerations:

Calculation of this performance indicator requires linkage between data from the NCSR and data from the Australian Cancer Database (ACD) and more than 5 years to have passed since the inception of the renewed NCSP to allow this performance indicator to be measured as per the definition.

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



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

Summary data for people 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 2020, of the 179 people aged 30–74 who self-collected and whose HPV test was positive for an oncogenic HPV type other than 16 or 18, 57.0% had an LBC test within 6 months.

Definition:

The percentage of people 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, people aged 30 or over who have never participated in cervical screening or 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. If the HPV test result is 'Oncogenic HPV (not 16/18) detected', the person needs to have a separate sample collected for a reflex LBC test to determine whether their risk is intermediate or higher.

People 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 6–12 weeks. This indicator monitors compliance with this recommendation within 6 months, by which time it is considered most people would have been able to attend an appointment with a practitioner.

Guide to interpretation:

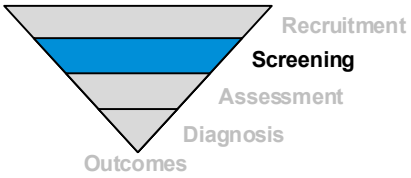
A higher percentage is better.

Data considerations:

People are eligible to self-collect only when they reach age 30, so this performance indicator is calculated for people aged 30–74 rather than 25–74. Some people 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.

Results

In 2020, there were 179 people aged 30–74 who self-collected the sample for their primary screening HPV test and were found to be positive for an oncogenic HPV type other than 16 or 18. Of these 179 people, 102 (57.0%) had an LBC test within 6 months of their primary screening HPV test. The small numbers do not support any further breakdowns.



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

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

In 2019, of the 104 people aged 30–74 who self-collected and whose HPV test was positive for oncogenic HPV type 16 or 18, 62.5% had a colposcopy within 6 months.

Definition:

The percentage of people 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, people aged 30 years or over who have never participated in cervical screening or are 2 years or more overdue for cervical screening are eligible to self-collect a sample which is tested for oncogenic HPV. If the HPV test result is 'Oncogenic HPV 16/18 detected' the person is considered higher risk and referred for colposcopy.

People 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 that most people would have been able to attend an appointment with a colposcopist.

Guide to interpretation:

A higher percentage is better.

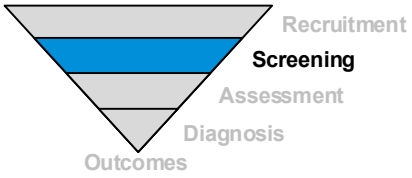
Data considerations:

People are eligible to self-collect only when they reach age 30, so this performance indicator is calculated for people aged 30–74 rather than 25–74. Any colposcopy or histology test performed within 6 months is included, as a histology test is an indication of a colposcopy.

This performance indicator is based on primary screening tests performed in 2019. This allows 6 months to 30 June 2020 to know whether a colposcopy or histology occurred, and a further 6 months to 31 December 2020 to ensure that colposcopy and histology data to 30 June 2020 are complete.

Results

In 2019, there were 104 people aged 30–74 who self-collected the sample for their primary screening HPV test and were found to be positive for oncogenic HPV type 16 or 18. Of these 104 people, 65 (62.5%) had a colposcopy within 6 months of their primary screening HPV test. The small numbers do not support any further breakdowns.



Performance Indicator 10: Adherence to recommendation for follow-up

Summary adherence to recommendation for follow-up data

58.1% of people aged 25–74 who had a primary screening test in 2019 that indicated they were of intermediate risk had a 12-month repeat HPV test between 9 and 15 months.

Definition:

The percentage of people 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:

People 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).

Guide to interpretation:

A higher percentage is better.

Data considerations:

Calculation of this performance indicator requires 15 months to have passed after the end of the reporting period to know if people had their 12-month repeat HPV test between 9 and 15 months after their screening episode.

This performance indicator is based on primary screening tests performed in 2019. This allows 15 months to 31 March 2021 to know whether a follow-up HPV test occurred as recommended, and a further 2 months to 31 May 2021 to ensure that screening data to 31 March 2021 are complete.

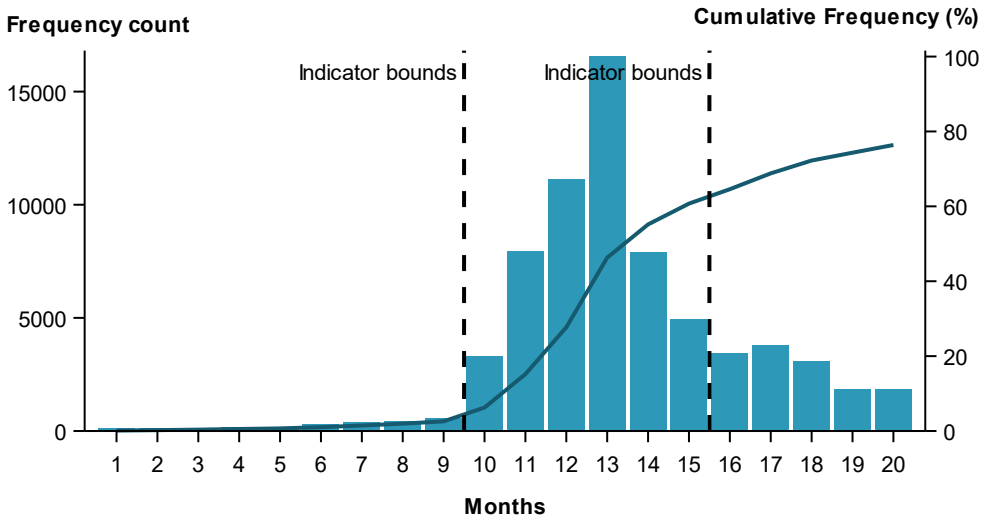
Results

There were 88,990 people aged 25–74 who had a primary cervical screening test in 2019 that indicated they were at intermediate risk of a significant cervical abnormality. For these people, their screening episode is not complete, with a repeat HPV test 12 months after their primary screening test required to determine whether they have cleared the HPV infection and have become low risk, or the infection has persisted in which case they are considered higher risk of significant cervical abnormality.

Of these 88,990 people at intermediate risk, 51,746 (58.1%) had a 12-month repeat HPV test between 9 and 15 months after their primary screening test. This range allows 3 months either side of 12 months for people who may have their repeat HPV test before or after 12 months, but still within an appropriate length of time after their primary screening test.

Figure 3.10.1 shows the distribution of repeat HPV tests after an intermediate primary screening test. The majority of those who had a repeat HPV test did so at 12 or 13 months. At 20 months, around 25% of people had not had a 12-month repeat HPV test.

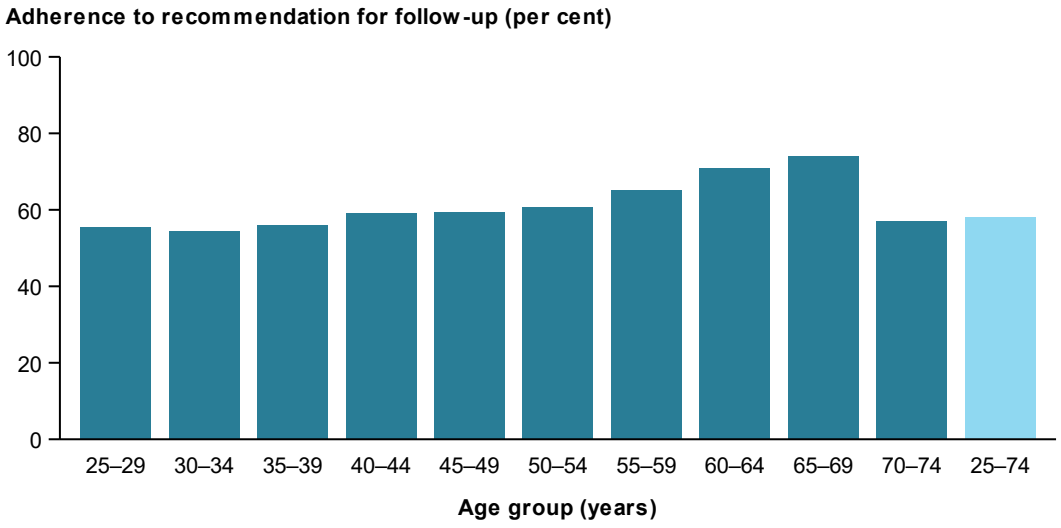
Figure 3.10.1: Distribution of 12-month repeat HPV tests after an intermediate primary screening test, people aged 25–74 screened in 2019



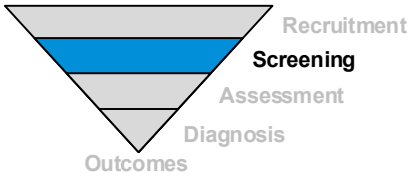
Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A.10.3.

The proportion of people at intermediate risk who had a 12-month repeat HPV test between 9 and 15 months after their primary screening test was lowest for younger age groups at around 55% for people aged 25–39, around 60% for people aged 40–54, thereafter increasing to 73.9% for people aged 60–69 (Figure 3.10.2). Adherence to recommendation for follow-up for people aged 70–74 was lower at 56.9%, likely a reflection of this age group entering the target age group for cervical screening on 1 December 2017.

Figure 3.10.2: Adherence to recommendation for follow-up, by age, people screened in 2019



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A.10.1.



Performance Indicator 11: Follow-up results

Summary repeat screening episode data

Of the 139,382 repeat screening episodes in 2020 in people aged 25–74:

- 42.7% were low risk
- 57.2% 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 people aged 25–74.

Rationale:

Follow-up results are the repeat screening HPV test result and (where indicated) reflex LBC test result that occur around 12 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:

The following is accurate for the cervical screening pathway as it existed prior to 1 February 2021, which is the relevant screening pathway to use for these data.

There are two possible risk categories (low and higher) for a repeat screening test prior to 1 February 2021 that is determined by the HPV test result. Although the LBC test result does not affect risk, reflex LBC will still be performed where this is indicated. Risk refers to the risk of significant cervical abnormality, illustrated in the screening pathway (Figure 2.1).

Because people who have a repeat screening test have already tested positive for an oncogenic HPV type, people who test positive for any oncogenic HPV type at their repeat screening HPV test are considered to be higher risk. People 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 person is deemed to be at intermediate risk as a result of their primary screening HPV test and reflex LBC test results.

Results

In 2020, there were 149,219 repeat screening episodes, 139,382 of which occurred in people in the target age group 25–74; these episodes were assigned to one of the 2 risk categories of low or higher (or unable to be assigned to a risk category) (Table 3.11.1). This is fully explained in the 'Guide to interpretation' for this performance indicator.

In Table 3.11.1, 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. There is no intermediate risk category for repeat screening episodes according to the screening pathway prior to 1 February 2021.

Table 3.11.1: Repeat screening HPV ± LBC test results, people aged 25–74, 2020

	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
Not indicated	158	59,535	. .	. .
LBC Unsatisfactory			822	236
LBC Negative			38,103	7,837
LBC Squamous low-grade abnormality			22,729	3,659
LBC Squamous high-grade abnormality or squamous cell carcinoma			4,527	1,518
LBC Glandular abnormality or adenocarcinoma			110	146
LBC not performed after oncogenic HPV detected**			2	0

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

** LBC not performed after oncogenic HPV detected; no risk is allocated for these episodes.

Note: Some repeat HPV tests that did not detect oncogenic HPV were followed by an LBC test. These tests have been allocated to low risk on the basis of their primary screening HPV test result of 'Oncogenic HPV not detected' irrespective of any abnormalities detected in the LBC test.

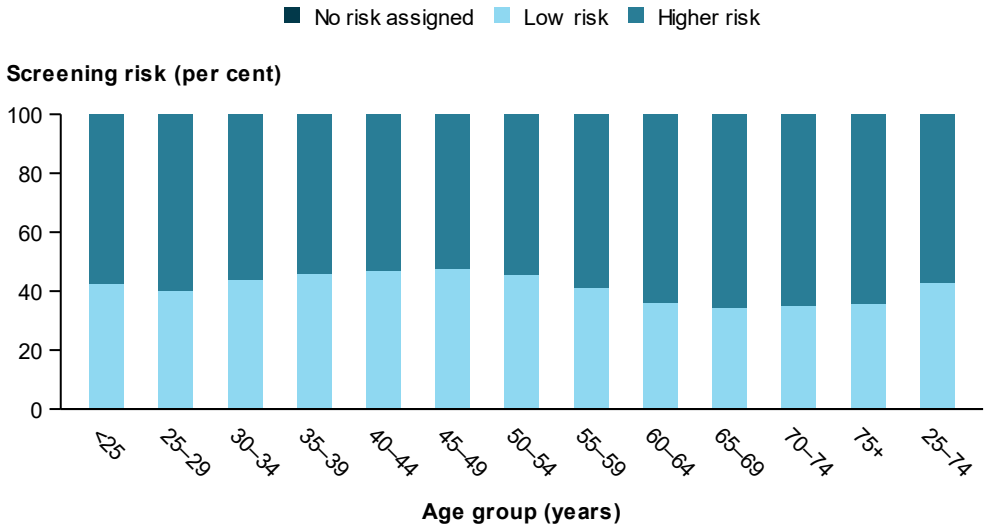
Overall, of the 139,382 repeat screening episodes in 2020 in people aged 25–74:

- 59,535 (42.7%) were low risk
- 79,689 (57.2%) were higher risk
- 158 (0.1%) could not be assigned a risk because they were unsatisfactory for evaluation.

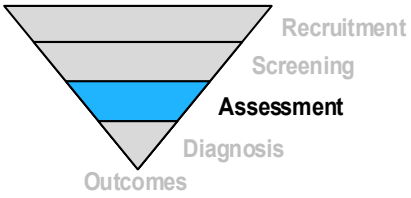
Risk categories for each age group are shown in Figure 3.11.1. The proportion of screening episodes that were low risk and higher risk was similar across age groups.

The proportion of screening episodes for which risk could not be assigned was too low to be visible in the figure.

Figure 3.11.1: Repeat screening episode risk categories, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A11.1.



Assessment

Performance Indicator 12: Colposcopy rate

Summary colposcopy rate data

Of the people aged 25–74 who were referred for colposcopy in 2019, 55.5% had a colposcopy within 3 months.

Definition:

The percentage of people 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 people at higher risk of significant cervical abnormality, and should be calculated for each screening episode result.

Data considerations:

Colposcopy is the examination of the cervix using a magnifying instrument called a colposcope, and is the first step in the assessment stage of the screening pathway.

The collection of national colposcopy data under the NCSP is relatively new. Being new, the level of completeness of colposcopy data in the NCSR is not known. This is important to flag since incomplete colposcopy data would affect all performance indicators that rely on these.

Time to colposcopy is taken from the date of a person's first higher risk screening episode. However, if a person had a second higher risk screening episode, they may not have been referred to colposcopy until this later result was received. Therefore in some cases the data may show a longer time to colposcopy than occurred due to a later test and delayed referral.

Guide to interpretation:

A higher colposcopy rate is better.

This performance indicator is based on primary screening tests performed in 2019. This allows 3 months to 31 March 2020 to know whether a colposcopy occurred, and a further 6 months to 30 September 2020 to ensure that colposcopy data to 30 June 2020 are complete

Results

People whose primary screening test or repeat screening test indicates that they are at higher risk of significant cervical abnormality are referred for colposcopy.

In 2019, there were 3 groups of people aged 25–74 who, as a result of their screening test result, were considered at higher risk and therefore referred for colposcopy. These were:

- people whose primary screening test detected oncogenic HPV type 16 or 18;

- people whose primary screening test detected an oncogenic HPV type other than 16 or 18 and whose reflex LBC test result was a high-grade squamous abnormality, squamous cell carcinoma, or a glandular abnormality; and
- people whose repeat screening test detected any oncogenic HPV type.

The colposcopy rate of these three groups was calculated as the proportion of people who had a colposcopy within 3 months (Table 3.12.1).

Table 3.12.1: Colposcopy rate, by screening test result, people aged 25–74, 2019

Screening test result	Number at higher risk	Number of colposcopies	Colposcopy rate (%)
Primary screening test HPV 16/18	30,021	18,271	60.9
Primary screening test (not 16/18) + any high-grade/glandular LBC	5,419	4,117	76.0
Repeat screening test HPV (any)	60,235	30,729	51.0
Total	**95,675**	**53,117**	**55.5**

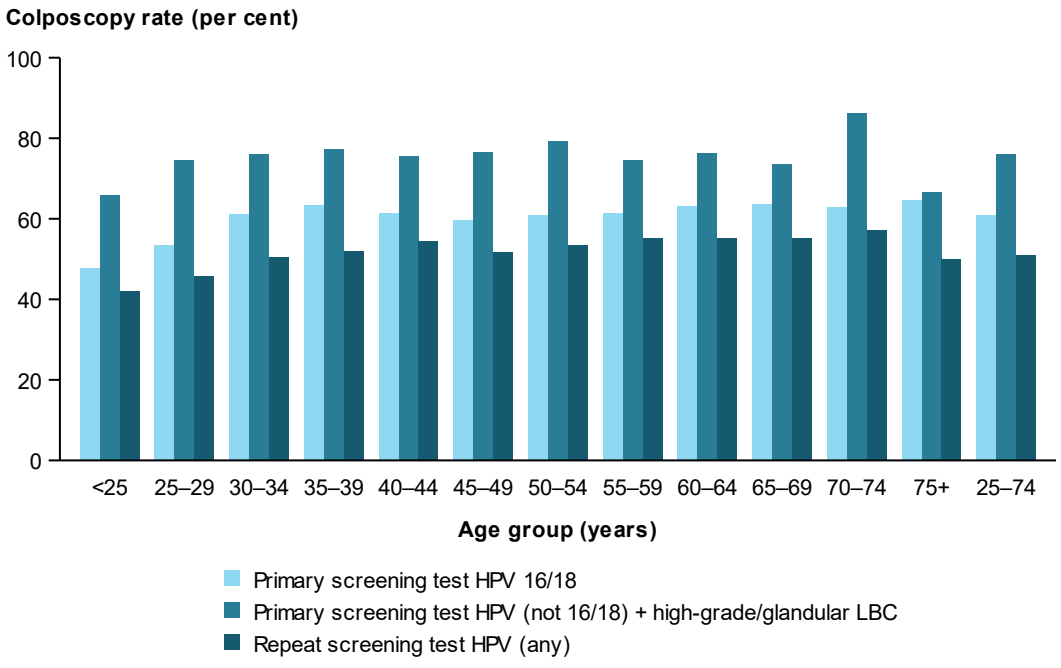
Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

People whose primary screening test detected an oncogenic HPV type other than 16 or 18 and whose reflex LBC test result was a high-grade squamous abnormality, squamous cell carcinoma, or a glandular abnormality had the highest colposcopy rate, with 76.0% of these people having a colposcopy within 3 months. This was followed by people whose primary screening test detected oncogenic HPV type 16 or 18, of whom 60.9% had a colposcopy within 3 months. The lowest colposcopy rate was for people whose repeat screening test detected any oncogenic HPV type, at 51.0%.

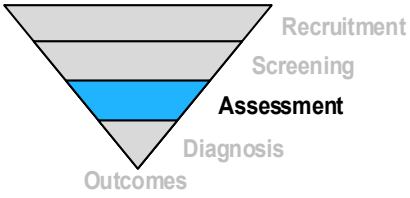
The total colposcopy rate for all people referred for colposcopy combined was 55.5%.

The colposcopy rate is shown by age for each of the 3 groups of people in Figure 3.12.1.

Figure 3.12.1: Colposcopy rate, by screening test result, by age, 2019



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A12.1.



Performance Indicator 13: Time to colposcopy

Summary time to colposcopy data

Of the people aged 25–74 who were referred for colposcopy in 2019, the median time to colposcopy was 65 days.

Definition:

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

Rationale:

People who receive a screening episode result that places them at higher risk of a significant cervical abnormality will be referred to colposcopy. The recommended timeframe in which they 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 as to whether people are receiving timely assessment, as delay in assessment may lead to poorer outcomes.

Data considerations:

Colposcopy is the examination of the cervix using a magnifying instrument called a colposcope, and is the first step in the assessment stage of the screening pathway.

The collection of national colposcopy data under the NCSP is relatively new. Being new, the level of completeness of colposcopy data in the NCSR is not known. This is important to flag since incomplete colposcopy data would affect all performance indicators that rely on these.

Time to colposcopy is taken from the date of a person's first higher risk screening episode. However, if a person had a second higher risk screening episode, they may not have been referred to colposcopy until this later result was received. Therefore in some cases the data may show a longer time to colposcopy than occurred due to a later test and delayed referral.

Guide to interpretation:

A shorter time to colposcopy is better.

This performance indicator is based on primary screening tests performed in 2019. This allows 12 months to 31 December 2020 to calculate time to colposcopy, and a further 6 months to 30 June 2021 to ensure that colposcopy data to 31 December 2020 are complete.

Results

Time to colposcopy was calculated for the same three groups of people aged 25–74 for who colposcopy rate was calculated. These were:

- people whose primary screening test detected oncogenic HPV type 16 or 18;
- people whose primary screening test detected an oncogenic HPV type other than 16 or 18 and whose reflex LBC test result was a high-grade squamous abnormality, squamous cell carcinoma, or a glandular abnormality; and
- people whose repeat screening test detected any oncogenic HPV type.

The median time to colposcopy for each group is shown in Table 3.13.1.

The median time to colposcopy was 62 days for people whose primary screening test detected oncogenic HPV type 16 or 18, 48 days for people whose primary screening test detected an oncogenic HPV type other than 16 or 18 and LBC test result was a high-grade squamous or any glandular abnormality, and 71 days for people whose repeat screening test detected any oncogenic HPV type.

Table 3.13.1: Time to colposcopy, by screening test result, people aged 25–74, 2019

Screening test result	Median	90th percentile
Primary screening test HPV 16/18	62	245
Primary screening test (not 16/18) + any high-grade/glandular LBC	48	146
Repeat screening test HPV (any)	71	354
Total	**65**	**306**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

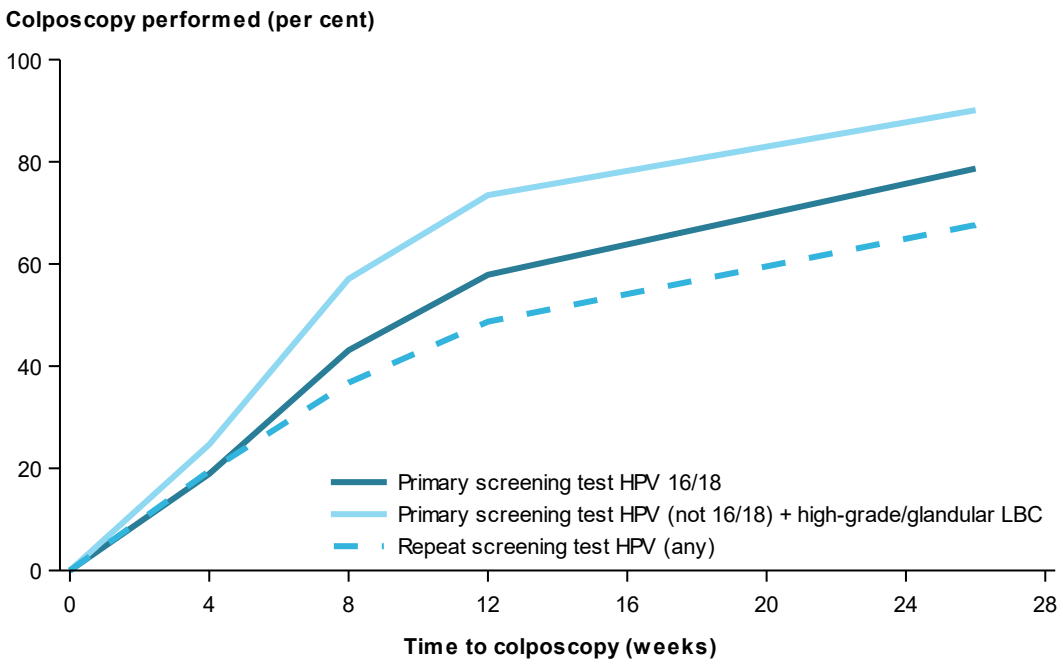
Time to colposcopy was also calculated as the proportion of people who had a colposcopy within 4 weeks, 8 weeks, 12 weeks, 16 weeks, and 26 weeks (Figure 3.13.1).

At 26 weeks after their screening test:

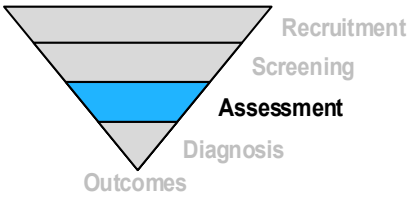
- 78.7% of people whose primary screening test detected oncogenic HPV type 16 or 18 had a colposcopy
- 90.1% of people whose primary screening test detected an oncogenic HPV type other than 16 or 18 and whose reflex LBC test result was a high-grade squamous abnormality, squamous cell carcinoma, or a glandular abnormality had a colposcopy
- 67.6% of people whose repeat screening test detected an oncogenic HPV type had a colposcopy.

Overall, 72.4% of people aged 25–74 whose screening test result in 2019 indicated that they should attend colposcopy had a colposcopy within 26 weeks of their screening test.

Figure 3.13.1: Time to colposcopy, by screening test result, people aged 25–74, 2019



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure available in Table A13.2.



Performance Indicator 14: Biopsy rate

Summary biopsy rate data

A biopsy was performed in 41.6% of the colposcopies performed for people aged 25–74 in 2020

Definition:

The percentage of colposcopies in people 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:

The collection of national colposcopy data under the NCSP is relatively new. Being new, the level of completeness of colposcopy data in the NCSR is not known. This is important to flag since incomplete colposcopy data would affect all performance indicators that rely on these.

Colposcopy data in the NCSR come from several sources. One source is the colposcopy form, which includes information on the colposcopy itself including whether a biopsy was performed, as well as treatment details. However, colposcopy data are also sourced from MBS, and this level of information is not available for colposcopies for which MBS is the only data source. Therefore, biopsy rate is calculated as the percentage of colposcopies for which biopsy rate can be known – that is, the percentage of colposcopies for which the source of data is a colposcopy form.

Results

In 2020, there were 120,307 colposcopies performed for people aged 25–74 as indicated by a completed colposcopy form. A biopsy was performed at 50,082 (41.6%) of these colposcopies.

To better understand why a biopsy may or may not be performed, the biopsy rate is shown according to indication for colposcopy (reason why colposcopy performed) (Table 3.14.1) and colposcopy impression (impression of colposcopist at time of colposcopy) (Table 3.14.2).

From these tables it can be seen that the reason why a person was referred to colposcopy had an influence on whether a biopsy was performed, with an indication for colposcopy of ‘New patient with abnormal cervical screening result’ having the highest biopsy rate of 51.0%, followed by an indication for colposcopy of ‘Abnormal appearance of cervix’ at 42.4%.

The colposcopy impression also had a major influence, with a biopsy much more likely to be performed where the colposcopist identified an abnormality – LSIL (squamous low grade abnormality), HSIL (squamous high-grade abnormality), glandular abnormality, or cancer. The biopsy rates for these were 84.5%, 68.8%, 64.2% and 77.9%, respectively.

Age also affected whether a biopsy was performed at colposcopy (Figure 3.14.1), with a biopsy more likely at colposcopies performed for younger people, then decreasing with increasing age.

Table 3.14.1: Biopsy rate, by indication for colposcopy, people aged 25–74, 2020

Indication for colposcopy	Number	Biopsy rate (%)
Not performed	13	6.6
New patient with abnormal cervical screening result	32,951	51.0
Follow-up of patient with previous abnormal cervical screening result	10,735	34.3
Symptomatic	2,829	35.1
Abnormal appearance of cervix	871	42.4
At time of treatment	1,127	18.1
Other	792	18.2
Missing	764	21.8
Total	**50,082**	**41.6**

Note: There are a small number of colposcopies for which the Indication for colposcopy was incorrectly assigned to 'Not performed'.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

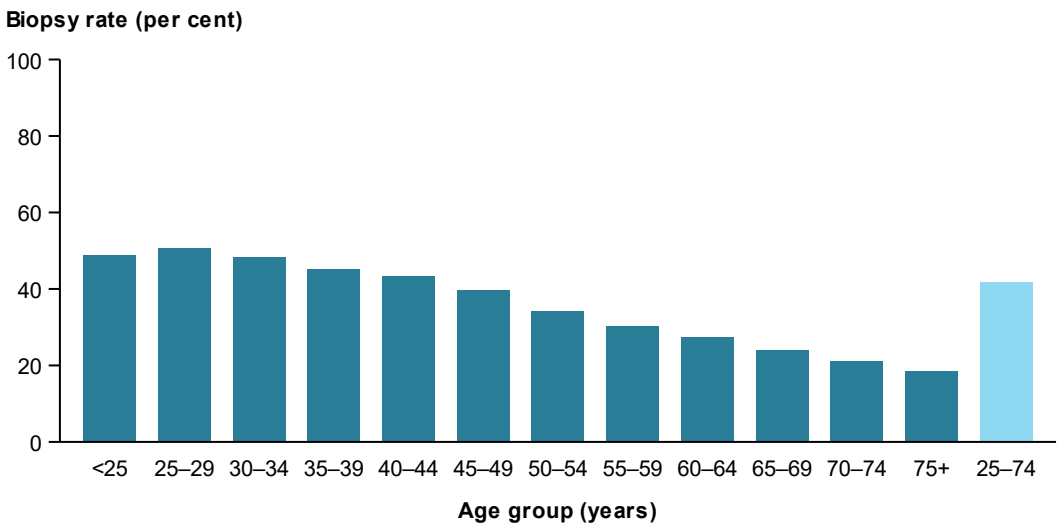
Table 3.14.2: Biopsy rate, by colposcopy impression, people aged 25–74, 2020

Colposcopy impression	Number	Biopsy rate (%)
Normal	4,228	11.4
No Visible Lesion	3,074	14.9
LSIL	27,625	84.5
HSIL	10,223	68.8
Glandular Abnormality (adenocarcinoma in situ)	179	64.2
Cancer	187	77.9
Other	3,370	51.7
Missing	1,196	14.6
Total	**50,082**	**41.6**

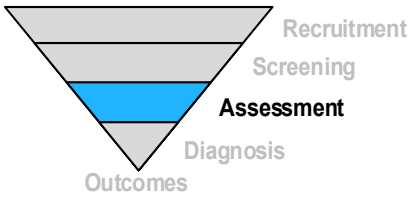
Note: LSIL = low-grade squamous intraepithelial lesion (low-grade abnormality); HSIL = high-grade intraepithelial lesion (high-grade abnormality)

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Figure 3.14.1: Biopsy rate, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A14.1.



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

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

Of the people aged 25–74 who had a colposcopy in 2019 following a higher risk screening test, 19.3% had a high-grade abnormality or cervical cancer detected on histology within 6 months of the colposcopy.

Definition:

Percentage of people 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 people who are referred to colposcopy are at higher risk of a significant cervical abnormality, it is expected that a proportion of these 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:

The collection of national colposcopy data under the NCSP is relatively new. Being new, the level of completeness of colposcopy data in the NCSR is not known. This is important to flag since incomplete colposcopy data would affect all performance indicators that rely on these.

Colposcopy data in the NCSR come from several sources. One source is the colposcopy form, which includes information on the colposcopy itself. However, colposcopy data are also sourced from MBS, and this level of information is not available for colposcopies for which MBS is the only data source. Therefore, the yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results is calculated using only colposcopies for which the source of data is a colposcopy form.

This performance indicator is based on colposcopies performed in 2019. This allows 6 months to 30 June 2020 to know if they were diagnosed with a high-grade abnormality or cervical cancer within 6 months, and a further 6 months to 31 December 2020 to ensure that histology data to 30 June 2020 are complete.

Results

The yield of high-grade abnormalities on biopsy includes all colposcopies performed after a higher risk screening test. Of the people aged 25–74 who had a colposcopy in 2019 following a higher risk screening test, 19.3% had a high-grade abnormality or cervical cancer detected on histology within 6 months of the colposcopy.

This differed according to the higher risk screening test that preceded the colposcopy – highest for primary screening tests that detected an oncogenic HPV type other than 16 or 18 with an LBC that detected a high-grade abnormality or cervical cancer or a glandular abnormality at 54.0%, and lower for primary screening tests that detected HPV type 16 or 18 at 18.5% and repeat screening tests that detected any type of oncogenic HPV at 14.4% (Table 3.15.1).

Table 3.15.1: Yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results, by screening test result, people aged 25–74, 2019

Screening test result	Number	Yield (%)
Primary screening test HPV 16/18	3,173	18.5
Primary screening test (not 16/18) + any high-grade/glandular LBC	2,236	54.0
Repeat screening test HPV (any)	3,878	14.4
Total	**9,287**	**19.3**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

These results demonstrate that the LBC test result when an oncogenic HPV type is detected is likely to affect the yield. This is shown in Table 3.15.2, with the yield for each squamous and endocervical LBC result from the higher risk screening tests that preceded the colposcopy shown. Yield was found to increase with increasing severity of abnormality, and was highest at above 70% for LBC results of cervical cancer.

Table 3.15.2: Yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results, by LBC result, people aged 25–74, 2019

LBC test result	Number	Yield (%)
S1	1,489	6.2
S2	702	11.4
S3	938	13.6
S4	2,807	47.5
S5	3,249	68.6
S6 or S7	73	73.0
E2	56	40.0
E3	65	68.4
E4, E5 or E6	102	84.3

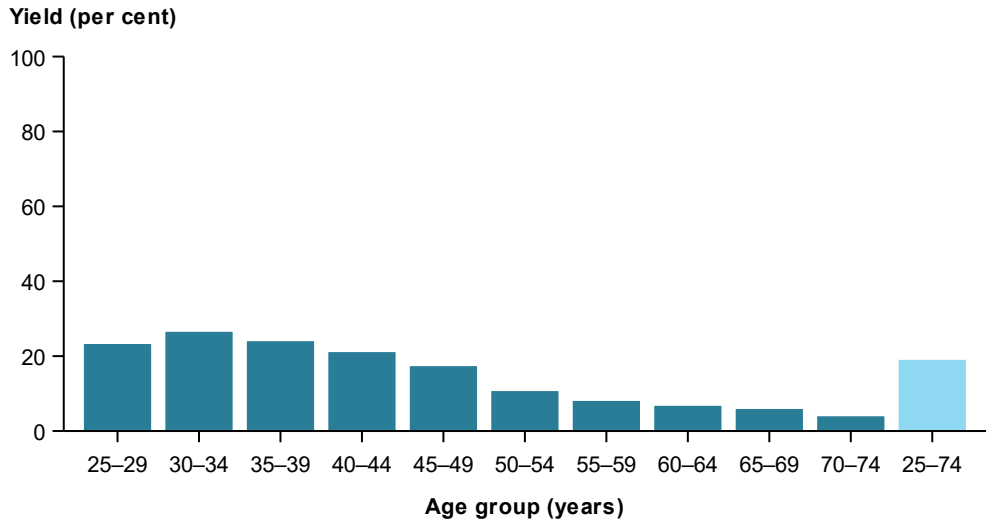
S1 = negative; S2 = possible low-grade squamous intraepithelial lesion; S3 = low-grade squamous intraepithelial lesion; S4 = possible high-grade squamous intraepithelial lesion; S5 = high-grade squamous intraepithelial lesion; S6 = high-grade squamous intraepithelial lesion with possible invasion; S7 = squamous cell carcinoma; E2 = atypical endocervical cells of uncertain significance; E3 = possible high-grade endocervical glandular lesion; E4 = adenocarcinoma in situ; E5 = adenocarcinoma in situ with possible invasion; E6 = adenocarcinoma

Note: this table includes each squamous and endocervical result in isolation, not as a pair, so where there is a high-grade abnormality or cervical cancer within 6 months of a negative squamous result, there may have been a glandular abnormality in the endocervical result.

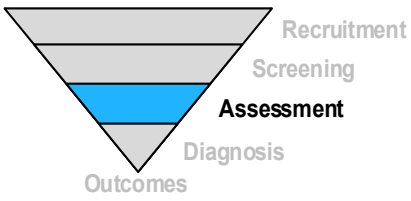
Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

The yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results is shown by age in Figure 3.15.1. This was above 20% for younger people, dropping to below 20% for people aged 45 and over.

Figure 3.15.1: Yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results, by age, 2019



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A15.1.



Performance Indicator 16: Positive predictive value of colposcopy

Summary positive predictive value of colposcopy data

The positive predictive value of colposcopies performed in 2019 for people aged 25–74 was 63.1%.

Definition:

Percentage of people 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:

The collection of national colposcopy data under the NCSP is relatively new. Being new, the level of completeness of colposcopy data in the NCSR is not known. This is important to flag since incomplete colposcopy data would affect all performance indicators that rely on these.

Colposcopy data in the NCSR come from several sources. One source is the colposcopy form, which includes information on the colposcopy itself and colposcopic impression. However, colposcopy data are also sourced from MBS, and this level of information is not available for colposcopies for which MBS is the only data source. Therefore the positive predictive value of colposcopy is calculated using only colposcopies for which the source of data is a colposcopy form.

This performance indicator is based on colposcopies performed in 2019. This allows 6 months to 30 June 2020 to know if they were diagnosed with a high-grade abnormality or cervical cancer within 6 months, and a further 6 months to 31 December 2020 to ensure that histology data to 30 June 2020 are complete.

Results

The positive predictive value of colposcopy includes all colposcopies performed after a higher risk screening test with a colposcopic impression of high-grade abnormality or cervical cancer. Of the people aged 25–74 who had a colposcopy in 2019 with a colposcopic impression of high-grade abnormality or cervical cancer following a higher risk screening test, 63.1% had a high-grade abnormality or cervical cancer detected on histology within 6 months of the colposcopy. This is the positive predictive value of colposcopy.

This differed according to the higher risk screening test that preceded the colposcopy – highest for primary screening tests that detected an oncogenic HPV type other than 16 or 18 with an LBC that detected a high-grade abnormality or cervical cancer or a glandular abnormality at 69.5%, and a little lower for primary screening tests that detected HPV type 16 or 18 at 65.1%. The positive predictive value was lowest for repeat screening tests that detected any type of oncogenic HPV at 57.0% (Table 3.16.1).

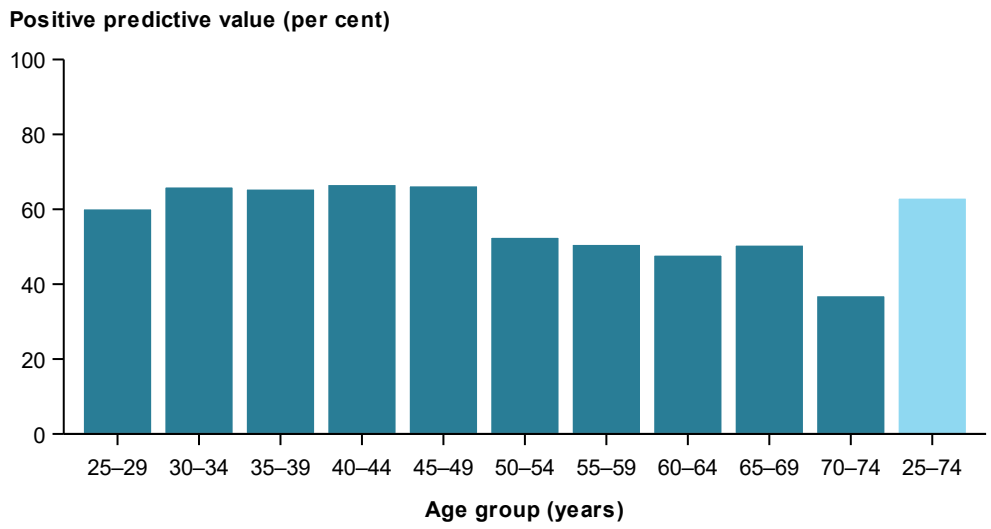
Table 3.16.1: Positive predictive value of colposcopy, by screening test result, people aged 25–74, 2019

Screening test result	Number	Positive predictive value (%)
Primary screening test HPV 16/18	1,988	65.1
Primary screening test (not 16/18) + any high-grade/glandular LBC	1,600	69.5
Repeat screening test HPV (any)	1,940	57.0
Total	**5,528**	**63.1**

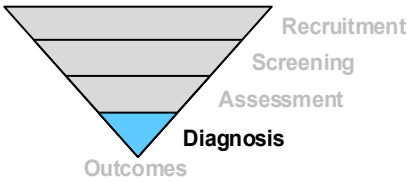
Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

The positive predictive value of colposcopy is shown by age in Figure 3.16.1. This was above 60% for younger people, dropping to below 60% for people aged 50 and over.

Figure 3.16.1: Positive predictive value of colposcopy, by age, 2019



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A16.1.



Diagnosis

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

Summary high-grade cervical abnormality detection rate data

In 2020, there were 15.7 people with a high-grade abnormality detected by histology per 1,000 screened, for people aged 25–74.

Definition:

Number of people aged 25–74 with a high-grade abnormality detected on histology in a calendar year per 1,000 people 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 do low-grade lesions. Therefore, one of the aims of the NCSP is to detect 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 endocervical dysplasia and 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:

The high-grade abnormality detection rate includes all high-grade histology, and is not restricted to histology that is performed after a primary screening test. Therefore, the denominator for this performance indicator is not restricted to the number of people who have had a primary screening test, but includes all people who had an HPV or LBC test for any reason. This may differ from the high-grade abnormality rate calculated by others who may use data that are restricted to screening tests and high-grade histology tests that result from these.

This performance indicator is restricted to histology tests notified by pathology laboratories. The NCSR also includes MBS histology data, but as these do not include a result, they are not able to be included in these data. This indicator is therefore affected by the completeness of histology as reported to the NCSR by pathology laboratories.

This performance indicator is a count of people, not tests. Where a person had more than one high-grade abnormality detected, the most serious was counted. Where a person had more than one high-grade abnormality of equal seriousness, the last was counted.

This performance indicator is based on histology performed in 2020. This allows 6 months to 30 June 2021 to ensure that histology data to 31 December 2020 are complete.

It was previously thought that the development of cervical cancer involved progression from low-grade to moderate-grade to high-grade abnormalities, but it is now understood that low-grade and high-grade abnormalities represent different HPV infection processes.

Low-grade abnormalities occur as a result of acute HPV infection, most of which will resolve spontaneously. High-grade abnormalities are the result of persistent infection with an oncogenic HPV type. Most high-grade abnormalities also regress over time (Raffle et al. 2003), but regression takes longer (Cancer Council Australia 2014). An important difference between non-oncogenic and oncogenic HPV types is that oncogenic HPV types integrate their DNA into the host genome, which is why these are associated with oncogenic changes to the cells of the cervix, whereas non-oncogenic HPV types are unable to integrate their DNA into the host genome and can only cause low-grade changes (Chhieng & Hui 2011).

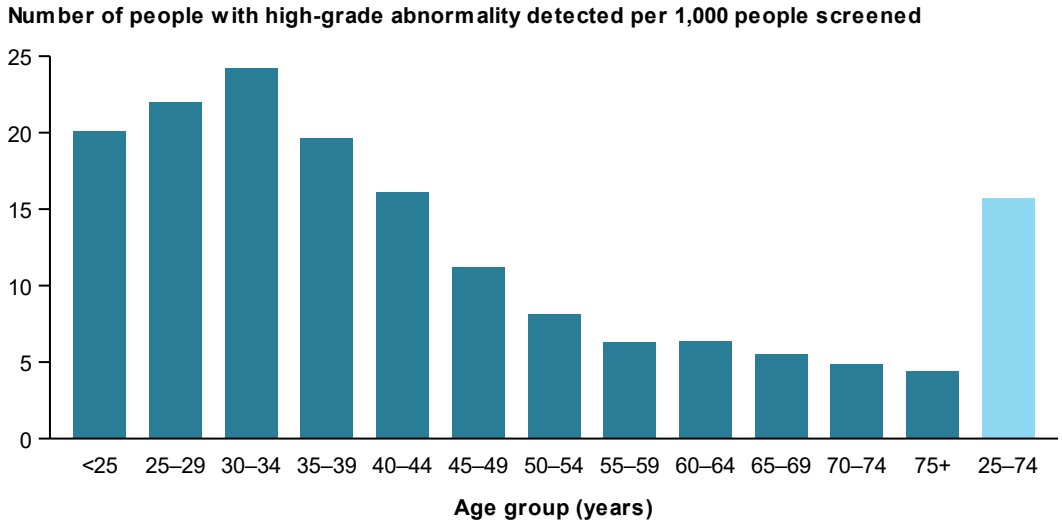
As they are potential precursors to cervical cancer, detection of high-grade abnormalities through cervical screening provides an opportunity for treatment before cancer can develop. Detection of high-grade abnormalities is by histology, which is the primary diagnostic tool of the NCSP. Confirmation of disease is required before treatment is initiated, both to ensure treatment is appropriate and to avoid unnecessary treatment where disease is not present (in Australia it is considered best practice to confirm high-grade disease with histology before treatment (NHMRC 2005)).

Results

In 2020, a high-grade abnormality was detected by histology in 16,605 people aged 25–74, which equates to 15.7 people with a high-grade abnormality detected per 1,000 screened. This means that, for every 1,000 people screened, 16 had a high-grade abnormality detected, providing an opportunity for treatment before possible progression to cancer.

Within the target age group, the high-grade abnormality rate was highest for people aged 30–34 at 24.2 people with a high-grade histology detected per 1,000 screened. Thereafter this decreased with increasing age to less than 10 per 1,000 people screened for people aged 50 and over (Figure 3.17.1).

Figure 3.17.1: High-grade cervical abnormality detection rate, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A17.1.

While the number of high-grade abnormalities detected by histology in 2020 is similar to the number detected in 2019, the high-grade abnormality detection rate is considerably higher.

The number of people screened in 2020 (the denominator for this rate) is a lot lower than the number of people screened in 2019, which is an expected result of the change from 2-yearly to 5-yearly screens, with 2020 being the first year affected (see Box 3.1.3).

The fact that the number of high-grade abnormalities has stayed high in 2020 irrespective of the lower number of people screened in that year reflects that many of the people screening in 2020 will be newly-eligible 25–29 year olds who have high rates of HPV infection.

High-grade abnormalities of the cervix include the squamous cell abnormalities of moderate CIN (CIN 2) and severe CIN (CIN 3), as well as CIN for which the grade has not been specified. There are also endocervical high-grade abnormalities. These are much rarer, and include endocervical dysplasia and adenocarcinoma in situ (AIS), as well as mixed abnormalities that include both CIN3 and adenocarcinoma in situ.

The histological types of the high-grade abnormalities counted in the high-grade abnormality detection rate were examined (noting that if a person had more than one high-grade abnormality detected, the most serious abnormality was counted).

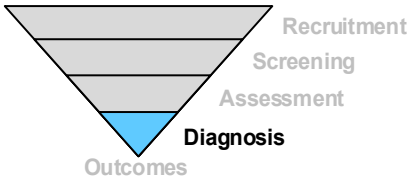
Data for the target age group 25–74 are summarised in Table 3.17.1. It was found that CIN 3 was present in more than half (55.8%) of the people with a high-grade abnormality detected, with CIN 2 the next most common abnormality, present in 35.0% of the people with a high-grade abnormality detected.

As expected, endocervical abnormalities were rarer. The most common of these, adenocarcinoma in situ, was found in 2.1% of the people with a high-grade abnormality detected. Other histological types made up the remainder.

Table 3.17.1: Number with high-grade abnormality detected, by histological type, people aged 25–74, 2020

	CIN NOS	CIN2	CIN3	Endocervical dysplasia	AIS	Mixed CIN3/AIS
Number	863	5,816	9,270	44	357	255
%	5.2	35.0	55.8	0.3	2.1	1.5

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data by 5-year age group are available in Table A17.2.



Performance Indicator 17b: Cervical cancer detection rate

Summary cervical cancer detection rate data

In 2020, there were 0.8 people with a cervical cancer detected by histology per 1,000 screened, for people aged 25–74.

Definition:

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

Rationale:

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

Data considerations:

The cancer detection rate measures cervical cancers detected on histology and included in the NCSR. This is different from cervical cancer incidence that uses data from the Australian Cancer Database, sourced from state and territory cancer registries.

The cervical cancer detection rate includes all cervical cancer histology, and is not restricted to histology that is performed after a primary screening test. Therefore, the denominator for this performance indicator is not restricted to the number of people who have had a primary screening test, but includes all people who had an HPV or LBC test for any reason.

This performance indicator is restricted to histology tests notified by pathology laboratories. The NCSR also includes MBS histology data, but as these do not include a result, they are not able to be included in these data. This indicator is therefore affected by the completeness of histology as reported to the NCSR by pathology laboratories.

This performance indicator is a count of people, not tests. Where a person had more than one cervical cancer detected, the most serious was counted. Where a person had more than one cervical cancer of equal seriousness, the last was counted.

This performance indicator is based on histology performed in 2020. This allows 6 months to 30 June 2021 to ensure that histology data to 31 December 2020 are complete.

Results

The cervical cancer detection rate is the number of people with a cervical cancer detected by histology per 1,000 people screened.

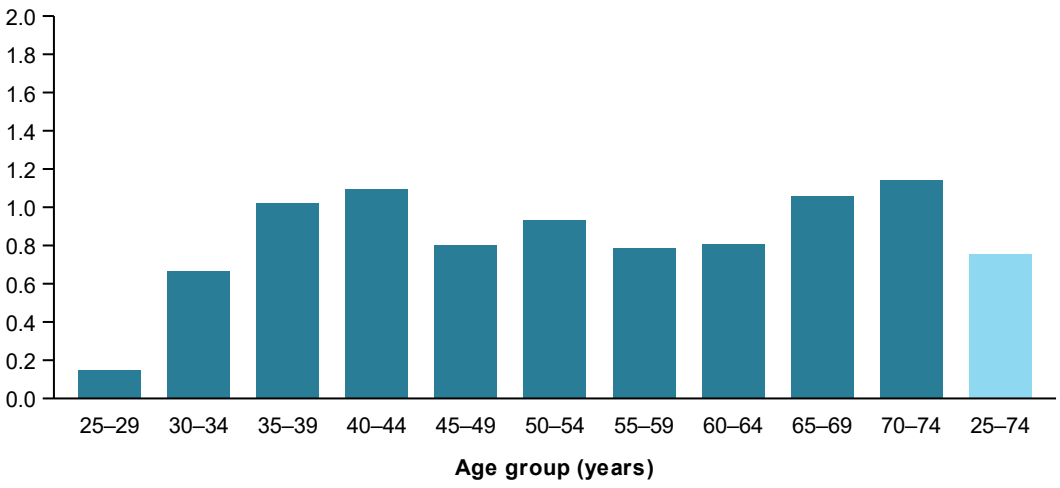
In 2020, a cervical cancer was detected by histology in 795 people aged 25–74, which equates to 0.8 people with a cervical cancer detected by histology per 1,000 screened. This means that, for every 1,000 people screened, fewer than 1 person had a cervical cancer detected.

The cervical cancer detection rate of 0.8 per 1,000 people screened is far lower than the high-grade abnormality detection rate of 15.7 people with a high-grade abnormality detected per 1,000 screened. This reflects that the aim of cervical screening is not to detect cervical cancer, but to prevent it through the detection of high-grade abnormalities.

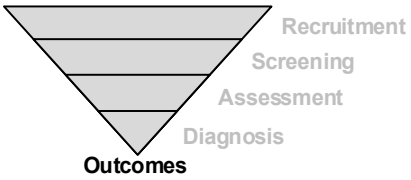
Similar to the high-grade abnormality detection rate, the cervical cancer detection rate is considerably higher in 2020 than the rate in 2019 despite the number of people screened in 2020 (the denominator for this rate) being a lot lower than the number screened in 2019.

The cervical cancer detection rate was low for people aged 25–29, and appeared to have small peaks at age 35–44 and 65–74, but was otherwise similar across age groups (Figure 3.17.2).

Figure 3.17.2: Cervical cancer detection rate, by age, 2020



Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021). Data and notes for this figure are available in Table A17.4.



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 people 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 due to a lack of participation in the screening program. Time since last screen is used to categorise all people diagnosed with cervical carcinoma as never screened, lapsed screening, or adequately screened. Most cervical carcinomas have historically been diagnosed in never screened people, which is evidence of the benefit of participation in cervical screening.

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.

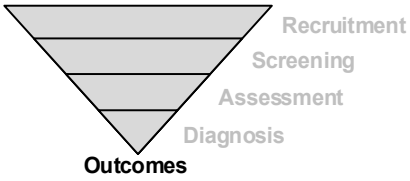
Lapsed screening is defined as last screening test >5.5 years prior to cancer diagnosis.

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

Data considerations:

Calculation of this performance indicator requires linkage between data from the NCSR and data from the Australian Cancer Database (ACD) and more than 5 years to have passed since the inception of the renewed NCSP to allow this performance indicator to be measured as per the definition.

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

743 women aged 25–74 were diagnosed with cervical cancer in 2017, which is an incidence rate of 9.7 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.

Data considerations:

Australia has high-quality and virtually complete cancer incidence data. Collected by state and territory cancer registries, clinical and demographic data for all cancer cases are provided to the AIHW and compiled in the Australian Cancer Database (ACD). Data in this section are sourced from the 2017 version of the ACD.

The 2017 version of the ACD currently contains data on all cases of cancer diagnosed from 1982 to 2017 for all states and territories, with the following exceptions:

- 2017 incidence data for NT were not available in time for inclusion in the 2017 ACD. The AIHW estimated these data by projecting the trends observed in NT in 2007–2016.
- 2017 incidence data for NSW death certificate only (DCO) cases were not available in time for inclusion in the 2017 ACD. The AIHW estimated these data based on the NSW DCO cases for 2016.
- There are expected to be some 'late registrations'. These are cases of cancer that were diagnosed in 2017 but for which not enough details had been provided to the relevant cancer registry in time for the case to be included in the 2017 ACD.

Estimates are not used in incidence data below the national level, nor are single years of data presented, so disaggregations are instead presented for the 5-year period 2012–2016.

Guide to interpretation:

Lower cervical cancer incidence is better.

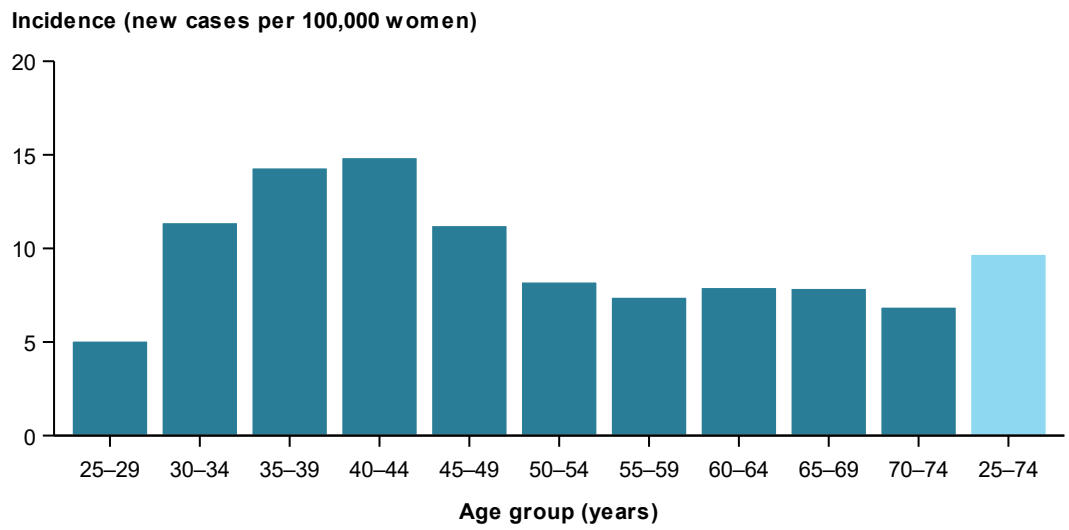
Results

In 2017, there were 839 new cases of cervical cancer diagnosed in women of all ages, which is 6.8 new cases per 100,000 women (6.6 new cases per 100,000 women when age-standardised to allow comparison over time or across population groups). Of these, 743 new cases of cervical cancer were diagnosed in women aged 25–74 (the target age group of the

National Cervical Screening Program), which is equivalent to an incidence rate of 9.7 new cases per 100,000 women age 25–74 (10.0 new cases per 100,000 women aged 25–74 when age-standardised to allow comparison over time or across population groups).

Cervical cancer incidence by age is shown in Figure 3.19.1.

Figure 3.19.1: Cervical cancer incidence, by age, 2017



Source: AIHW Australian Cancer Database 2017. Data and notes 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 following broad histological types: 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 2017, of the 743 cervical cancers diagnosed in women aged 25–74, 732 (98.5%) were carcinomas, 1 (0.1%) was a sarcoma and 10 (1.3%) were classified as ‘Other specified and unspecified malignant neoplasms’ (Table 3.19.1).

The proportion of each histological type of cervical carcinoma diagnosed in 2017 (the latest year) and 1987 (30 years prior, and before the commencement of the NCSP in 1991) are shown in Figure 3.19.2. In 2017, squamous cell carcinomas comprised 65.8% of all cervical carcinomas, followed by adenocarcinomas at 28.0% and adenosquamous carcinomas at 2.9%. Other specified and unspecified carcinomas comprised 3.4% of all cervical

carcinomas. This is in contrast to 1987, when squamous cell carcinomas comprised 77.7% of all cervical carcinomas, with adenocarcinomas far rarer at 14.1% and adenosquamous carcinomas at 4.6%. Other specified and unspecified carcinomas were the remaining 3.6%.

Table 3.19.1: Cervical cancer incidence, by histological type, women aged 25–74, 2017

Type of cervical cancer	New cases	Crude rate	AS rate	% of cervical cancers	% of carcinomas
1: Carcinoma	732	9.6	9.9	98.5	100.0
1.1: Squamous cell carcinoma	481	6.3	6.5	64.8	65.8
1.2: Adenocarcinoma	205	2.7	2.8	27.6	28.0
1.3: Adenosquamous carcinoma	21	0.3	0.3	2.8	2.9
1.4: Other specified and unspecified carcinoma	25	0.3	0.3	3.3	3.4
2: Sarcoma	1	0.0	0.0	0.1	. .
3: Other specified and unspecified malignant neoplasm	10	0.1	0.1	1.3	. .
Total	**743**	**9.7**	**10.0**	**100.0**	**. .**

'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, 8260–8265, 8310, 8380, 8382–8384, 8440–8490, 8570–8574, 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.

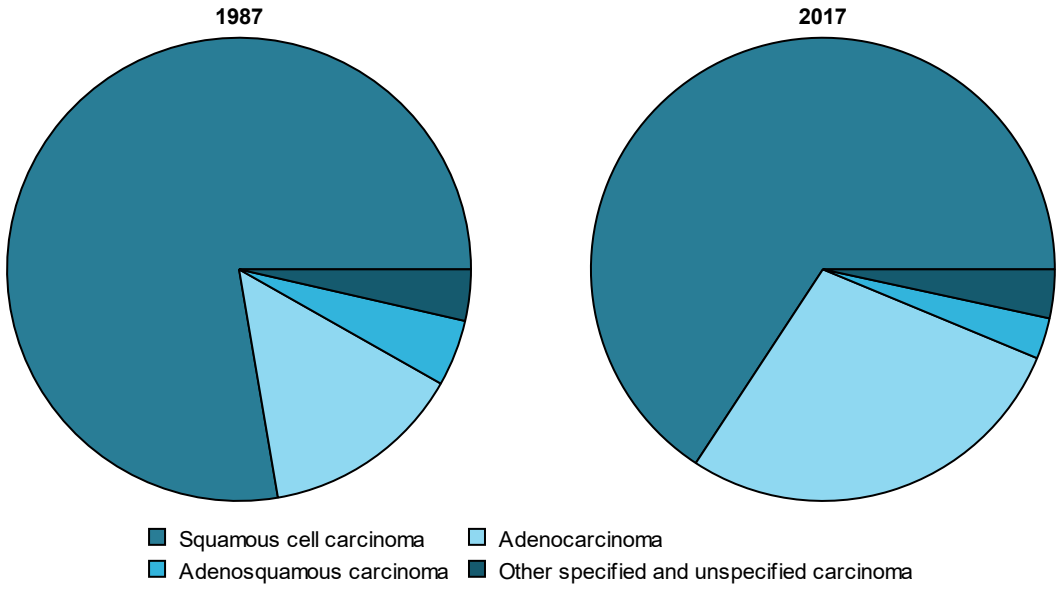
'Sarcoma' = ICD-O-3 codes 8800–8811, 8830, 8840–8921, 8990–8991, 9040–9044, 9120–9133, 9150, 9540–9581.

'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. 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. Rates based on fewer than 20 new cases should be interpreted with caution. Numbers may not add to total due to rounding. Data for 2016 are estimated for NT.

Source: AIHW Australian Cancer Database 2017.

Figure 3.19.2: Cervical cancer incidence, by histological type, women aged 25–74, 1987 and 2017



Source: AIHW Australian Cancer Database 2017.

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 65% 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 28% of all cervical cancers, not because there are more adenocarcinomas, but because there are fewer squamous cell carcinomas that has had the effect of reducing the size of the 'pool' of cervical cancers.

Incidence by remoteness area

In 2012–2016, cervical cancer incidence for women aged 25–74 increased with increasing remoteness. Age-standardised rates are shown in Figure 3.19.3 and below.

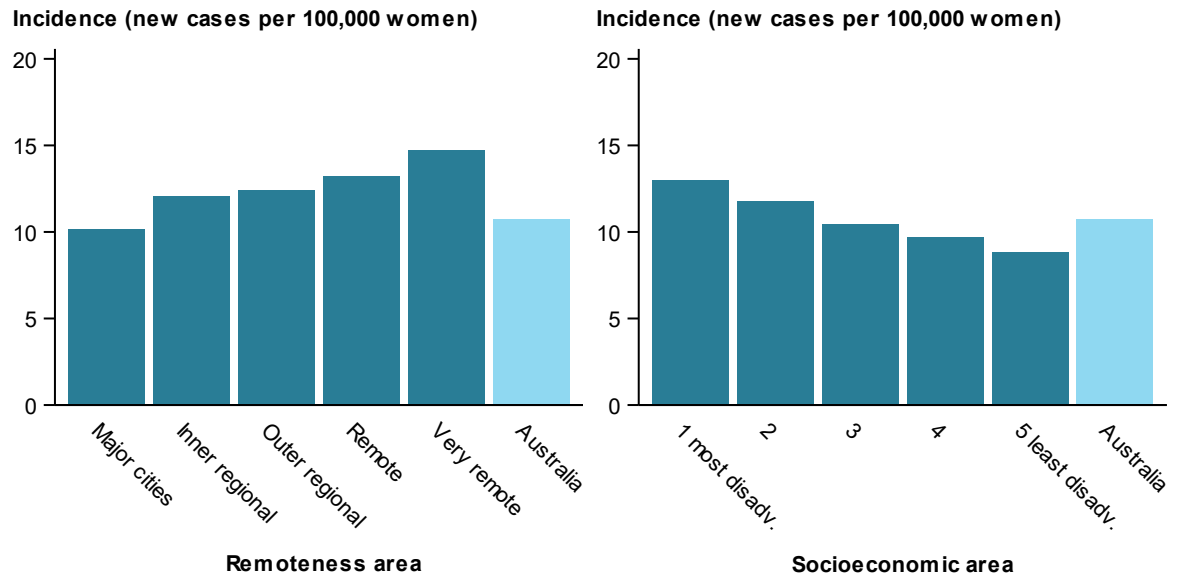
Incidence of cervical cancer in women aged 25–74 in 2012–2016 was lowest for women living in *Major cities* at 10.1 new cases per 100,000 women. It was similar for women residing in *Inner regional* and *Outer regional* areas, being 12.1 and 12.4 new cases per 100,000 women, respectively. Incidence was highest for women residing in *Remote* and *Very remote* areas at 13.2 and 14.7 new cases per 100,000 women, respectively.

Incidence by socioeconomic area

In 2012–2016, cervical cancer incidence for women aged 25–74 increased with increasing socioeconomic disadvantage. Age standardised rates are shown in Figure 3.19.3 and below.

In 2012–2016, cervical cancer incidence in women aged 25–74 was lowest for women residing in areas of lowest socioeconomic disadvantage at 8.8 new cases per 100,000 women; thereafter, it increased with increasing socioeconomic disadvantage and was highest for women residing in areas of highest socioeconomic disadvantage at 13.0 new cases per 100,000 women.

Figure 3.19.3: Cervical cancer incidence, by remoteness area and socioeconomic area, women aged 25–74, 2012–2016



Source: AIHW Australian Cancer Database 2017. Data and notes for this figure are available in Table A19.3 and A19.4.

Incidence by Indigenous status

Reliable national data on the diagnosis of cervical cancer for Indigenous Australians are not available. All state and territory cancer registries collect information on Indigenous status; however, in some jurisdictions, the quality of the data is insufficient for analysis. Data are only included for New South Wales, Queensland, Western Australia and the Northern Territory. Victorian data have not been included because of discrepancies in cancer incidence rates compared with these four jurisdictions. This may reflect differences in the number of data sources used to determine Indigenous status. Work is planned on validation of Indigenous status in Victorian cancer data. Data are not included for South Australia, Tasmania or the Australian Capital Territory because the Indigenous status variable is not of sufficient quality in these jurisdictions.

The incidence counts and rates for Indigenous Australian women and non-Indigenous Australian women presented are underestimates due to the relatively large proportion of women whose Indigenous status is not stated, or not available. Also, it is likely that some Indigenous Australian women are misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution.

Box 3.19.1: Indigenous Australians – incidence and mortality: populations and rates

To derive cervical cancer incidence and mortality rates for Indigenous Australians, this report used Indigenous population estimates and projections based on the 2016 Census, which were the most recent estimates available when this report was prepared.

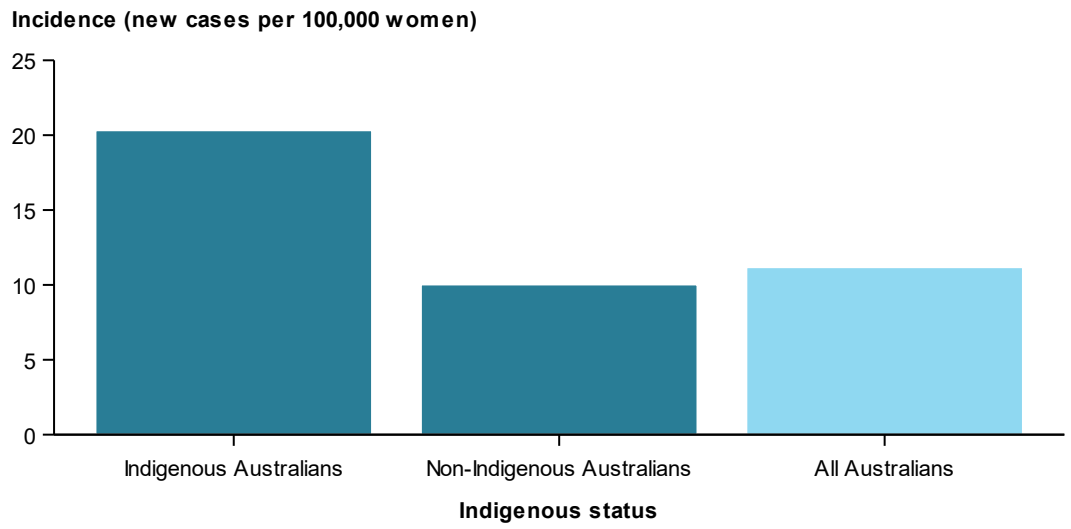
The final estimated resident Aboriginal and Torres Strait Islander population as at 30 June 2016 was 19% larger than the estimated population as at 30 June 2011 (ABS 2018). The Australian Bureau of Statistics (ABS) notes that the population increase is greater than demographic factors alone can explain. As well, the 2016 estimated population was 7% larger than the 2016 projected population based on the 2011 Census.

The extent of the increase in the Indigenous population estimates between 2011 and 2016 means that any rates calculated with Indigenous population estimates based on the 2016 Census will be lower than those based on the 2011 Census and should not be compared with rates calculated using populations based on previous Censuses.

Analysis of data from these jurisdictions showed that, over the 5 years 2012–2016, 144 Indigenous Australian women aged 25–74 were diagnosed with cervical cancer, equating to 19.8 new cases per 100,000 Indigenous women in the population.

This is a higher rate than experienced by non-Indigenous women – for those aged 25–74, the age-standardised incidence rate of 20.3 new cases per 100,000 for Indigenous women was around twice that of non-Indigenous women, with an age-standardised incidence rate of 10.0 new cases per 100,000 women (Figure 3.19.4).

Figure 3.19.4: Cervical cancer incidence, by Indigenous status, women aged 25–74, 2012–2016



Note: Data shown for 'Indigenous', 'Non-Indigenous' and 'Total' are for New South Wales, 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 2017. Data and notes for this figure are available in Table A19.5.

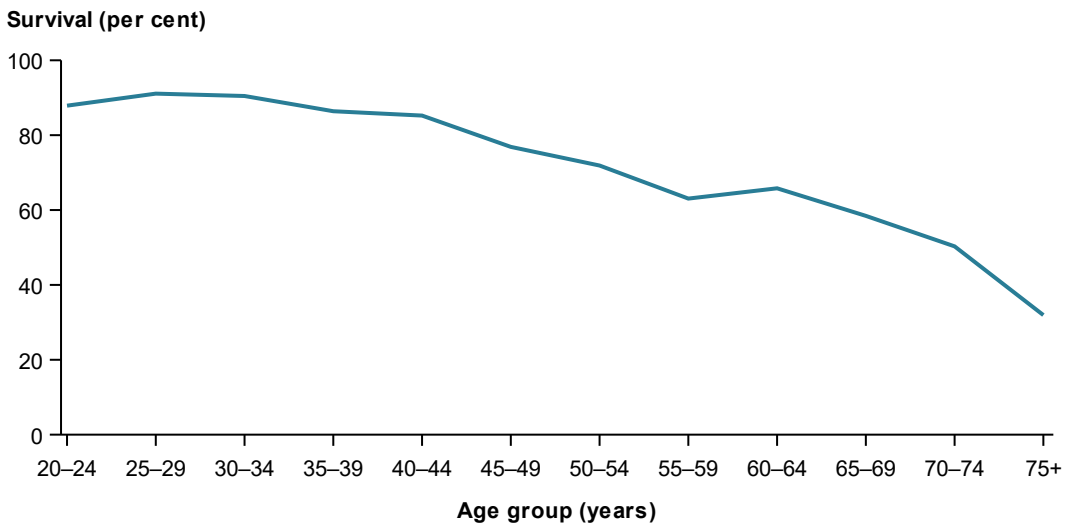
Survival from cervical cancer

Survival in this report refers to 'relative survival' which is the probability of being alive for a given amount of time after diagnosis compared with the general population, and reflects the impact of a cancer diagnosis. The source of survival data is the 2017 Australian Cancer Database which includes data from the National Death Index on deaths (from any cause) that occurred up to 31 December 2017, which were used to determine which people with cancer had died and when this occurred.

In 2013–2017, women diagnosed with cervical cancer in Australia had a 73.8% chance of surviving for 5 years compared with their counterparts in the general population. For the target age group 25–74, 5-year survival was 77.8%.

Five-year survival from cervical cancer generally decreased with increasing age; women aged 25–29 had the highest survival at 91.1%, whereas women aged 75 and over diagnosed with cervical cancer had only a 31.9% chance of surviving for 5 years (Figure 3.19.5).

Figure 3.19.5: Five-year relative survival from cervical cancer, by age, 2013–2017

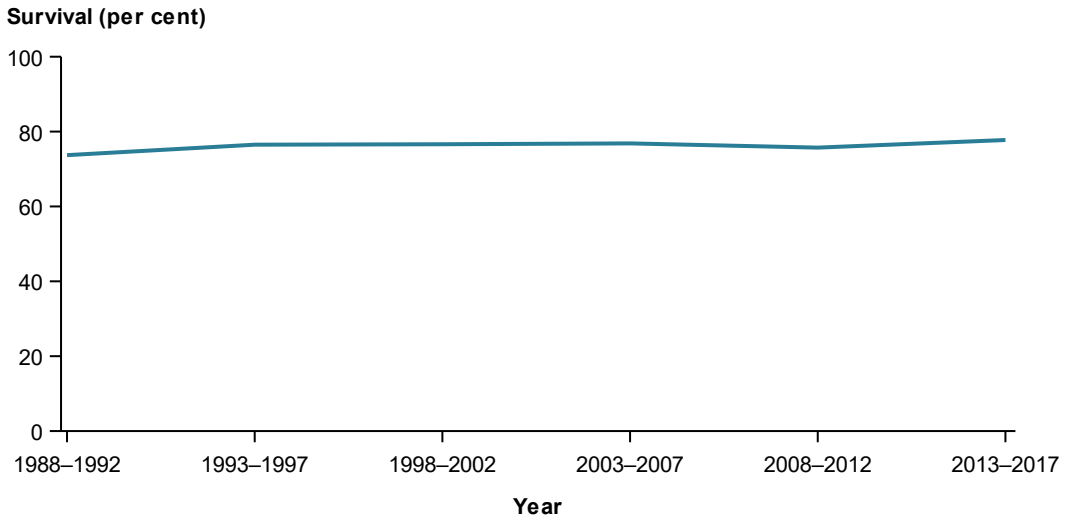


Note: Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017. Data and notes for this figure are available in Table A19.6.

Survival from cervical cancer has improved over time; between 1988–1992 and 2013–2017 5-year relative survival increased from 73.7% to 77.8% for women aged 25–74 (Figure 3.19.6).

Figure 3.19.6: Trends in 5-year relative survival from cervical cancer in women aged 25–74, 1988–1992 to 2013–2017



Note: Data for 2017 are estimated for the Northern Territory.

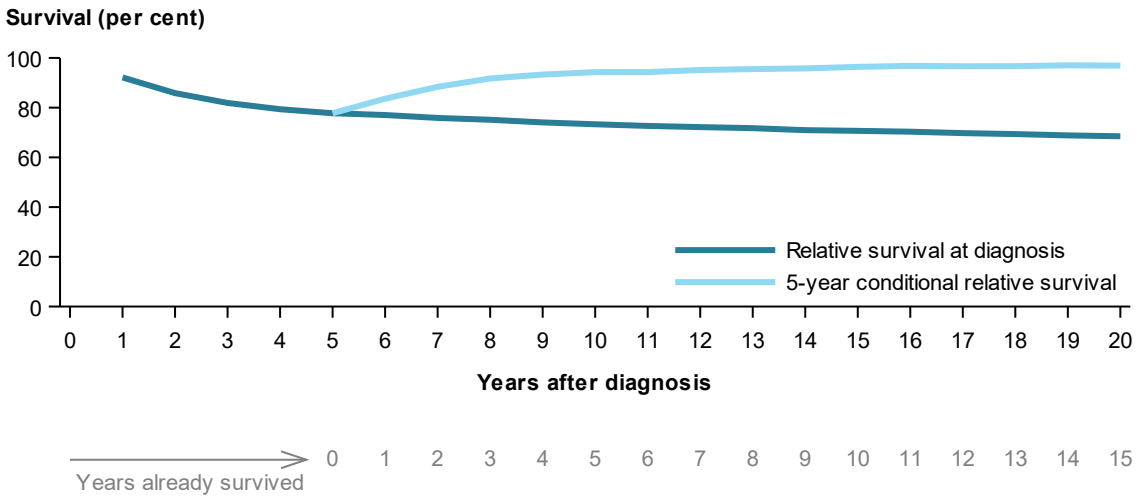
Source: AIHW Australian Cancer Database 2017. Data and notes for this figure are available in Table A19.7.

Conditional survival is the probability of surviving a given number of years, provided that an individual has already survived a specified amount of time after diagnosis.

Conditional survival for cervical cancer for women aged 25–74 is illustrated in Figure 3.19.7. In this graph, the darker blue line shows relative survival for each year after diagnosis (as shown by the numbers in black on the *x*-axis); the lighter blue line shows relative survival for each year once an individual has already survived a certain number of years (as shown by the numbers in grey on the *x*-axis).

For cervical cancer, the prospect of surviving for at least 5 more years after having already survived for 5, 10 or 15 years was much higher than relative survival, at around 97% (Figure 3.19.7), indicating that if a female survives for at least 5 years after diagnosis, her survival is almost the same as a female not diagnosed with cervical cancer.

Figure 3.19.7: Relative survival at diagnosis and 5-year conditional survival from cervical cancer in women aged 25–74, 2013–2017



Note: Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017. Data and notes for this figure are available in Table A19.8.

Prevalence of cervical cancer

Prevalence is the number of people alive after a diagnosis of cancer. It is related to incidence and survival; if incidence and survival are both high, prevalence will be high, whereas if incidence and survival are both low, prevalence will be low.

The source of prevalence data is the 2017 ACD – which includes data from the National Death Index on deaths (from any cause) that occurred up to 31 December 2017, which were used to determine which people with cancer had died and when this occurred. Individuals who have been diagnosed with cancer and are still alive contribute to prevalence data.

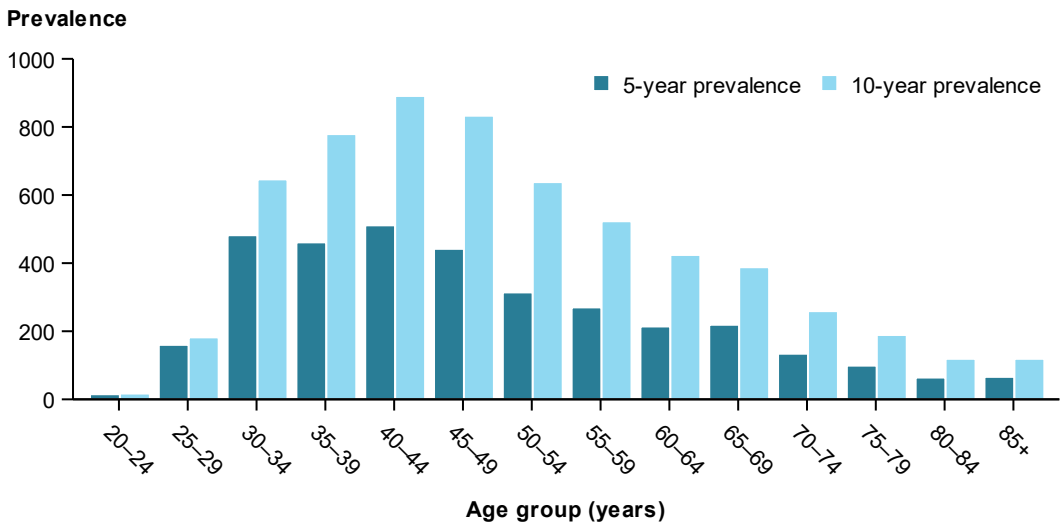
At the end of 2017, there were 3,207 women aged 25–74 alive who had been diagnosed with cervical cancer in the previous 5 years and 5,563 who had been diagnosed in the previous 10 years (Table 3.19.2; Figure 3.19.8).

Table 3.19.2: Prevalence of cervical cancer, by age, end of 2017

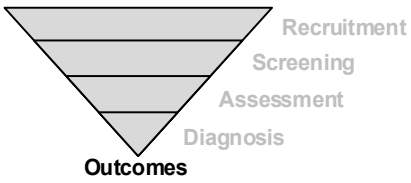
Age group	5-year prevalence	10-year prevalence
20–24	15	17
25–29	160	182
30–34	482	646
35–39	461	779
40–44	511	891
45–49	442	833
50–54	314	638
55–59	270	523
60–64	214	424
65–69	219	388
70–74	134	259
75–79	99	189
80–84	64	119
85+	66	119
25–74	**3,207**	**5,563**
Total	**3,451**	**6,007**

Source: AIHW Australian Cancer Database 2017.

Figure 3.19.8: Prevalence of cervical cancer, by age, end of 2017



Source: AIHW Australian Cancer Database 2017.



Performance Indicator 20: Mortality from cervical cancer

Summary cervical cancer mortality data

179 women aged 25–74 died from cervical cancer in 2019, which is a mortality rate of 2.3 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 about 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.

Results

In 2019, there were 231 deaths from cervical cancer, which is 1.8 deaths per 100,000 women (1.6 deaths per 100,000 women when age-standardised to allow comparison over time or across population groups). Of these, 179 deaths from cervical cancer occurred in women aged 25–74 (the target age group for the National Cervical Screening Program), which is equivalent to a mortality rate of 2.3 deaths per 100,000 women (2.2 deaths per 100,000 women when age-standardised to allow comparison over time or across population groups).

Cervical cancer mortality by age is shown in Figure 3.20.1.

Mortality by remoteness area

In 2015–2019, cervical cancer mortality for women aged 25–74 generally increased with increasing remoteness. Age-standardised rates are shown in Figure 3.20.2 and below.

Mortality in 2015–2019 was lowest for women residing in *Major cities* and *Inner regional* areas at 2.1 and 2.2 deaths per 100,000 women aged 25–74, respectively. Mortality was higher for women residing in *Outer regional* areas at 3.3 deaths per 100,000 women and highest in *Very remote* areas at 7.5 deaths per 100,000 women aged 25–74.

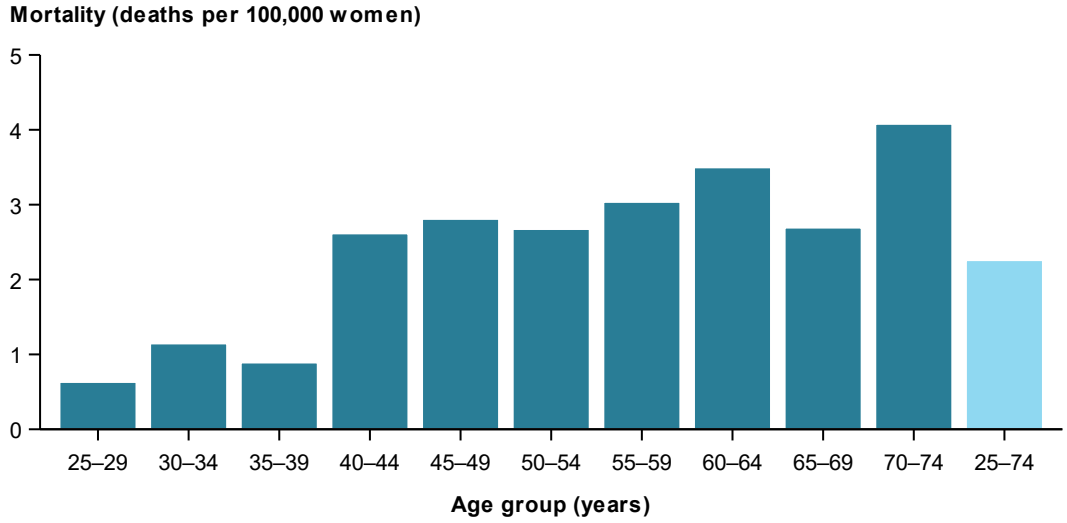
The exception to this was *Remote* areas which was similar to the rate for *Major cities*, but was based on only 10 deaths so may not be robust.

Mortality by socioeconomic area

In 2015–2019, cervical cancer mortality for women aged 25–74 increased with increasing socioeconomic disadvantage. Age-standardised rates are shown in Figure 3.20.2 and below.

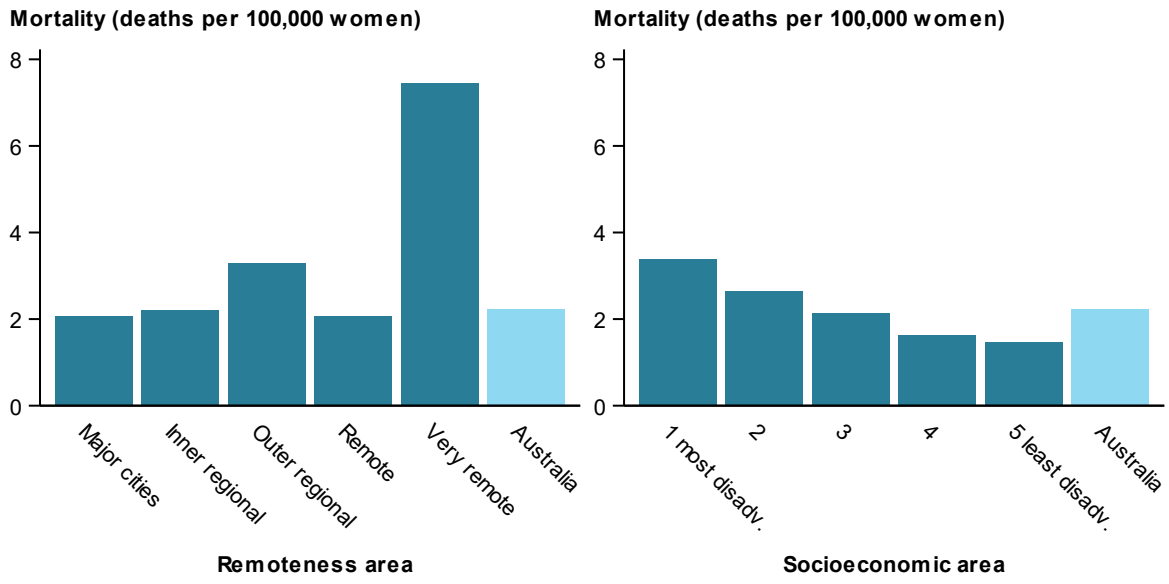
Mortality in 2015–2019 was highest for women aged 25–74 residing in areas of highest socioeconomic disadvantage at 3.4 deaths per 100,000 women, and lowest for women residing in areas of lowest socioeconomic disadvantage at 1.5 deaths per 100,000 women.

Figure 3.20.1: Cervical cancer mortality, by age, 2019



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

Figure 3.20.2: Cervical cancer mortality, by remoteness area and socioeconomic area, women aged 25–74, 2015–2019



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

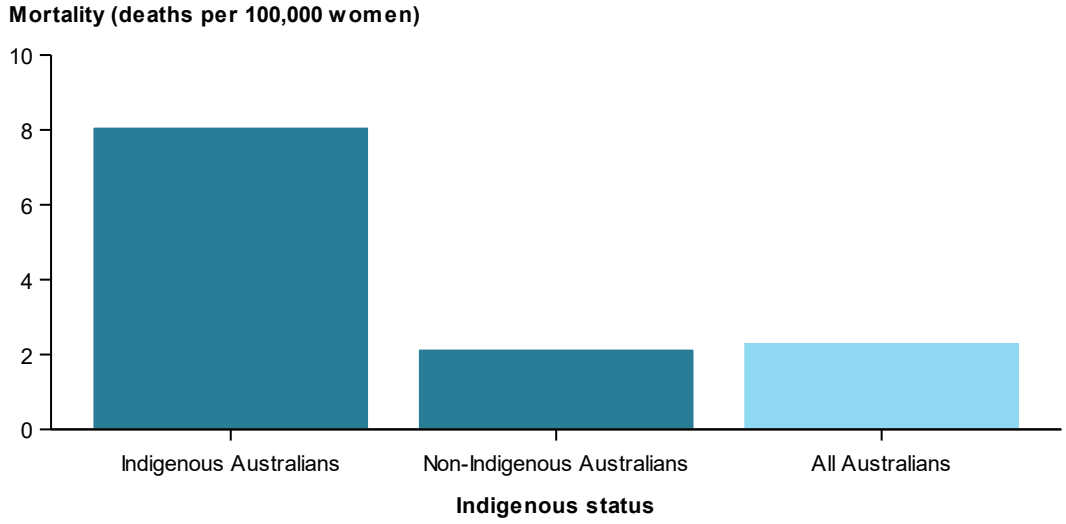
Mortality by Indigenous status

Only mortality data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered adequate for reporting by Indigenous status. Other jurisdictions have a small number of Indigenous deaths, and the identification of these in their death registration systems is relatively poor, making the data less reliable. Note that these jurisdictions differ from those used to calculate incidence for Indigenous and non-Indigenous Australians. See Box 3.19.1 for information on Indigenous rates calculated using Indigenous population estimates from the 2016 Census.

Over the 5 years 2015–2019, 61 Indigenous women aged 25–74 died from cervical cancer. This is 7.3 deaths per 100,000 Indigenous women.

This is higher than the rate experienced by non-Indigenous women – the age-standardised mortality rate for women aged 25–74 of 8.1 deaths per 100,000 for Indigenous women is more than 3 times that for non-Indigenous women, with an age-standardised rate of 2.2 deaths per 100,000 women (Figure 3.20.3).

Figure 3.20.3: Cervical cancer mortality, by Indigenous status, women aged 25–74, 2015–2019



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 and notes for this figure are available in Table A20.5.

Appendix A: Additional data tables

A1 Participation

Table A1.1: Participation, by age, 2018–2020

Age group	Number	Crude rate (%)
<25	69,177	. .
25–29	513,791	54.5
30–34	514,887	54.2
35–39	481,617	55.9
40–44	433,893	58.7
45–49	444,130	60.7
50–54	385,993	60.4
55–59	367,316	60.4
60–64	312,403	59.3
65–69	244,437	54.8
70–74	103,968	27.4
75+	7,988	. .
25–74	**3,802,435**	**55.7**
All ages	**3,879,601**	**. .**

Notes

1. Number is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.2: Participation, by state and territory, people aged 25–74, 2018–2020

State or territory	Number	Crude rate (%)	AS rate (%)
NSW	1,169,342	53.9	54.2
Vic	988,982	55.2	55.6
Qld	756,358	55.5	55.6
WA	408,181	57.8	57.8
SA	276,502	59.3	59.7
Tas	82,129	57.5	58.3
ACT	68,460	58.3	58.5
NT	36,718	54.8	54.0
Australia	**3,802,435**	**55.7**	**55.9**

Notes

1. Number is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).
3. Age-standardised (AS) rate is the crude rate, age-standardised to the Australian population at 30 June 2001.
4. State or territory is the state or territory of residence of the person, which may be different to the state or territory in which the screen took place. 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 3.4.1 07/08/2021).

Table A1.3: Participation, by remoteness area, people aged 25–74, 2018–2020

Remoteness area	Number	Crude rate (%)	AS rate (%)
Major cities	2,796,740	56.0	56.3
Inner regional	639,749	54.6	55.2
Outer regional	283,452	53.0	53.5
Remote	39,647	52.3	52.0
Very remote	22,958	46.2	45.6
Australia	**3,802,435**	**55.7**	**55.9**

Notes

1. Number is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).
3. Age-standardised (AS) rate is the crude rate, age-standardised to the Australian population at 30 June 2001.
4. People 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 required when examining differences across remoteness areas as postcodes used to allocate people may not represent their location of residence (see Appendix D).
5. Australia does not match the total number of people across different remoteness areas because some people were not able to be allocated to a remoteness area.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.4: Participation, by socioeconomic area, people aged 25–74, 2018–2020

Socioeconomic area	Number	Crude rate (%)	AS rate (%)
1 (most disadvantaged)	625,150	49.3	49.7
2	702,615	52.9	53.2
3	747,800	54.0	54.2
4	822,404	57.5	57.6
5 (least disadvantaged)	876,836	62.0	62.1
Australia	**3,802,435**	**55.7**	**55.9**

Notes

1. Number is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).
3. Age-standardised (AS) rate is the crude rate, age-standardised to the Australian population at 30 June 2001.
4. People 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 required when examining differences across socioeconomic areas as postcodes used to allocate people may not represent their location of residence (see Appendix D).
5. Australia does not match the total number of people across different socioeconomic areas because some people were not able to be allocated to a socioeconomic area.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.5: Participants, by Indigenous status, aged 25–74, 2018–2020

Indigenous status	Number
Last reported Indigenous status	
Aboriginal but not Torres Strait Islander origin	*55,083*
Torres Strait Islander but not Aboriginal origin	*3,643*
Both Aboriginal and Torres Strait Islander origin	*3,644*
Neither Aboriginal nor Torres Strait Islander origin	*2,672,323*
South Sea Islander	*1,083*
Declined to answer	*78,967*
Not stated or inadequately described	*987,692*
Indigenous	62,370
Non-Indigenous	2,673,406
Not stated	1,066,659
Ever Indigenous status	
Never indicated Aboriginal or Torres Strait Islander	*3,734,158*
Aboriginal	*59,490*
Torres Strait Islander	*3,964*
Aboriginal and Torres Strait Islander	*4,823*
Indigenous	68,277
Australia	**3,802,435**

Italicised categories are as per the NCSR; non-italicised are grouped by the AIHW into the categories of 'Indigenous', 'Non-Indigenous' and 'Not stated'. Indigenous = 'Aboriginal but not Torres Strait Islander origin', 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin'; Non-Indigenous = 'Neither Aboriginal nor Torres Strait Islander origin' and 'South Sea Islander'; Not stated = 'Declined to answer' and 'Not stated or inadequately described'. It is not possible to distinguish between the categories of 'Non-Indigenous' and 'Not stated' for Ever Indigenous, as these are combined into the single category 'Never indicated Aboriginal or Torres Strait Islander'

Note: Participants are restricted to people who had a screening HPV test (reason for test of primary screening or repeat HPV test).

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.6: Participants, by CALD status, aged 25–74, 2018–2020

Main language other than English spoken at home	Number
English only	304,144
Languages other than English	188,252
Not stated	32,430
Not populated	3,277,609
Total	**3,802,435**
Country of birth	**Number**
Australia	379,807
Country other than Australia	181,002
Not stated	696,847
Not populated	2,544,779
Total	**3,802,435**

Note: Participants are restricted to people who had a screening HPV test (reason for test of primary screening or repeat HPV test).

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.7: Progression towards 5-year participation, by age, 2018, 2018–2019 and 2018–2020

	Year		
Age group	**2018**	**2018–2019**	**2018–2020**
25–29	20.7	40.4	53.6
30–34	22.2	42.6	53.2
35–39	23.0	44.4	54.2
40–44	24.8	47.9	57.5
45–49	26.7	51.7	61.4
50–54	26.0	50.3	59.1
55–59	27.0	52.6	60.6
60–64	25.9	50.8	58.0
65–69	24.4	47.7	53.8
70–74	8.8	22.4	26.6
25–74	**23.3**	**45.5**	**54.8**

Note: Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2018 or between 1 January 2018 and 31 December 2019 or between 1 January 2018 and 31 December 2020 as a percentage of the average of the ABS estimated resident population for females aged 25–74 over the 5 years 2018–2022, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database). Excludes COMPASS participants.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.8: Coverage, by age, 2018–2020

Age group	Number	Crude rate (%)
<25	146,221	. .
25–29	573,214	60.8
30–34	582,135	61.3
35–39	549,105	63.7
40–44	495,741	67.1
45–49	504,678	68.9
50–54	431,967	67.6
55–59	402,083	66.1
60–64	335,863	63.7
65–69	260,869	58.5
70–74	114,365	30.1
75+	17,126	. .
25–74	**4,250,020**	**62.3**
All ages	**4,413,368**	**. .**

Notes

1. Number is the number of people who had an HPV or LBC test for any reason between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.9: Coverage, by state and territory, people aged 25–74, 2018–2020

State or territory	Number	Crude rate (%)	AS rate (%)
NSW	1,326,672	61.2	61.5
Vic	1,071,818	59.8	60.3
Qld	857,501	62.9	63.2
WA	456,234	64.6	64.7
SA	309,430	66.4	67.0
Tas	90,685	63.5	64.7
ACT	76,900	65.5	65.7
NT	41,463	61.9	61.0
Australia	**4,250,020**	**62.3**	**62.6**

Notes

1. Number is the number of people who had an HPV or LBC test for any reason between 1 January 2018 and 31 December 2020. Excludes COMPASS participants.
2. Crude rate is the number of people who had a screening HPV test (reason for test of primary screening or repeat HPV test) between 1 January 2018 and 31 December 2020 as a percentage of the average ABS estimated resident population for females aged 25–74 in 2018, 2019, and 2020, adjusted to exclude the estimated number of people who have had a hysterectomy (using age-specific hysterectomy fractions derived from the AIHW National Hospitals Morbidity Database).
3. Age-standardised (AS) rate is the crude rate, age-standardised to the Australian population at 30 June 2001.
4. State or territory is the state or territory of residence of the person, which may be different to the state or territory in which the screen took place. 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 3.4.1 07/08/2021).

Table A1.10: Reason for HPV test and LBC test, people aged 25–74, 2018–2020

Reason for HPV test	Number	Per cent
Primary screening HPV test	3,685,639	86.7
Follow-up HPV test (Repeat HPV test after intermediate risk result)	73,381	1.7
Co-test – test of cure	154,459	3.6
Co-test – investigation of signs or symptoms	249,994	5.9
Co-test – other, as recommended in guidelines	27,178	0.6
Other	47,007	1.1
No HPV test performed	1,187	0.0
Reason for cytology test	**Number**	**Per cent**
Reflex LBC cytology after detection of oncogenic HPV in primary screening HPV test	335,018	7.9
Cytology after detection of oncogenic HPV in self-collected sample	67	0.0
Reflex LBC after detection of oncogenic HPV in Follow-up HPV test	27,367	0.6
Cytology at colposcopy	3,189	0.1
Co-test – test of cure	155,578	3.7
Co-test – investigation of signs or symptoms	247,834	5.8
Co-test – other, as recommended in guidelines	26,196	0.6
Other	56,824	1.3
Conventional Pap test to screen for cervical cancer precursors	1,570	0.0
No LBC test performed	3,396,377	79.9

Note: Based on people who had an HPV or LBC test for any reason between 1 January 2018 and 31 December 2020. All tests in the period are included, not just the first test. As many people have an HPV test and an LBC test, the number of HPV tests and the number of LBC tests combined exceeds the total number of tests. Excludes COMPASS participants.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A1.11: Number of screening HPV tests, per month, people aged 25–74, 2018, 2019, and 2020

	Year		
Month	**2018**	**2019**	**2020**
January	131,970	124,561	94,212
February	145,051	164,062	101,567
March	143,815	167,759	74,157
April	122,958	129,532	37,392
May	163,509	152,990	56,225
June	138,990	124,352	70,147
July	141,970	144,522	68,118
August	145,017	141,418	58,346
September	116,859	129,588	63,893
October	138,333	143,583	65,298
November	138,117	132,859	63,854
December	100,443	93,541	51,587

Note: Data are number of screening HPV tests (reason for test of primary screening or repeat HPV test) performed each month in 2018, 2019, and 2020 for people aged 25–74. Excludes COMPASS participants.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A2 Response to invitation

Table A2.1: Response to invitation to screen or rescreen, by age, 2020

		Response within 6 months	
Age group	**Invitations**	**Number**	**Crude rate (%)**
<25	43	6	14.0
25–29	135,714	16,618	12.2
30–34	4,164	688	16.5
35–39	4,244	642	15.1
40–44	4,004	626	15.6
45–49	4,411	701	15.9
50–54	3,880	586	15.1
55–59	3,707	518	14.0
60–64	3,389	433	12.8
65–69	3,260	327	10.0
70–74	3,612	306	8.5
75+	417	31	7.4
25–74	**170,385**	**21,445**	**12.6**

Note: Invitation refers to the first invitation for a person that was not followed by a 'Return to Sender' notification.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A2.2: Response to invitation to screen or rescreen, by state and territory, people aged 25–74, 2020

		Response within 6 months	
State or territory	**Invitations**	**Number**	**Crude rate (%)**
NSW	57,523	7,119	12.4
Vic	44,207	5,525	12.5
Qld	30,313	3,834	12.6
WA	15,228	1,962	12.9
SA	9,608	1,389	14.5
Tas	2,708	403	14.9
ACT	3,964	501	12.6
NT	1,592	220	13.8
Australia	**170,385**	**21,445**	**12.6**

Note: Invitation refers to the first invitation for a person that was not followed by a 'Return to Sender' notification.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A2.3: Response to invitation to screen or rescreen, by letter type, people aged 25–74, 2020

		Response within 6 months	
Letter type	**Invitations**	**Number**	**Crude rate (%)**
A1	134,061	16,280	12.1
B1	10,980	415	3.8
C1	25,308	4,746	18.8
D1	36	4	11.1
Total	**170,385**	**21,445**	**12.6**

Note: A1 = invitation to screen; B1 = invitation to screen eligible to self-collect; C1 = invitation to rescreen; D1 = invitation to rescreen eligible to self-collect. Invitation refers to the first invitation for a person that was not followed by a 'Return to Sender' notification.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A2.4: Response to invitation to screen or rescreen, by time to rescreen, 2020

Age group	Response within 3 months	Response within 6 months	Response within 12 months
<25	4.7	14.0	16.3
25–29	7.4	12.2	20.3
30–34	9.1	16.5	25.7
35–39	7.9	15.1	24.1
40–44	9.2	15.6	24.1
45–49	9.7	15.9	23.8
50–54	8.7	15.1	22.4
55–59	8.5	14.0	20.7
60–64	7.9	12.8	17.9
65–69	6.7	10.0	14.3
70–74	5.7	8.5	11.1
75+	4.6	7.4	10.1
25–74	**7.6**	**12.6**	**20.4**

Note: Invitation refers to the first invitation for a person that was not followed by a 'Return to Sender' notification.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A4 Screening results

Table A4.1: Risk of a significant cervical abnormality, primary screening tests, by age, 2020

	Risk of a significant 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	5,642	70.4	2,094	26.1	233	2.9	47	0.6
25–29	101,247	80.8	20,467	16.3	3,267	2.6	323	0.3
30–34	91,162	87.2	9,746	9.3	3,371	3.2	249	0.2
35–39	80,992	90.4	5,791	6.5	2,609	2.9	198	0.2
40–44	68,546	91.6	3,947	5.3	2,198	2.9	156	0.2
45–49	67,374	92.5	3,329	4.6	1,973	2.7	173	0.2
50–54	55,887	93.3	2,449	4.1	1,436	2.4	119	0.2
55–59	47,725	93.4	1,910	3.7	1,316	2.6	162	0.3
60–64	38,219	93.6	1,386	3.4	1,054	2.6	159	0.4
65–69	27,367	94.0	921	3.2	733	2.5	88	0.3
70–74	16,404	94.5	515	3.0	368	2.1	77	0.4
75+	1,723	92.9	56	3.0	64	3.5	11	0.6
25–74	**594,923**	**89.4**	**50,461**	**7.6**	**18,325**	**2.8**	**1,704**	**0.3**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A4.2: Risk of a significant cervical abnormality, primary screening tests, by state and territory, people aged 25–74, 2020

	Risk of a significant cervical abnormality							
	Low risk		Intermediate risk		Higher risk		No risk assigned	
State or territory	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
NSW	190,736	90.0	15,195	7.2	5,668	2.7	444	0.2
Vic	149,249	88.7	13,527	8.0	5,102	3.0	441	0.3
Qld	118,931	89.1	10,285	7.7	3,929	2.9	400	0.3
WA	62,870	89.9	5,312	7.6	1,603	2.3	150	0.2
SA	40,624	90.2	3,113	6.9	1,155	2.6	122	0.3
Tas	12,393	90.5	995	7.3	271	2.0	38	0.3
ACT	12,057	90.9	944	7.1	250	1.9	16	0.1
NT	6,655	86.8	694	9.1	231	3.0	83	1.1
Australia	**594,923**	**89.4**	**50,461**	**7.6**	**18,325**	**2.8**	**1,704**	**0.3**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A5 Correlation

Table A5.1: Histology performed within 6 months of a primary screening test, people aged 25–74, screened in 2019

Primary screening test result			Histology result				
HPV test	**LBC test**	**No. tests**	**Negative**	**Low-grade**	**High-grade**	**Cancer**	**No result**
Number of histology tests							
Not detected	. .	1,408,002	9,523	217	25	8	100
Not 16/18	Negative or low-grade	92,847	1,131	794	285	0	20
Not 16/18	High-grade or glandular	5,428	659	872	2,583	29	15
16/18	Negative or low-grade	25,214	4,305	3,167	1,369	43	118
16/18	High-grade or glandular	4,216	442	443	2,226	170	3
Proportion of cytology tests (%)							
Not detected	. .	1,408,002	96.5	2.2	0.3	0.1	1.0
Not 16/18	Negative or low-grade	92,847	50.7	35.6	12.8	0.0	0.9
Not 16/18	High-grade or glandular	5,428	15.8	21.0	62.1	0.7	0.4
16/18	Negative or low-grade	25,214	47.8	35.2	15.2	0.5	1.3
16/18	High-grade or glandular	4,216	13.5	13.5	67.8	5.2	0.1
Proportion of histology tests (%)							
Not detected	. .	1,408,002	59.3	4.0	0.4	3.2	39.1
Not 16/18	Negative or low-grade	92,847	7.0	14.5	4.4	0.0	7.8
Not 16/18	High-grade or glandular	5,428	4.1	15.9	39.8	11.6	5.9
16/18	Negative or low-grade	25,214	26.8	57.7	21.1	17.2	46.1
16/18	High-grade or glandular	4,216	2.8	8.1	34.3	68.0	1.2

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A6 Screening HPV test positivity

Table A6.1: Screening HPV test positivity, by age and birth cohort, 2020

	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 people aged 25–74						
<25	148	1.8	2,210	27.6	2,358	29.4
25–29	2,100	1.7	21,803	17.4	23,903	19.1
30–34	2,604	2.5	10,620	10.2	13,224	12.7
35–39	2,152	2.4	6,317	7.1	8,469	9.5
40–44	1,905	2.5	4,288	5.7	6,193	8.3
45–49	1,767	2.4	3,594	4.9	5,361	7.4
50–54	1,320	2.2	2,606	4.4	3,926	6.6
55–59	1,231	2.4	2,069	4.0	3,300	6.5
60–64	996	2.4	1,527	3.7	2,523	6.2
65–69	682	2.3	1,022	3.5	1,704	5.9
70–74	353	2.0	565	3.3	918	5.3
75+	61	3.3	65	3.5	126	6.8
25–74	**15,110**	**2.3**	**54,411**	**8.2**	**69,521**	**10.4**
Age indicates were offered HPV vaccination[(a)]						
<25	148	1.8	2,210	27.6	2,358	29.4
25–29	2,100	1.7	21,803	17.4	23,903	19.1
30–34	2,604	2.5	10,620	10.2	13,224	12.7
35–39	2,089	2.4	6,150	7.1	8,239	9.5
40–44	42	2.3	109	6.0	151	8.3
Total	**6,983**	**2.1**	**40,892**	**12.5**	**47,875**	**14.7**
Age indicates were not offered vaccination[(b)]						
35–39	63	2.4	167	6.4	230	8.8
40–44	1,863	2.6	4,179	5.7	6,042	8.3
45–49	1,767	2.4	3,594	4.9	5,361	7.4
50–54	1,320	2.2	2,606	4.4	3,926	6.6
55–59	1,231	2.4	2,069	4.0	3,300	6.5
60–64	996	2.4	1,527	3.7	2,523	6.2
65–69	682	2.3	1,022	3.5	1,704	5.9
70–74	353	2.0	565	3.3	918	5.3
75+	61	3.3	65	3.5	126	6.8
Total	**8,336**	**2.4**	**15,794**	**4.5**	**24,130**	**6.9**

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

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

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021)

Table A6.2: Screening HPV test positivity, by state and territory and birth cohort, 2020

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 people aged 25–74						
NSW	4,659	2.2	16,371	7.7	21,030	9.9
Vic	4,338	2.6	14,484	8.6	18,822	11.2
Qld	3,193	2.4	11,212	8.4	14,405	10.8
WA	1,270	1.8	5,714	8.2	6,984	10.0
SA	959	2.1	3,355	7.5	4,314	9.6
Tas	216	1.6	1,061	7.7	1,277	9.3
ACT	197	1.5	1,007	7.6	1,204	9.1
NT	198	2.6	770	10.0	968	12.6
Australia	**15,110**	**2.3**	**54,411**	**8.2**	**69,521**	**10.4**
Age indicates were offered HPV vaccination[(a)]						
NSW	2,268	2.2	12,159	11.9	14,427	14.1
Vic	1,815	2.1	11,112	13.1	12,927	15.3
Qld	1,499	2.3	8,358	12.8	9,857	15.1
WA	690	1.9	4,364	12.3	5,054	14.2
SA	381	1.8	2,482	11.8	2,863	13.6
Tas	80	1.3	713	11.7	793	13.0
ACT	110	1.6	779	11.4	889	13.0
NT	95	2.3	589	14.3	684	16.6
Australia	**6,983**	**2.1**	**40,892**	**12.5**	**47,875**	**14.7**
Age indicates were not offered vaccination[(b)]						
NSW	2,453	2.2	4,815	4.3	7,268	6.5
Vic	2,577	3.0	4,022	4.7	6,599	7.6
Qld	1,744	2.5	3,339	4.7	5,083	7.2
WA	601	1.7	1,629	4.6	2,230	6.3
SA	588	2.4	1,047	4.2	1,635	6.6
Tas	137	1.8	360	4.7	497	6.5
ACT	94	1.4	257	3.9	351	5.4
NT	105	2.9	204	5.6	309	8.4
Australia	**8,336**	**2.4**	**15,794**	**4.5**	**24,130**	**6.9**

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

(b) People born on or before 30 June 1980 were considered to have not been offered HPV vaccination, as these people 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 3.4.1 07/08/2021).

A10 Adherence to recommendation for follow-up

Table A10.1: Adherence to recommendation for follow-up, by age, 2019

Age group	Number who had repeat HPV test 9–15 months after primary screening test	Adherence to recommendation for follow-up rate (%)
<25	1,651	46.2
25–29	16,025	55.6
30–34	9,007	54.4
35–39	6,069	56.1
40–44	4,597	59.1
45–49	4,308	59.4
50–54	3,482	60.7
55–59	3,280	65.2
60–64	2,867	70.8
65–69	1,943	73.9
70–74	168	56.9
75+	8	42.1
25–74	**51,746**	**58.1**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A10.2: Adherence to recommendation for follow-up by state and territory, people aged 25–74, 2019

State or territory	Number who had repeat HPV test 9–15 months after primary screening test	Adherence to recommendation for follow-up rate (%)
NSW	14,742	56.1
Vic	13,665	57.8
Qld	10,539	59.1
WA	5,891	60.5
SA	3,671	60.7
Tas	1,255	66.1
ACT	1,007	63.3
NT	551	51.6
Australia	**51,746**	**58.1**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A10.3: Time to 12-month HPV test after an intermediate risk primary screening test, people aged 25–74, screened in 2019

Time to repeat screen (months)	Number who had repeat HPV test	Cumulative per cent of people who had intermediate risk primary screening test (%)
1	110	0.1
2	97	0.2
3	119	0.4
4	152	0.5
5	142	0.7
6	292	1.0
7	396	1.5
8	440	2.0
9	550	2.6
10	3,276	6.3
11	7,944	15.2
12	11,130	27.7
13	16,548	46.3
14	7,903	55.2
15	4,945	60.7
16	3,425	64.6
17	3,764	68.8
18	3,052	72.2
19	1,857	74.3
20	1,834	76.4
21	4,972	82.0
Did not have repeat HPV test	16,042	100.0

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A11 Follow up results

Table A11.1: Risk of a significant cervical abnormality, repeat screening tests, by age, 2020

	Risk of a significant cervical abnormality					
	Low risk		Higher risk		No risk assigned	
Age group	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
<25	3,975	42.5	5,365	57.4	9	0.1
25–29	13,564	40.2	20,178	59.7	38	0.1
30–34	11,543	43.8	14,762	56.0	34	0.1
35–39	8,107	45.9	9,538	54.0	19	0.1
40–44	6,296	46.9	7,114	53.0	12	0.1
45–49	5,797	47.6	6,381	52.3	12	0.1
50–54	4,596	45.5	5,483	54.3	13	0.1
55–59	3,754	41.1	5,378	58.8	11	0.1
60–64	2,817	35.9	5,030	64.1	5	0.1
65–69	2,072	34.1	3,993	65.8	8	0.1
70–74	989	35.0	1,832	64.8	6	0.2
75+	173	35.5	314	64.3	1	0.2
25–74	**59,535**	**42.7**	**79,689**	**57.2**	**158**	**0.1**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A11.2: Risk of a significant cervical abnormality, repeat screening tests, by state and territory, people aged 25–74, 2020

	Risk of a significant cervical abnormality					
	Low risk		Higher risk		No risk assigned	
State or territory	Number	Crude rate (%)	Number	Crude rate (%)	Number	Crude rate (%)
NSW	17,159	40.0	25,713	59.9	49	0.1
Vic	14,927	43.8	19,129	56.1	35	0.1
Qld	12,154	44.8	14,950	55.1	38	0.1
WA	8,215	44.0	10,431	55.9	21	0.1
SA	3,060	37.2	5,169	62.8	7	0.1
Tas	1,518	51.7	1,415	48.1	6	0.2
ACT	1,572	50.1	1,565	49.9	1	0.0
NT	805	44.0	1,023	55.9	1	0.1
Australia	**59,535**	**42.7**	**79,689**	**57.2**	**158**	**0.1**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A12 Colposcopy rate

Table A12.1: Colposcopy rate, by age, 2019

	Screening test result					
	Primary screening test HPV 16/18		Primary screening test (not 16/18) + any high-grade/glandular LBC		Repeat screening test HPV (any)	
Age group	Number of colposcopies	Colposcopy rate (%)	Number of colposcopies	Colposcopy rate (%)	Number of colposcopies	Colposcopy rate (%)
<25	120	47.8	108	65.9	2,613	42.2
25–29	1,680	53.5	1,233	74.7	7,319	45.8
30–34	2,849	61.1	967	76.0	5,691	50.6
35–39	2,517	63.4	642	77.3	3,891	51.9
40–44	2,361	61.5	401	75.7	3,023	54.4
45–49	2,100	59.6	277	76.5	2,520	51.8
50–54	1,804	60.8	214	79.3	2,155	53.6
55–59	1,662	61.4	140	74.5	2,144	55.1
60–64	1,576	63.3	133	76.4	1,933	55.1
65–69	1,180	63.6	72	73.5	1,464	55.3
70–74	542	63.0	38	86.4	589	57.1
75+	42	64.6	4	66.7	79	50.0
25–74	**18,271**	**60.9**	**4,117**	**76.0**	**30,729**	**51.0**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A12.2: Colposcopy rate, by state and territory, people aged 25–74, 2019

	Screening test result					
	Primary screening test HPV 16/18		Primary screening test (not 16/18) + any high-grade/glandular LBC		Repeat screening test HPV (any)	
State	Number of colposcopies	Colposcopy rate (%)	Number of colposcopies	Colposcopy rate (%)	Number of colposcopies	Colposcopy rate (%)
NSW	6,127	67.0	1,128	77.0	10,255	56.4
Vic	4,827	61.8	984	72.7	7,283	48.4
Qld	3,691	54.8	1,157	78.6	5,533	47.0
WA	1,537	56.9	391	73.9	4,139	51.4
SA	1,218	55.1	259	79.0	1,964	47.0
Tas	296	59.8	63	77.8	240	46.3
ACT	244	68.9	68	76.4	646	62.1
NT	209	57.6	36	66.7	364	47.3
Australia	**18,271**	**60.9**	**4,117**	**76.0**	**30,729**	**51.0**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A13 Time to colposcopy

Table A13.1: Time to colposcopy in days, by age, 2019

	Screening test result							
	Primary screening test HPV 16/18		Primary screening test (not 16/18) + any high-grade/glandular LBC		Repeat screening test HPV (any)		Total	
Age group	Median days	90th percentile	Median days	90th percentile	Median days	90th percentile	Median days	90th percentile
<25	65	346	55	187	84	430	82	423
25–29	69	293	49	144	81	367	75	341
30–34	58	242	44	151	71	343	64	296
35–39	60	228	49	147	68	356	63	300
40–44	60	244	47	142	64	324	62	275
45–49	65	252	49	123	70	346	66	303
50–54	62	249	51	147	69	362	64	306
55–59	63	238	51	149	68	345	64	287
60–64	62	235	48	182	68	363	63	295
65–69	62	237	49	127	66	356	63	303
70–74	62	219	41	90	57	356	58	279
75+	52	197	53	113	69	421	58	411
25–74	**62**	**245**	**48**	**146**	**71**	**354**	**65**	**306**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A13.2: Time to colposcopy in weeks, people aged 25–74, 2019

	Screening test result							
	Primary screening test HPV 16/18		Primary screening test (not 16/18) + any high-grade/glandular LBC		Repeat screening test HPV (any)		Total	
Time to colposcopy (weeks)	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
4	5,677	18.9	1,326	24.7	11,532	19.5	18,535	19.6
8	12,941	43.1	3,068	57.1	21,765	36.8	37,774	39.9
12	17,376	57.9	3,949	73.5	28,834	48.7	50,159	53.0
26	23,619	78.7	4,843	90.1	40,047	67.6	68,509	72.4
Not performed	30,021	100.0	5,375	100.0	59,203	100.0	94,599	100.0

Note: Data shown for time to colposcopy are cumulative number and per cent.

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A14 Biopsy rate

Table A14.1: Biopsy rate, by age, 2020

Age group	Number	Biopsy rate (%)
<25	4,050	48.9
25–29	12,223	50.5
30–34	10,838	48.2
35–39	7,442	45.1
40–44	5,705	43.3
45–49	4,473	39.7
50–54	3,081	34.1
55–59	2,417	30.2
60–64	1,913	27.4
65–69	1,300	24.0
70–74	690	21.1
75+	237	18.5
25–74	**50,082**	**41.6**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A14.2: Biopsy rate, by state and territory, people aged 25–74, 2020

State or territory	Number	Biopsy rate (%)
NSW	13,327	42.7
Vic	12,551	44.4
Qld	11,768	44.0
WA	5,139	39.3
SA	2,864	30.4
Tas	866	36.3
ACT	585	28.1
NT	334	28.7
Australia	**50,082**	**41.6**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A15 Yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results

Table A15.1: Yield of high-grade abnormalities on biopsy among people who attend colposcopy after higher risk screening results, by age, 2019

Age group	Number	Yield (%)
25–29	2,321	23.5
30–34	2,395	26.8
35–39	1,604	24.3
40–44	1,120	21.3
45–49	793	17.6
50–54	401	10.9
55–59	278	8.3
60–64	204	7.0
65–69	133	6.1
70–74	38	4.2
25–74	**9,287**	**19.3**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A16 Positive predictive value of colposcopy

Table A16.1: Positive predictive value of colposcopy, by age, 2019

Age group (years)	Number	Positive predictive value (%)
25–29	1,401	60.2
30–34	1,532	66.1
35–39	1,019	65.5
40–44	702	66.7
45–49	468	66.4
50–54	180	52.6
55–59	103	50.7
60–64	68	47.9
65–69	45	50.6
70–74	10	37.0
25–74	**5,528**	**63.1**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A17 High-grade cervical abnormality detection rate & cervical cancer detection rate

Table A17.1: High-grade cervical abnormality detection rate, by age, 2020

Age group	Number with high-grade abnormality detected	Number screened	Number with high-grade abnormality detected per 1,000 people screened
<25	909	45,202	20.1
25–29	4,304	195,578	22.0
30–34	4,149	171,350	24.2
35–39	2,860	145,601	19.6
40–44	1,955	121,280	16.1
45–49	1,301	116,049	11.2
50–54	770	94,453	8.2
55–59	498	78,701	6.3
60–64	395	61,846	6.4
65–69	246	44,461	5.5
70–74	127	26,220	4.8
75+	27	6,113	4.4
25–74	**16,605**	**1,055,539**	**15.7**
All ages	**17,541**	**1,106,855**	**15.8**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A17.2: Number with high-grade abnormality detected, by histological type, by age, 2020

Age group	CIN NOS	CIN2	CIN3	Endocervical dysplasia	AIS	Mixed CIN3/AIS
<25	56	475	371	2	3	2
25–29	221	1,806	2,204	6	26	41
30–34	170	1,394	2,421	8	90	66
35–39	123	914	1,648	8	100	67
40–44	114	637	1,093	7	60	44
45–49	67	440	727	7	37	23
50–54	57	249	430	2	27	5
55–59	36	156	292	1	8	5
60–64	34	125	222	3	9	2
65–69	31	57	156	2	0	0
70–74	10	38	77	0	0	2
75+	5	9	12	1	0	0
25–74	**863**	**5,816**	**9,270**	**44**	**357**	**255**
All ages	**924**	**6,300**	**9,653**	**47**	**360**	**257**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A17.3: High-grade cervical abnormality detection rate, by state and territory, people aged 25–74, 2020

State or territory	Number with high-grade abnormality detected	Number screened	Number with high-grade abnormality detected per 1,000 people screened
NSW	4,899	340,412	14.4
Vic	3,314	247,345	13.4
Qld	4,474	222,911	20.1
WA	2,010	114,051	17.6
SA	1,206	72,886	16.5
Tas	325	22,130	14.7
ACT	209	20,464	10.2
NT	128	11,849	10.8
Australia	**16,605**	**1,055,539**	**15.7**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

Table A17.4: Cervical cancer detection rate, by age, 2020

Age group	Number with cervical cancer detected	Number screened	Number with cervical cancer detected per 1,000 people screened
<25	1	45,202	0.0
25–29	29	195,578	0.1
30–34	114	171,350	0.7
35–39	149	145,601	1.0
40–44	133	121,280	1.1
45–49	93	116,049	0.8
50–54	88	94,453	0.9
55–59	62	78,701	0.8
60–64	50	61,846	0.8
65–69	47	44,461	1.1
70–74	30	26,220	1.1
75+	40	6,113	6.5
25–74	**795**	**1,055,539**	**0.8**
All ages	**836**	**1,106,855**	**0.8**

Source: AIHW analysis of NCSR data (NCSR RDE 3.4.1 07/08/2021).

A19 Incidence of cervical cancer

Table A19.1: Cervical cancer incidence, by age, 2017

Age group	New cases	Crude rate
25–29	47	5.1
30–34	105	11.4
35–39	119	14.3
40–44	120	14.9
45–49	95	11.2
50–54	64	8.2
55–59	57	7.4
60–64	54	7.9
65–69	48	7.9
70–74	34	6.9
25–74	**743**	**9.7**
Total	**839**	**6.8**

Note: Crude rate is number of new cases of cervical cancer per 100,000 females. Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017.

Table A19.2: Cervical cancer incidence, by state and territory, women aged 25–74, 2012–2016

State or territory	New cases	Crude rate	AS rate
NSW	1,174	10.1	10.2
Vic	869	9.4	9.6
Qld	899	12.5	12.9
WA	414	10.8	11.0
SA	244	9.3	9.7
Tas	105	13.1	13.8
ACT	63	10.3	10.6
NT	39	11.0	11.1
Australia	**3,809**	**10.5**	**10.7**

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

Source: AIHW Australian Cancer Database 2017.

Table A19.3: Cervical cancer incidence, by remoteness area, women aged 25–74, 2012–2016

Remoteness area	New cases	Crude rate	AS rate
Major cities	2,581	10.0	10.1
Inner regional	748	11.4	12.1
Outer regional	372	11.8	12.4
Remote	59	12.9	13.2
Very remote	39	14.7	14.7
Australia	**3,809**	**10.5**	**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 because some new cases were not able to be allocated to a remoteness area.
3. Crude rate is the number of new cases of cervical cancer per 100,000 females. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 females, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2017.

Table A19.4: Cervical cancer incidence, by socioeconomic area, women aged 25–74, 2012–2016

Socioeconomic area	New cases	Crude rate	AS rate
1 (most disadvantaged)	866	12.7	13.0
2	821	11.5	11.7
3	746	10.2	10.5
4	719	9.6	9.7
5 (least disadvantaged)	647	8.7	8.8
Australia	**3,809**	**10.5**	**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 because some new cases were not able to be allocated to a socioeconomic area.
3. Crude rate is the number of new cases of cervical cancer per 100,000 females. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 females age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2017.

Table A19.5: Cervical cancer incidence, by Indigenous status, women aged 25–74, 2012–2016

Indigenous status	New cases	Crude rate	AS rate
Indigenous Australians	144	19.8	20.3
Non-Indigenous Australians	2,194	9.8	10.0
Not stated	188	n.p.	n.p.
All Australians	**2,526**	**11.0**	**11.2**

Notes

1. Data shown for 'Indigenous Australians', 'Non-Indigenous Australians' and 'All Australians' are for New South Wales, 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 females. Age-standardised (AS) rate is the number of new cases of cervical cancer per 100,000 females, age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2017.

Table A19.6: Five-year relative survival from cervical cancer, by age, 2013–2017

Age group	5-year relative survival (%)
20–24	87.9
25–29	91.1
30–34	90.5
35–39	86.4
40–44	85.2
45–49	76.9
50–54	71.9
55–59	63.1
60–64	65.8
65–69	58.4
70–74	50.3
75+	31.9
25–74	**77.8**
Total	**73.8**

Note: Relative survival was calculated with the period method, using the period 2013–2017 (Brenner & Gefeller 1996). Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017.

Table A19.7: Trend in 5-year relative survival from cervical cancer in women aged 25–74, 1988–1992 to 2013–2017

Year	5-year relative survival (%)
1988–1992	73.7
1993–1997	76.5
1998–2002	76.6
2003–2007	76.8
2008–2012	75.7
2013–2017	77.8

Note: Relative survival was calculated with the period method, using the period 2013–2017 (Brenner & Gefeller 1996). Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017.

Table A19.8: Relative survival at diagnosis and 5-year conditional survival from cervical cancer in women aged 25–74, 2013–2017

	Relative survival	Conditional survival	
Years after diagnosis	Relative survival (%)	Years already survived	5-year conditional relative survival (%)
1	92.1	. .	. .
2	85.8	. .	. .
3	81.9	. .	. .
4	79.4	. .	. .
5	77.8	0	77.8
6	77.0	1	83.6
7	75.9	2	88.4
8	75.1	3	91.7
9	74.1	4	93.3
10	73.3	5	94.3
11	72.6	6	94.3
12	72.2	7	95.1
13	71.7	8	95.5
14	70.9	9	95.8
15	70.7	10	96.4
16	70.3	11	96.8
17	69.8	12	96.7
18	69.4	13	96.7
19	68.8	14	97.0
20	68.5	15	96.9

Note: Relative survival was calculated with the period method, using the period 2013–2017 (Brenner & Gefeller 1996). Data for 2017 are estimated for the Northern Territory.

Source: AIHW Australian Cancer Database 2017.

A20 Mortality from cervical cancer

Table A20.1: Cervical cancer mortality, by age, 2019

Age group	Deaths	Crude rate
25–29	6	0.6
30–34	11	1.1
35–39	8	0.9
40–44	21	2.6
45–49	24	2.8
50–54	21	2.7
55–59	24	3.0
60–64	25	3.5
65–69	17	2.7
70–74	22	4.1
25–74	**179**	**2.3**
Total	**231**	**1.8**

Notes

1. Deaths in 2019 were derived by year of registration of death and are based on the preliminary version of cause of death data. Revised and preliminary versions are subject to further revision by the ABS.
2. These data have not been adjusted for Victorian additional death registrations in 2019. Due to the adjustment, totals do not equal the sum of their components. For more detail please refer to Technical note: Victorian additional registrations and time series adjustments in Causes of death, Australia, 2019 (ABS Cat. no. 3303.0)
3. Crude rate is the number of deaths from cervical cancer per 100,000 females. 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, 2015–2019

State or territory	Deaths	Crude rate	AS rate
NSW	268	2.2	2.1
Vic	204	2.1	2.0
Qld	209	2.7	2.6
WA	89	2.2	2.2
SA	72	2.7	2.5
Tas	19	2.3	2.3
ACT	12	1.9	1.8
NT	17	4.6	4.9
Australia	**890**	**2.3**	**2.2**

Notes

1. Deaths from 2015 to 2018 were derived by year of death; deaths in 2019 were derived by year of registration of death. Deaths registered in 2017 and earlier are based on the final version of cause of death data; deaths registered in 2018 are based on the revised version; and deaths registered in 2019 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 females. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 females, 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, 2015–2019

Remoteness area	Deaths	Crude rate	AS rate
Major cities	576	2.1	2.1
Inner regional	167	2.4	2.2
Outer regional	110	3.4	3.3
Remote	10	2.1	2.1
Very remote	18	6.9	7.5
Australia	**890**	**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, because some deaths were not able to be allocated to a remoteness area.
3. Deaths from 2015 to 2018 were derived by year of death; deaths in 2019 were derived by year of registration of death. Deaths registered in 2017 and earlier are based on the final version of cause of death data; deaths registered in 2018 are based on the revised version; and deaths registered in 2019 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 females. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 females, 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, 2015–2019

Socioeconomic area	Deaths	Crude rate	AS rate
1 (most disadvantaged)	248	3.5	3.4
2	210	2.8	2.7
3	172	2.2	2.1
4	132	1.7	1.6
5 (least disadvantaged)	119	1.5	1.5
Australia	**890**	**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, because some deaths were not able to be allocated to a socioeconomic area.
3. Deaths from 2015 to 2018 were derived by year of death; deaths in 2019 were derived by year of registration of death. Deaths registered in 2017 and earlier are based on the final version of cause of death data; deaths registered in 2018 are based on the revised version; and deaths registered in 2019 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 females. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 females, 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, 2015–2019

Indigenous status	Deaths	Crude rate	AS rate
Indigenous Australians	61	7.3	8.1
Non-Indigenous Australians	590	2.3	2.2
Not stated	4	n.p.	n.p.
All Australians	**655**	**2.4**	**2.3**

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 2015 to 2018 were derived by year of death; deaths in 2019 were derived by year of registration of death. Deaths registered in 2017 and earlier are based on the final version of cause of death data; deaths registered in 2018 are based on the revised version; and deaths registered in 2019 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 females. Age-standardised (AS) rate is the number of deaths from cervical cancer per 100,000 females, 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 marked impact on the outcomes of the NCSP, such as the effect of HPV vaccination on high-grade abnormalities. HPV vaccination coverage data in this publication are sourced from data that were published routinely by VCS Foundation, which operated the National HPV Vaccination Program Register until it was closed on 31 December 2018.

As shown in Table B1, as at September 2018, national HPV vaccination coverage in 2017 for adolescents turning 15 years of age is high. HPV vaccination coverage has been increasing since 2012, with an 80.2% 3-dose coverage rate for people 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%.

Table B1: National HPV vaccination coverage for 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 people 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; Victorian Cytology Service 2018.

From 2019, HPV vaccination data have been provided to the Australian Immunisation Register (AIR). HPV vaccination coverage using data from the AIR are available in two recent reports: *Impact evaluation of Australian national human papillomavirus vaccination program* (National Centre for Immunisation Research and Surveillance 2021) and *Cervical Cancer Elimination Progress Report: Australia's progress towards the elimination of cervical cancer as a public health problem* (NHMRC Centre of Research Excellence in Cervical Cancer Control 2021).

In 2018, Australia commenced using the new nonavalent HPV vaccine, *Gardasil9,* replacing the quadrivalent vaccine, *Gardasil,* thereby protecting against an additional 5 strains of HPV (types 6, 11, 16, 18, 31, 33, 45, 52 and 58). The program began in line with the school year, and reduces the number of doses from 3 to 2 (spaced 6–12 months apart). The introduction of this vaccine will further improve the protection that people 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 2021

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

National Cancer Screening Register

Data for most performance indicators were calculated using National Cancer Screening Register data, according to definitions and data specifications in the *National Cervical Screening Program data dictionary* (AIHW 2017) except for participation, for which the participation has been definition. This revised definition will be included in the next version of the National Cervical Screening Program data dictionary.

The National Cancer Screening Register (NCSR) is the source of NCSP 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 people who screen in a different state or territory to which they reside.

The NCSR is intended to be a near-complete record of all cervical tests, including HPV, cytology, colposcopy and histology. Pathology labs and colposcopists are required under the NCSR Rules 2017 to notify all cervical test data to the NCSR within 14 days. Any tests data not notified to the NCSR will not be included in the NCSR or in the data included in this report. Cervical tests for COMPASS participants are not included in the NCSR because, as a clinical trial, notification of COMPASS data is an exemption under the NCSR Rules 2017. This means that any cervical tests conducted as part of the COMPASS trial are not included in the NCSR, or in the data in this report. This affects Victoria more than other jurisdictions.

The Data Quality Statement for National Cancer Screening Program data can be found on the AIHW website at https://meteor.aihw.gov.au/content/index.phtml/itemId/741991.

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 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 2017 for all states and territories, with some exceptions:

- 2017 incidence data for NT were not available in time for inclusion in the 2017 ACD. The AIHW estimated these data by projecting the trends observed in NT in 2007–2016.
- 2017 incidence data for NSW death certificate only (DCO) cases were not available in time for inclusion in the 2017 ACD. The AIHW estimated these data based on the NSW DCO cases for 2016.
- There are expected to be some ‘late registrations’. These are cases of cancer that were diagnosed in 2017 but for which not enough details had been provided to the relevant cancer registry in time for the case to be included in the 2017 ACD.

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 2017 can be found at https://meteor.aihw.gov.au/content/index.phtml/itemId/743570

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 2019. 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 (2019), 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 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 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, 2019 (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, 2019 (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 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 https://www.health.gov.au/resources/collections/historical-data-from-the-national-hpv-vaccination-program-register.

ABS 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 in this report, the most recently released 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 people with an intact uterus (and cervix) at a particular age, and are the tool used to adjust the population for participation calculations. This is because people 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 people in Australia do not have an intact cervix, the population is adjusted to remove these people, so that true participation in cervical screening can be more accurately estimated.

The National Hospital Morbidity Database (NHMD) is based on summary records of patient separations, referring to episodes of care in public and private hospitals; it allows us to view relatively complete hysterectomy numbers and rates for financial years from the mid-1990s. These data were used, with projections forward and backward where required, to generate estimates of current hysterectomy prevalence for people aged 25–74. Published hysterectomy incidence trends, as well as data from the 1995, 2001 and 2004–05 NHS, were drawn on to ensure accuracy in 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, people aged 25–74, 2016

Age group (years)	Proportion of people 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.

Appendix D: Classifications

Age

The data in this report are stratified by the age of the person 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).

For NCSR data, 25–74 actually refers to 24.75–74. The age 24 years and 9 months is used instead of 25 years, as people are invited to screen 3 months prior to their 25th birthday, and so are considered to be eligible to screen from that time. The age group 24.75–74 is used to ensure these people are included in the data.

State or territory

The state or territory reported is the one where the person resides 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, 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, people 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 people 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 individuals) are unable to be allocated to a remoteness area.

Socioeconomic area

The Index of Relative Socio-Economic Disadvantage (one of four 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 (that is, the lowest socioeconomic area), and the fifth area (quintile 5) corresponds to the 20% of the population with the least socioeconomic disadvantage (that is, the highest socioeconomic area).

For participation, people 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 people 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 people) 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, 8260–8265, 8310, 8380, 8382–8384, 8440–8490, 8570–8574, 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, 8830, 8840–8921, 8990–8991, 9040–9044, 9120–9133, 9150, 9540–9581
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 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 nucleic 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 a 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 those 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.

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Related material

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 at https://www.aihw.gov.au/reports-data/health-welfare-services/cancer-screening/overview.

You may also be interested in the following related publications:

AIHW 2019 Cervical screening in Australia 2019. Cancer series no. 123. Cat. no. CAN 124. 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 2020. Cancer screening and COVID-19 in Australia. CAN 136. Canberra: AIHW. https://www.aihw.gov.au/reports/cancer-screening/cancer-screening-and-covid-19-in-australia/contents/how-has-covid-19-affected-australias-cancer-screening-programs.

AIHW 2021. Cancer screening and COVID-19 in Australia. Cat. no. CAN 137. Canberra: AIHW.

AIHW 2021. National Bowel Cancer Screening Program monitoring report 2021. Cat. no. CAN 139. Canberra: AIHW.

AIHW 2021. BreastScreen Australia monitoring report 2021. BreastScreen Australia monitoring report 2021. Cat. no. CAN 140. Canberra: AIHW.

Data

Additional tables are available as online Excel tables at www.aihw.gov.au, under the 'Additional material' 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, one for each stage of the screening pathway:

- Recruitment
- Screening
- Assessment
- Diagnosis
- Outcomes.

This is the third report to monitor the National Cervical Screening Program since it introduced 5-yearly HPV tests in December 2017. In 2018–2020, there were more than 3.8 million participants aged 25–74, and in 2020, 10% of all screening HPV tests performed were positive for HPV types that cause cervical cancer. Cervical cancer incidence and mortality remained low at 10 new cases and 2 deaths per 100,000 women, respectively.

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