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Contents

Summary

BreastScreen Australia is the national breast cancer screening program. It aims to reduce illness and death from breast cancer through an organised approach to the early detection of breast cancer, using screening mammography to detect unsuspected breast cancer in women. Early detection provides an opportunity for early treatment, which can reduce illness and death. Women aged 40 and over are eligible for free mammograms every 2 years.

This report is the latest in the annual *BreastScreen Australia monitoring report* series. It presents the latest data available for participants aged 50–74.

Breast cancer is the most common cancer affecting Australian women

Breast cancer is the most common cancer diagnosed in Australian women. In 2018, 11,401 new cases of invasive breast cancer were diagnosed in women aged 50–74, equivalent to 340 new cases per 100,000 women in the population.

Incidence rose from around 200 new cases per 100,000 women aged 50–74 in the years before BreastScreen Australia began in 1991, to 300 cases per 100,000 in 2000. Between 2013 and 2018, incidence remained at around 320 new cases per 100,000 women.

Breast cancer is the second most common cause of cancer-related death in Australian women, behind lung cancer. In 2020, 1,517 women aged 50–74 died from breast cancer, equivalent to 43 deaths per 100,000 women in the population.

Breast cancer mortality has decreased since BreastScreen Australia began—from 74 deaths per 100,000 women aged 50–74 in 1991 to around 40 deaths per 100,000 since 2014.

Half of targeted women participate in BreastScreen Australia

Around 1.8 million participants aged 50–74 participated in BreastScreen Australia in 2019–2020, equivalent to a crude participation rate of 50% of the population. The age-standardised participation rate remained between 53% and 54% from 2014–2015 to 2018–2019 and has decreased in 2019–2020 due to the impact of the COVID-19 pandemic from March 2020.

A small proportion of participants are recalled for further investigation

In 2020, 11% of participants who screened for the first time, and 4% of participants attending a subsequent screen, had a screening mammogram result indicating they should be recalled for further investigation. These rates are similar to those in 2019.

More than half of the cancers detected by BreastScreen Australia are small

Small breast cancers (≤15 mm in diameter) tend to be associated with more treatment options, lower morbidity and improved survival. In 2020, 45% of breast cancers detected in participants attending their first screen, and 62% of breast cancers detected in those attending subsequent screens, were small. In comparison, just 28% of breast cancers detected outside BreastScreen Australia are small (AIHW 2018).

Around two in five Aboriginal and Torres Strait Islander women participated in BreastScreen Australia

Participation in BreastScreen Australia for Aboriginal and Torres Strait Islander women aged 50–74 was 36% in 2019–2020, compared with 49% for non-Indigenous women. Indigenous women aged 50–74 had a lower incidence rate of breast cancer than non-Indigenous women (284 compared with 314 new cases per 100,000 women). Indigenous women aged 50–74 had a higher mortality rate than non-Indigenous women, (45 compared with 40 new deaths per 100,000 women).

Terminology

This document uses the terms ‘participant’ and ‘participants’ when referring to data collected under BreastScreen Australia. These data are not restricted by sex or gender, with all participants in breast screening included in these data.

For breast cancer screening data, ‘participant’ or ‘participants’ is defined as a person having breast tissue that is suitable for breast cancer screening and who has engaged with the Service and/or SCU through a screening and/or assessment appointment or visit.

Screening participants may include women, transgender men, transgender women, non-binary people or other gender diverse people. State and territory BreastScreen services provide advice on BreastScreen and gender, including whether screening for breast cancer may benefit transgender women, transgender men, non-binary, and gender diverse people.

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

Impact of COVID-19 on BreastScreen Australia services

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. To protect clients, staff, and the community from the risk of COVID-19, BreastScreen Australia services were suspended nationwide from 25 March 2020. The suspension was lifted around a month later for most services, but a staged approach was introduced with longer appointment times and precautionary measures to ensure the safety of clients and staff. The rate at which BreastScreen services could resume was affected by jurisdictional social distancing and infection control guidelines and requirements. Most BreastScreen services stayed open, with these additional precautionary measures, for the remainder of the year despite additional lockdowns and increasing numbers of cases of COVID-19.

Data at a glance

Table 1: Summary of BreastScreen Australia performance indicators

Performance indicator	Number	Crude rate
Participation in 2019–2020	1,750,263	49.9%
Rescreening 2018		
After first screening round	37,084	44.0%
After second screening round	48,034	52.3%
After subsequent screening rounds	502,022	68.4%
Recall to assessment 2020		
First screening round	7,416	11.4%
Subsequent screening rounds	29,745	3.8%
Invasive breast cancer detection 2020		
First screening round	571	87.7
Subsequent screening rounds	4,407	57.0
All screening rounds	4,978	59.4
All screening rounds, small breast cancer detection	2,972	35.4
Ductal carcinoma in situ detection 2020		
First screening round	169	26.0
Subsequent screening rounds	1,138	14.7
All screening rounds	1,307	15.6
Interval cancers 2015, 2016 and 2017		
In the first year after a negative screen	1,737	6.4
In the second year after a negative screen	3,074	12.2
Program sensitivity 2015, 2016 and 2017		
In the 2 years after a negative screen	. .	77.0%
Invasive breast cancer incidence 2018	11,401	336.2
Ductal carcinoma in situ incidence 2018	1,747	51.5
Mortality 2020	1,517	42.7

Notes

1. Crude rates for 'Invasive breast cancer detection', 'Ductal carcinoma in situ detection' and 'Interval cancers' are per 10,000 participants screened.
2. Crude rates for 'Invasive breast cancer incidence', 'Ductal carcinoma in situ incidence' and 'Mortality' are per 100,000 women in the population.
3. All data shown are for women aged 50–74.

1 Introduction

1.1 Purpose of this report

This monitoring report presents data for BreastScreen Australia, based on the current national performance indicators. To ensure that the most recent data are used for each indicator, the time frame in which each is reported can vary. In this report, the most recent participation data for BreastScreen Australia are for the period 1 January 2019 to 31 December 2020.

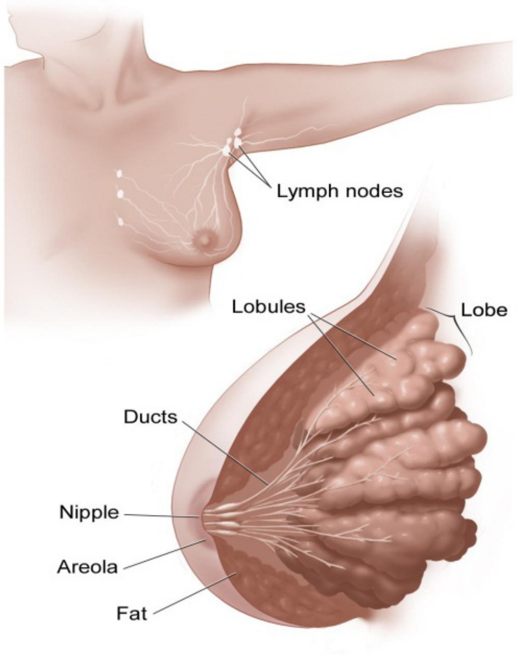
1.2 Breast cancer facts

Defining breast cancer

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 where in the body the disease began.

Breast cancer most commonly originates in the ducts of the breast (which carry milk from the lobules to the nipple) but can also originate in the lobules (small lobes of the breast that produce milk). More rarely, breast cancer can originate in the connective tissue of the breast. The arrangement of breast tissue is illustrated in Figure 1.1.

Figure 1.1: Anatomy of the breast and adjacent lymph nodes



Source: National Cancer Institute 2007 (see http://visualsonline.cancer.gov).

Worldwide, breast cancer is the most common cancer affecting women, representing 1 in 4 of all cancers in women. The incidence of breast cancer differs worldwide, the disease being far more common in more developed countries than in developing countries (although as less-developed countries become more developed, a shift towards the lifestyles of developed countries brings an increase in cancers that have reproductive, dietary and hormonal risk factors—of which breast cancer is one) (UICC 2014).

Breast cancer is the most commonly diagnosed cancer in Australian women, representing 28% of all female cancers diagnosed in 2018; it is second only to lung cancer in cancer deaths (AIHW 2022). Note that this cancer comparison excludes basal and squamous cell carcinoma of the skin—collectively known as non-melanoma skin cancer—as these cancers are not currently reported to Australian cancer registries.

Risk factors for breast cancer

It is not known what causes breast cancer; however, several risk factors that may increase the chance of a woman developing breast cancer have been identified (see Box 1.1.1). Having a risk factor does not mean that a woman will get breast cancer—many women who have risk factors never develop the disease.

Box 1.1.1: Risk and protective factors for breast cancer

Breastfeeding

The only factor protective against breast cancer is breastfeeding (WCRF/AICR 2007).

Age

The greatest risk factor for breast cancer is age. Most breast cancers occur in women aged over 50—in Australia, more than three-quarters of breast cancers (AIHW 2022).

Reproductive or hormonal factors

Certain reproductive or hormonal factors may increase a woman's risk of developing breast cancer, including not having carried or given birth to any children (or to fewer children), older age at birth of first child, younger age at menarche, and older age at menopause. Oral contraception use can cause a small increase in the risk of breast cancer, as can hormone replacement therapy, which causes an increase in risk similar to that associated with late menopause (De et al. 2010; McPherson et al. 2000).

Family history and genetic susceptibility

A family history of breast cancer can increase a woman's risk, although most women who develop breast cancer do not have this—8 out of 9 women who develop it do not have a mother, sister or daughter with breast cancer (Breast Cancer Network Australia 2013).

Women with a BRCA1 or BRCA2 mutation (see Glossary) have a higher risk of developing breast cancer than the general population in all age groups. Women who carry a fault in BRCA1 or BRCA2 have a lifetime high risk of breast cancer: in a recent study, the cumulative breast cancer risk to age 80 was 72% for women who carry a fault in BRCA1 and 69% for women who carry a fault in BRCA2 (Kuchenbaecker et al. 2017).

Other factors

Other risk factors associated with breast cancer include a higher body mass index, exposure to X-rays and gamma radiation, and consumption of alcoholic beverages (Cancer Research UK 2014).

A family history can be split into 3 categories (Cancer Australia 2015):

1. 'At or slightly above average risk' covers more than 95% of the female population and includes women with no family history as well as women with a weak family history (such as having 1 first degree relative diagnosed with breast cancer at age 50 or older). Nine out of 10 women in this group will not develop breast cancer.
2. 'Moderately increased risk' covers less than 4% of the female population and includes women with a strong family history (for instance, 1 first degree relative diagnosed with breast cancer under the age of 50).
3. 'Potentially high risk' covers less than 1% of the female population and includes women with a very strong family history (for instance, 2 first or second degree relatives on one side of the family diagnosed with breast or ovarian cancer plus 1 of a range of additional factors on the same side of the family, such as an additional breast cancer diagnosed before the age of 40, or breast cancer in a male relative).

See *Advice about familial aspects of breast cancer and epithelial ovarian cancer: a guide for health professionals* (Cancer Australia 2015) for more information on assessing individual risk.

Although most breast cancers occur in women over the age of 50, younger women, men and non-binary people of any age, can, and do, get breast cancer (see Box 1.1.2).

Box 1.1.2: People of all ages can develop breast cancer

As women aged 40 and over are eligible for breast cancer screening through BreastScreen Australia, these women are the focus of this report. Even though screening mammography is not recommended for women aged under 40, young women can (and do) develop breast cancer as can men of any age, though more rarely. It is important, therefore, for people of all ages to be aware of how their breasts normally look and feel and promptly report any new or unusual changes to their general practitioner.

For more information on breast cancer diagnosed in women aged under 40, see *Breast cancer in young women: key facts about breast cancer in women in their 20s and 30s* (AIHW 2015); see http://breastcancerinmen.canceraustralia.gov.au for more information on breast cancer in men.

1.3 Breast cancer screening

Recommended by Cancer Australia as a population-based screening tool, mammography is the only means of screening shown to reduce breast cancer mortality (Cancer Australia 2009). In screening mammography, 2 views are taken of each breast; radiologists then study the images, looking for suspicious characteristics that require further investigation. Screening mammography, like screening tests used in other screening programs, is not intended to be diagnostic; rather, it aims to identify people who are more likely to have cancer, and therefore require further investigation from diagnostic tests.

Screening mammograms work well in older women as breasts become less mammographically dense as women age, particularly after menopause. This is why mammograms become more effective as women get closer to age 50. Incidence of breast cancer is also much higher in older women, with 80% of breast cancers occurring in women aged 50 and over (AIHW 2022).

Mammographic screening is not recommended for women younger than 40 as breast tissue in pre-menopausal women tends to be mammographically dense, which can make it difficult to correctly identify the presence of breast cancer by this means. The reduced accuracy of mammography in younger women has a high risk of false positive and false negative results, potentially resulting in high numbers of both unnecessary investigations and missed breast cancers (Irwig et al. 1997).

1.4 Burden of breast cancer

Burden of disease analysis measures the combined impact of fatal and non-fatal impacts of ill health.

More than merely counting deaths or disease prevalence, it takes into account age at death and severity of disease. Burden of disease analysis quantifies the gap between a population's actual health and an ideal level of health in a given year—that is, every individual living in full health for an ideal life span.

This section presents data on the burden of cancer based on the Australian Burden of Disease Study (ABDS) 2018. The ABDS 2018 provides Australia-specific burden of disease estimates best matched to the Australian context for the total 2018 population. In the ABDS 2018, the cancer and other neoplasms disease group also includes the impact of benign, in situ and uncertain neoplasms. See *Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018* (AIHW 2021a) for more information.

Data are presented for the fatal burden, non-fatal burden and the total burden. Fatal burden, expressed as years of life lost (YLL), measures the years lost between the age at which people die and the remaining life expectancy in an ideal life span, based on the current best life expectancy across the world. YLL are influenced by both the number of deaths and the ages at which the deaths occur.

Non-fatal burden, expressed as years lived with disability (YLD), measures the years of healthy life lost due to living with a disease in a given year. Total YLD are influenced by the number of people with each disease, the duration of its effects and how severe those effects are.

The total burden, expressed as disability-adjusted life years (DALY), is the sum of YLL and YLD. One DALY is 1 year of 'healthy life' lost due to premature death or living with the effects of an illness or injury. The more DALY associated with a disease, the greater the burden.

Cancer was a major cause of illness in Australia: in 2018, cancer was the disease group with the highest burden—18% of the total disease burden. Most (92%) of the burden from cancer was due to dying prematurely, with only a small proportion (7.9%) due to living with a cancer diagnosis (AIHW 2021a).

Breast cancer was the leading cause of cancer burden for females in 2018, with 70,508 DALY, accounting for 18% of the total cancer burden for females. It was the third-leading cause of cancer burden for persons, at 8.1% (AIHW 2021a). Breast cancer was responsible for around one-quarter of the cancer burden in women aged 25–44 (8,202 DALY; 27%) and 45–64 (32,944 DALY; 23%). Cervical and ovarian cancers also caused considerable burden in these age groups.

The rankings for breast cancer according to the 3 measures that comprise burden of disease are shown in Table 1.1.

Table 1.1: Leading causes of cancer burden (DALY), leading causes of fatal cancer burden (YLL), and leading causes of non-fatal cancer burden (YLD), females, 2018

	Disability-adjusted life years (DALY)		Years of life lost (YLL)		Years lived with disability (YLD)	
Rank	**Cancer type**	**% of DALY**	**Cancer type**	**% of YLL**	**Cancer type**	**% of YLD**
1	Breast cancer	18.3	Lung cancer	18.6	Breast cancer	33.1
2	Lung cancer	17.6	Breast cancer	17.1	Bowel cancer	10.0
3	Bowel cancer	11.1	Bowel cancer	11.2	Benign and uncertain brain tumours	5.8
4	Pancreatic cancer	6.2	Pancreatic cancer	6.6	Lung cancer	5.1
5	Ovarian cancer	5.1	Ovarian cancer	5.2	Melanoma of the skin	5.0
6	Other malignant neoplasms (cancers)	4.5	Other malignant neoplasms (cancers)	4.6	Ovarian cancer	3.9
7	Brain and central nervous system cancer	4.2	Brain and central nervous system cancer	4.3	Other malignant neoplasms (cancers)	3.7
8	Liver cancer	3.2	Liver cancer	3.4	Uterine cancer	3.5
9	Unknown primary	3.0	Unknown primary	3.1	Other lymphohaematopoietic (blood) cancers	2.7
10	Uterine cancer	2.7	Non-Hodgkin lymphoma	2.7	Myeloma	2.7
	Leading 10 cancers	**75.9**	**Leading 10 cancers**	**76.7**	**Leading 10 cancers**	**75.6**
	All other cancers	*24.1*	*All other cancers*	*23.3*	*All other cancers*	*24.4*
	Total	**100.0**	**Total**	**100.0**	**Total**	**100.0**

Note: Rankings exclude the residual disease ‘other benign, *in situ* and uncertain neoplasms’.

Source: AIHW 2021a.

2 BreastScreen Australia

In Australia, population-based breast cancer screening is available through BreastScreen Australia, which targets women aged 50–74 for 2-yearly screening mammograms. Women aged 40–49 and 75 and over are also eligible to attend but are not actively recruited.

BreastScreen Australia is a joint program of the Australian and state and territory governments, first established in 1991. It aims to reduce morbidity and mortality from breast cancer using screening mammograms to detect unsuspected breast cancers in women who have no symptoms and therefore would not otherwise know they had the disease. Detection of breast cancers at an early stage allows access to diagnostic and treatment services early, so that women can benefit most from available treatments.

Lower morbidity from breast cancer is achieved by detecting cancers when they are small, as small breast cancers tend to be associated with increased treatment options (NBOCC 2009). Research shows that 59% of breast cancers detected by BreastScreen Australia are small, compared with just 28% of breast cancers detected outside BreastScreen Australia (AIHW 2018). Further, treatment of breast cancers detected by BreastScreen Australia is more likely to involve breast-conserving surgery (74%, compared with 56% outside the program) (NBOCC 2009), which is associated with decreased morbidity.

Mortality reduction from breast cancer screening is also due to the detection of breast cancers when they are small, as it has been shown that finding breast cancers when they are small leads to improved survival (AIHW & NBCC 2007).

A recent Australian Institute of Health and Welfare (AIHW) data linkage study demonstrated the benefits of breast screening. It found that breast cancers detected through BreastScreen Australia had a 54% to 63% lower risk of causing death than breast cancers diagnosed in women who had never screened through BreastScreen Australia (AIHW 2018).

In 2009, in a comprehensive evaluation of BreastScreen Australia, it was estimated that breast cancer mortality had been reduced by 21–28% as a result of breast cancer screening (BreastScreen Australia EAC 2009). Further, analysis of data from the Swedish Two-Country Trial and England's breast cancer screening program estimated that, respectively, 8.8 and 5.7 breast cancer deaths per 1,000 women screened were prevented by screening (Duffy et al. 2010).

In 2015, the International Agency for Research on Cancer conducted a full review of available high-quality observational studies to ensure that the evidence compiled in 2002—which showed a reduction in mortality as a result of screening mammography (IARC 2002)—was still relevant today. The study determined that women aged 50–69 who attended breast cancer screening using screening mammography had about a 40% reduction in the risk of death from breast cancer, with a substantial reduction in the risk of death also observed in women aged 70–74 (Lauby-Secretan et al. 2015). These mortality benefits align with the women targeted by BreastScreen Australia (that is, those aged 50–74).

For more information about BreastScreen Australia, see Appendix B.

Box 2.1.1: ‘Overdiagnosis’ of breast cancer by BreastScreen Australia

The following points are from Cancer Australia’s position statement on ‘overdiagnosis’:

1. A majority of breast cancers found through screening would be progressive and would become symptomatic within a woman’s lifetime if left untreated.
2. It is likely that some screen-detected breast cancers (ductal carcinoma in situ or invasive breast cancer) might never have progressed to become symptomatic in a woman’s lifetime. Detection of these cancers is sometimes referred to as ‘overdiagnosis’.
3. It is not possible to precisely predict at diagnosis, to which cancers overdiagnosis would apply.
4. Research is needed, including molecular and genomic research, to find means of identifying cancers that would be of minimal risk of progression and therefore could be managed more conservatively.

For further information, see the position statement endorsed by the Australian Health Ministers’ Advisory Council Standing Committee on Screening, Cancer Council Australia, and the Royal Australian and New Zealand College of Radiologists, and supported by the Cancer Australia Advisory Council: https://www.canceraustralia.gov.au/publications-and-resources/position-statements/overdiagnosis-mammographic-screening (Cancer Australia 2014).

2.1 Monitoring BreastScreen Australia

The performance of a population-based cancer screening program such as BreastScreen Australia needs to be assessed as it relates to the underlying aims of the program. At the national level, this is achieved by reporting data against a series of performance indicators to allow screening outcomes to be monitored, and positive and negative trends identified early.

This report presents national data for BreastScreen Australia, using performance indicators developed and endorsed by the former National Screening Information Advisory Group and by jurisdictional BreastScreen programs.

Data for performance indicators 1–6 (*Participation, Rescreening, Recall to assessment, Invasive breast cancer detection, DCIS detection* and *Sensitivity*) are sourced from the BreastScreen register in each state and territory. These data are compiled into national figures by the Australian Institute of Health and Welfare (AIHW) to allow national monitoring of BreastScreen Australia.

For more information about the data sources used in this report, see Appendix C.

Different policies across state and territory BreastScreen programs affects breast cancer detection rates, recall to assessment rates and interval cancer rates. Breast cancer detection and interval cancer rates will be impacted by the jurisdictions policies related to screening clients with symptoms, as well as policies related to annual screening.

Some jurisdictions may have policies that include some clients being recalled to assessment regardless of whether there are signs of breast cancer on the mammogram.

2.2 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 BreastScreen Australia services.

Many of the performance indicators in this report are reported for 2020, which coincided with the start of the COVID-19 pandemic in Australia. To protect clients, staff, and the community from the risk of COVID-19, BreastScreen Australia services were suspended nationwide from 25 March 2020. The suspension was lifted around a month later for most services, but a staged approach was introduced with longer appointment times and precautionary measures to ensure the safety of clients and staff. The rate at which BreastScreen services could resume was affected by jurisdictional social distancing and infection control guidelines. Most BreastScreen services stayed open, with these additional precautionary measures, for the remainder of the year despite additional lockdowns and increasing numbers of cases of COVID-19.

The suspension of BreastScreen services resulted in significantly lower participation through the months of April, May and June in 2020. This will be reflected in the data presented in this report. For all sequential performance indicators, those that follow from the 2020 participation cohort will be affected by the lower participation in 2020 and those that are reported for 2020 will be affected by COVID-19 restrictions and client hesitancy, but to a lesser-known extent.

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. More information can be found in the *Cancer screening and COVID-19 in Australia* report (AIHW 2020).

3 Performance indicators

Summary

BreastScreen Australia has been monitored since 1996–1997 using national performance indicators, which are key measures of the progress BreastScreen Australia is making towards reducing morbidity and mortality from breast cancer. These performance indicators were developed and endorsed by the former National Screening Information Advisory Group and by jurisdictional BreastScreen programs.

Figure 3.1 summarises the performance indicator data in this report, according to the stages of the Population Based Screening Framework (Standing Committee on Screening 2016). These 5 incremental stages are recruitment, screening, assessment, diagnosis and outcomes.

Detailed results for each of these performance indicators are provided in Section 3.

Recruitment

In 2019–2020, 1,750,263 participants aged 50–74 participated in BreastScreen Australia, a crude participation rate of 49.9% of the eligible population (Table A1.1).

Among participants aged 50–72 who screened in 2018, 64.5% (587,140) rescreened within 27 months (Figure 3.1).

Screening and assessment

Among participants aged 50–74 who participated in BreastScreen Australia in 2020, 11.4% of those who attended their first screen, and 3.8% of those attending a subsequent screen, were recalled to assessment for further investigation (Table A3.1).

Diagnosis

In 2020, 4,978 participants aged 50–74 had invasive breast cancer detected through BreastScreen Australia, which equates to a crude rate of 59.4 per 10,000 participants (Figure 3.1). Of these, 59.7% (2,972) had a small (≤15 mm) cancer detected, a crude rate of 35.4 per 10,000 participants (Table A4.5).

There were 1,307 participants aged 50–74 who had ductal carcinoma in situ (DCIS) detected through BreastScreen Australia in 2020, a crude rate of 15.6 per 10,000 participants (Figure 3.1).

For participants aged 50–74 who screened in 2015, 2016 and 2017, there were 9.2 interval cancers per 10,000 participants in the 0–24 months after a negative screening episode for all screening rounds (Figure 3.1).

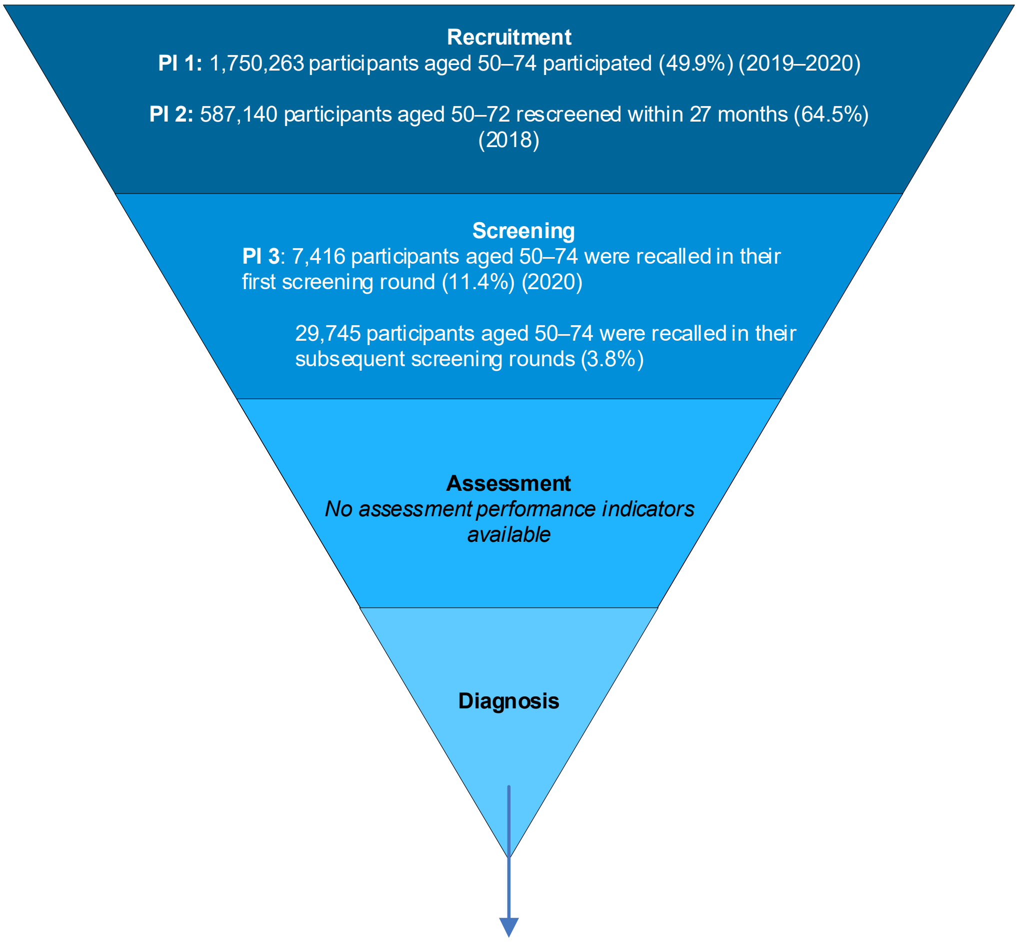
In 2015, 2016 and 2017, program sensitivity in the 0–24 months for all screening rounds was 77.0% for participants aged 50–74 (Figure 3.1).

Outcomes

In 2018, there were 11,401 new cases of breast cancer diagnosed in women aged 50–74, a crude rate of 336.2 per 100,000 women (Table A7.2). Over the same period there were 1,747 new cases of DCIS in women aged 50–74, or 51.5 per 100,000 women (Table A7.12).

In 2020, there were 1,517 deaths from breast cancer for women aged 50–74 in Australia, a crude rate of 42.7 per 100,000 women (Table A8.2).

Figure 3.1: Summary of BreastScreen Australia performance indicators for this report



Recruitment

PI 1: 1,750,263 participants aged 50–74 participated (49.9%) (2019–2020)

PI 2: 587,140 participants aged 50–72 rescreened within 27 months (64.5%) (2018)

Screening

PI 3: 7,416 participants aged 50–74 were recalled in their first screening round (11.4%) (2020)

29,745 participants aged 50–74 were recalled in their subsequent screening rounds (3.8%)

Assessment

No assessment performance indicators available

Diagnosis

Diagnosis

PI 4: 4,978 participants aged 50–74 diagnosed with breast cancer (59.4 per 10,000) (2020)

2,972 participants aged 50–74 diagnosed with small cancers (≤15 mm) (35.4 per 10,000)

59.7% of all cancers diagnosed were small cancers (≤15 mm)

PI 5: 1,307 participants aged 50–74 diagnosed with DCIS (15.6 per 10,000) (2020)

PI 6a: Interval cancer rate was 9.2 per 10,000 in participants aged 50–74 (2015–2017)

PI 6b: Program sensitivity was 77.0% in participants aged 50–74 (2015–2017)

Outcomes

PI 7a: Breast cancer incidence 336.2 per 100,000 (2018)

PI 7b: DCIS incidence 51.5 per 100,000 (2018)

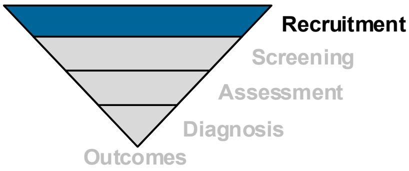
PI 8: Mortality 42.7 per 100,000 (2020)

PI = performance indicator.

Notes

1. Participation PI 1 is reported for the 2-year calendar period 2019–2020. Rescreening PI 2 is reported for the index year 2018. Recall to assessment PI 3, invasive breast cancer detection PI 4 and DCIS detection PI 5 are reported for 2020. Interval cancer PI 6a and program sensitivity PI 6b are reported for the index years 2015, 2016 and 2017. Breast cancer incidence PI 7a and DCIS incidence PI 7b are reported for 2018. Mortality PI 8 is reported for 2020.
2. All rates are crude rates. For age-standardised rates, see the relevant tables in Appendix A.

Sources: AIHW analysis of BreastScreen Australia data; AIHW Australian Cancer Database 2018; AIHW National Mortality Database.



Recruitment

Performance indicator 1: Participation

Summary

- 1,750,263 participants aged 50–74 participated in BreastScreen Australia in 2019–2020, equivalent to a crude participation rate of 49.9%.
- Participation remained steady between 53% and 54% (age-standardised) for participants aged 50–74 between 2014–2015 and 2018–2019 and has decreased to 49% in 2019–2020 due to the impact of the COVID-19 pandemic from March 2020.

Definition

The percentage of participants aged 50–74 who are screened through BreastScreen Australia in a 2-year period.

Rationale

Participation is a major indicator of the performance of BreastScreen Australia, which aims to maximise the early detection of breast cancer in the target population, women aged 50–74. High attendance for screening for women in this age group maximises the reduction in mortality from breast cancer (BreastScreen Australia 2004).

Guide to interpretation

Participation is measured over 2 years to align with the 2-year recommended screening interval, as most participants will screen only once within a 2-year period. A consequence of measuring participation over 2 years on an annual basis is that there are ‘rolling’ participation rates, in which there is an overlap of 1 calendar year between any 2 consecutive rates. Because of this, the participation rate for a 2-year reporting period is often compared with the previous non-overlapping rate. Participation is based on the number of participants screened, not the number of screening mammograms performed.

Data are presented for participants aged 50–74, the target age group since 1 July 2013, as well as for participants aged 40–49 and 75+ where appropriate.

The most recent participation data are for participants who had a screening mammogram in 2019 and 2020.

A higher participation rate is better.

More information on participation

Information on participation in BreastScreen Australia 2014–2015 to 2020–2021 can be found on the AIHW website at https://www.aihw.gov.au/reports/cancer-screening/national-cancer-screening-programs-participation/contents/summary

Box 3.1.1: Participation through BreastScreen Australia was reduced significantly in 2020

To protect clients, staff, and the community from the risk of COVID-19, BreastScreen Australia services were suspended from 25 March 2020. The suspension was lifted around a month later for most services, but a staged approach was introduced with longer appointment times and precautionary measures to ensure the safety of clients and staff.

While more than 70,000 screening mammograms were performed in March 2020, this had fallen to just over 1,100 in April. By comparison, in April 2018 (the last comparable time period due to the two-year screening interval), more than 74,000 screening mammograms were performed (AIHW 2020). While the suspension of BreastScreen services saw the steepest decline in participation, it took several months for participation to return to similar numbers in a comparable period in 2018. This was due to a combination of the staged return to services and constraints in capacity due to increased infection control procedures. Other factors may also have contributed, including hesitancy to seek essential services like healthcare.

Results

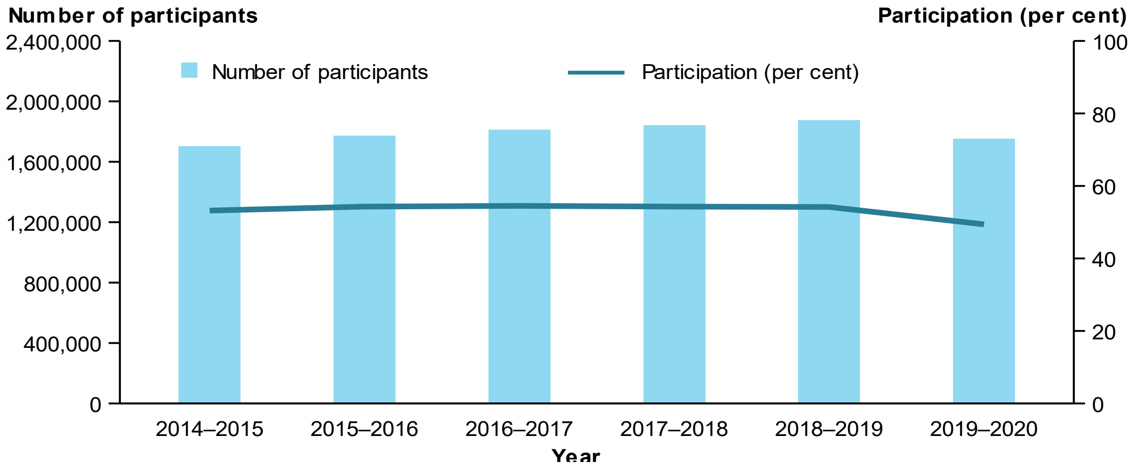
In 2019–2020, a total of 2,021,379 participants participated in BreastScreen Australia, of whom, 1,750,263 (86.6%) were aged 50–74. This is equivalent to a participation rate of 49.9% for participants aged 50–74 (Table A1.3).

Trends

The participation rate among participants aged 50–74 has remained stable over time prior to 2020. The age-standardised participation rate has stayed between 53% and 54% between 2014–2015 and 2018–2019 and has decreased to 49% in 2019–2020 due to the impact of the COVID-19 pandemic from March 2020 (Figure 3.1.1).

In 2019–2020, a total of 1,750,263 participants aged 50–74 participated in BreastScreen Australia, compared with 2017–2018 (the previous non-overlapping 2-year period) when 1,841,333 participants aged 50–74 participated (Figure 3.1.1).

Figure 3.1.1: Participation in BreastScreen Australia, participants aged 50–74, 2014–2015 to 2019–2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A1.1.

Box 3.1.2: Preliminary participation in BreasScreen Australia, 2020–2021

Preliminary participation BreastScreen Australia is reported for the period 2020–2021. (Note that actual participation data for 2020–2021 may differ from preliminary data for these years).

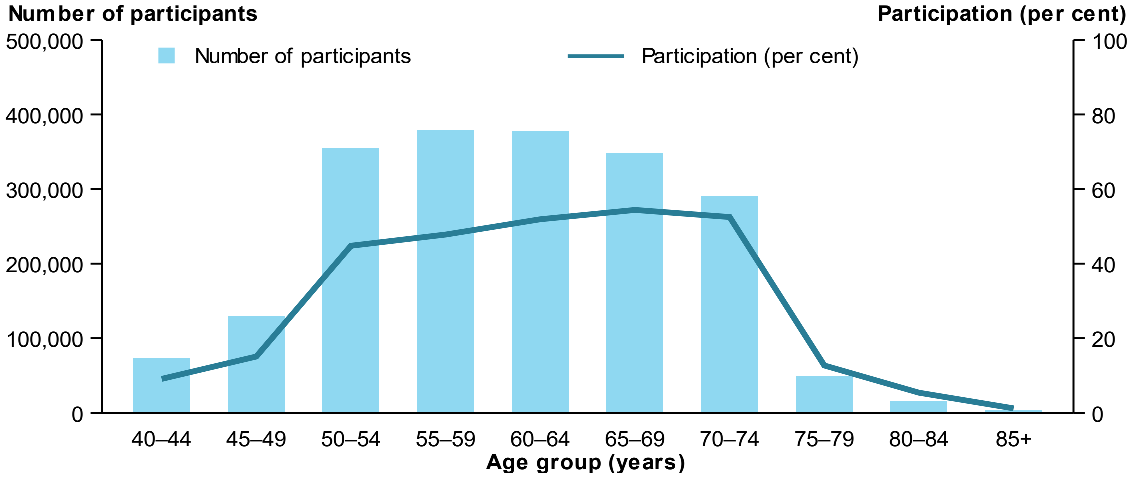
In 2020–2021, a total of 1,941,487 participants participated in BreastScreen Australia, of whom, 1,705,319 (87.8%) were aged 50–74. This is equivalent to a participation rate of 47.7% for participants aged 50–74 (Table A1.11).

Age

In 2019–2020, of the women aged 40 and over who participated in BreastScreen Australia, participation was highest in the target age group of 50–74. This is in line with the aim of BreastScreen Australia to maximise the proportion of women in the target age group who are screened every 2 years (Figure 3.1.2). Furthermore, the proportion of participants participating in all 5-year age groups within the target age group was equal to or above 44.8%, peaking at 54.4% in participants aged 65–69. The participation rates outside the target age group were lower, at 12.2% for participants aged 40–49 and 6.9% for participants aged 75 and over.

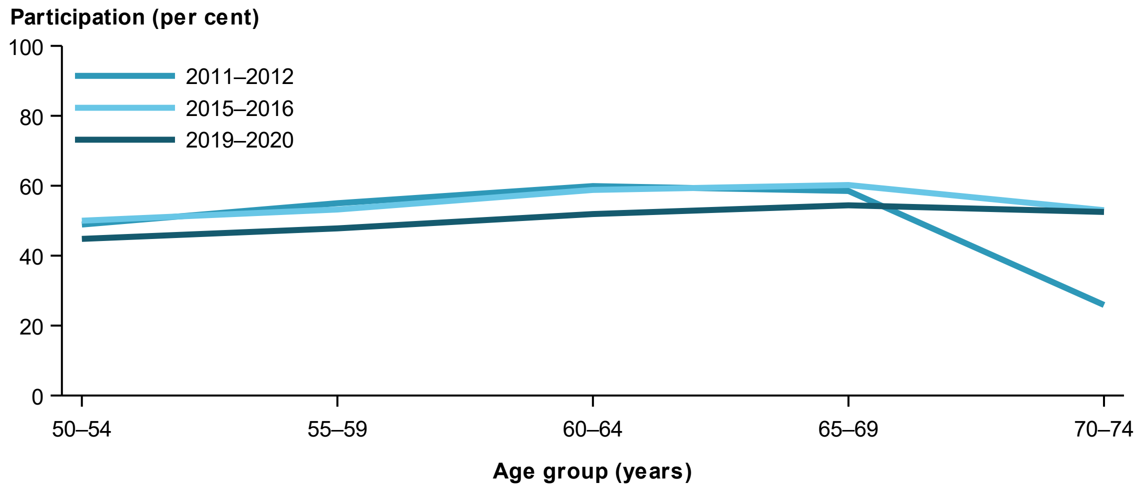
With the addition of women aged 70–74 to the target age group, the number of participants screening in this age group increased substantially, from 97,957 in 2011–2012 (the last reporting period for which the target age group was 50–69) to 289,865 in 2019–2020. This equated to a rise in the participation rate of participants aged 70–74, from 25.9% in 2011–2012 to 52.5% in 2019–2020 (Figure 3.1.3). At 52.5%, the participation rate of participants aged 70–74 is now higher than the participation rates of participants aged 50–64.

Figure 3.1.2: Participation in BreastScreen Australia by age group, 2019–2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A1.2.

Figure 3.1.3: Participation trends for participants aged 50–74, 2011–2012, 2015–2016 and 2019–2020



Source*:* AIHW analysis of BreastScreen Australia data.

State and territory

In 2019–2020, the age-standardised participation rate for participants aged 50–74 varied between the states and territories from 36.4% to 57.2% (Table A1.3).

Month

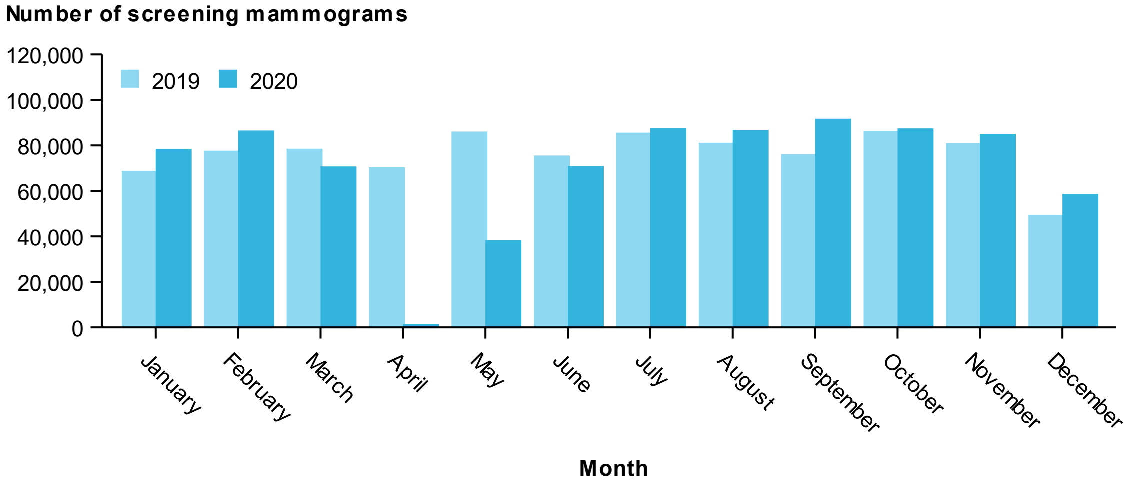
The number of screening mammograms performed through BreastScreen Australia each month in 2019 and 2020 is shown in Figure 3.1.4. In 2019, the number of screening mammograms performed was highest in May and lowest in December, tending to be lower in months with national holidays.

Due to the COVID-19 pandemic, BreastScreen Australia services were suspended nationwide from 25 March 2020. The suspension was lifted around a month later for most services, but a staged approach was introduced with longer appointment times and precautionary measures to ensure the safety of clients and staff. This is reflected in the number of screening mammograms performed in 2020, with only around a thousand performed in April 2020, remaining notably lower in May and June 2020 (Figure 3.1.4).

More information on the number of screening mammograms performed

Additional and more up-to-date data on the number of screening mammograms performed through BreastScreen Australia, from January 2014 to March 2022, can be found on the AIHW website at https://www.aihw.gov.au/reports/cancer-screening/national-cancer-screening-programs-participation/contents/summary

Figure 3.1.4: Number of screening mammograms performed through BreastScreen Australia, by month, participants aged 50–74, 2019 and 2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A1.4.

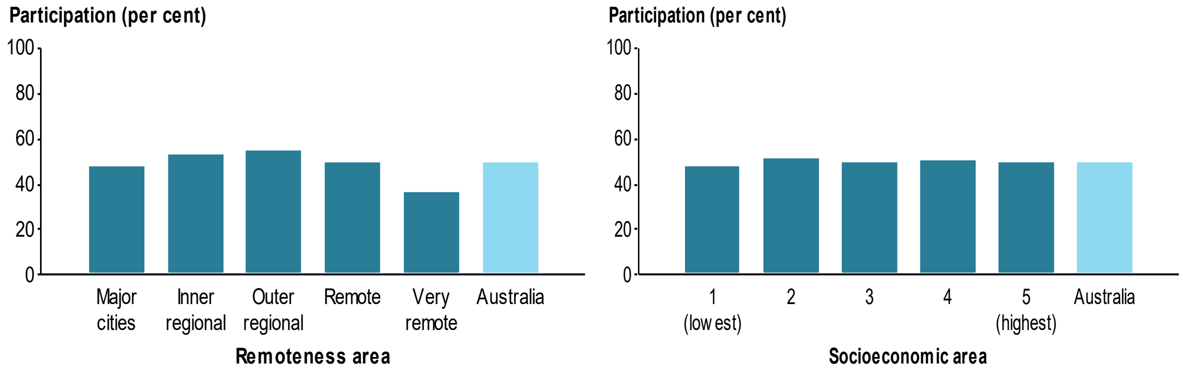
Remoteness area

In 2019–2020, the age-standardised participation rates for participants aged 50–74 were highest in *Outer regional* and *Inner regional* areas at 54.7% and 52.7%, respectively, followed by participants living in *Remote areas and Major cities* at 49.2% and 47.7%, respectively (Figure 3.1.5). The participation rate was lowest for participants living in *Very remote* areas at 35.9%.

Socioeconomic area

In 2019–2020, there was little variation in participation for participants aged 50–74 across socioeconomic areas, with all areas having an age-standardised participation rate between 47.5% and 50.9% (Figure 3.1.5).

Figure 3.1.5: Participation of participants aged 50–74 in BreastScreen Australia, by remoteness area, and by socioeconomic area, 2019–2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in tables A1.5 and A1.6

Main language spoken at home

In 2019–2020, the age-standardised participation rate for participants aged 50–74 who spoke a language other than English at home was 40.2%, compared with 51.5% for participants who spoke English at home (Table A1.7).

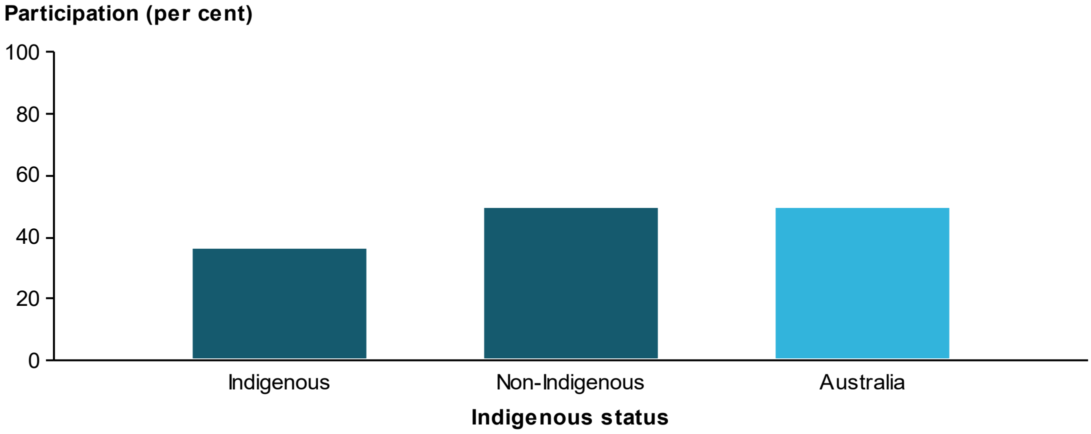
Indigenous Australians

In 2019–2020, a total of 30,488 Indigenous participants aged 40 and over participated in BreastScreen Australia. Of these, 24,918 (81.7%) were aged 50–74, which equates to a crude participation rate of 35.5% (Table A1.8).

In 2019–2020, the age-standardised participation rate of Indigenous participants aged 50–74 in BreastScreen Australia was 35.8%, compared with the non-Indigenous participation rate of 49.5% (Figure 3.1.6).

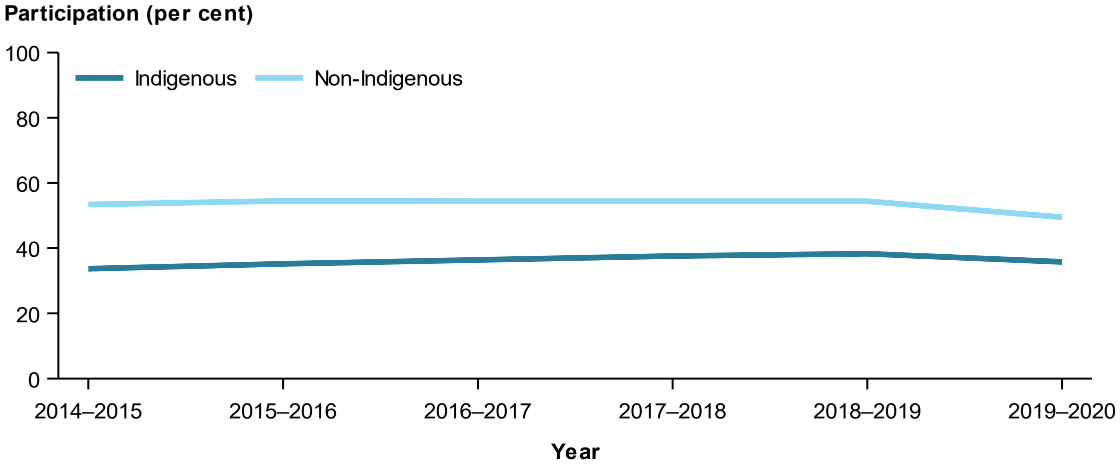
The crude participation rate of Indigenous participants aged 50–74 increased from 33.3% in 2014–2015 to 35.5% in 2019–2020—although Indigenous participants have always had a lower participation rate than non-Indigenous participants (Figure 3.1.7). The lower participation rate of Indigenous participants may reflect a decreased opportunity to screen compared with non-Indigenous participants. There may also be a level of under-reporting of Indigenous status in BreastScreen data (as Indigenous status is self-reported by participants at the time of their screen), which would also have the effect of lowering the participation rate.

Figure 3.1.6: Participation of participants aged 50–74 in BreastScreen Australia, by Indigenous status, 2019–2020



Source*:* AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A1.8.

Figure 3.1.7: Participation of participants aged 50–74 in BreastScreen Australia, by Indigenous status, 2014–2015 to 2019–2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A1.9.

BreastScreen Australia and National Accreditation Standards (NAS) Measures

Box 3.1.3: BreastScreen Australia and National Accreditation Standards

The provision of a high-quality service is of great importance to BreastScreen Australia. For this reason, services accredited under BreastScreen Australia are expected to operate according to the National Accreditation Standards (NAS) Measures of BreastScreen Australia, along with national policy features and protocols. The accreditation system, of which the NAS Measures are an integral part, intends to drive continuous quality improvement in the delivery of breast screening services, to ensure women receive safe, effective and high-quality care.

The BreastScreen Australia NAS Measures have been developed to ensure that all women receive breast screening services of a consistently high quality, regardless of where they attend for screening or assessment.

A number of NAS Measures are consistent with the performance indicators in this report and, where appropriate, the data in this report are benchmarked against these Measures. These benchmarks are useful in interpreting the data presented, although in considering how these national data compare with the NAS Measures, it should be noted that the NAS Measures were not designed to be used as standards for the BreastScreen Australia performance indicators.

National Accreditation Standard (NAS) Measures related to participation

Access to BreastScreen services—especially for women from Indigenous, culturally and linguistically diverse, rural/remote, and lower socioeconomic backgrounds—is a national policy feature of BreastScreen Australia, which has developed National Accreditation Standards (NAS) Measures to ensure that this policy feature is met by services accredited through BreastScreen Australia.

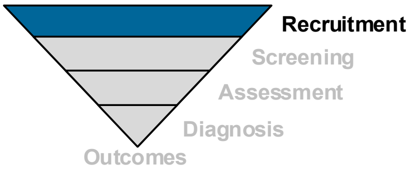
These NAS Measures (along with other NAS Measures related to access and participation in BreastScreen Australia) underpin BreastScreen Australia’s aim to maximise the proportion of women in the target population who are screened every 2 years.

Table 3.1.1 shows the NAS Measures related to participation. While NAS Measures for women aged 50–74 do not yet have a target, BreastScreen Australia aims to maximise the participation of women in the target age groups for screening.

Table 3.1.1: NAS Measures for participation calculated using BreastScreen Australia data supplied for the *BreastScreen Australia monitoring report 2022*

NAS Measure		Value (crude rate)
NAS Measure 1.1.1(a)	The Service and/or SCU monitors and reports the participation rate of women aged 50–74 years who participate in screening in the most recent 24-month period.	49.9%
NAS Measure 1.2.1(a)	The Service and/or SCU monitors and reports participation of women aged 50–74 years from special groups and where rates are below that of the overall population, implements specific strategies to encourage their participation in screening. Consideration of equitable participation rates of at least the following groups is made: women from Indigenous, culturally and linguistically diverse, rural/remote and lower socioeconomic backgrounds.	
	Indigenous	35.5%
	Non-English-speaking	40.6%
	Remote/Very remote	49.5%/36.0%
	SES group (lowest)	48.4%
NAS Measure 1.2.2(a)	The Service and/or SCU monitors the proportion of all women screened aged 40–49 years and 75 years and over.	
	40–49	12.2%
	75+	6.9%

Source: AIHW analysis of BreastScreen Australia data.



Performance indicator 2: Rescreening

Summary

- The proportion of participants aged 50–72 who screened in 2018 and rescreened within 27 months was 44.0% after the first screening round, 52.3% after the second screening round, and 68.4% after the third and subsequent screening rounds.
- In 2018, regardless of the screening round, the highest rescreen rates were for participants aged 50–72, followed by participants aged 40–49. Participants aged 75 and over had the lowest rescreen rate.

Definition

The proportion of participants aged 50–72 screened in a given year whose screening outcome was a recommendation to return for screening in 2 years and who returned for a screen within 27 months.

Rationale

A high rescreen rate is important to increase the likelihood of breast cancers being detected early and to maintain overall participation.

Guide to interpretation

The screening interval of 27 months is used instead of the recommended screening interval of 2 years to allow for potential delays in screening availability and data transfer.

Note that although the BreastScreen Australia target age group is 50–74, only participants aged 50–72 are reported for the rescreen rate because participants aged 73–74 at the time of their screen would be outside the target age group of 50–74 when they are due for their rescreen.

The most recent rescreening data are for participants screened in the index year 2018. This small lag in data availability is due to the fact that 27 months needs to have passed since a participant’s last screen to know whether or not she has rescreened within this interval.

A higher rescreening rate is better.

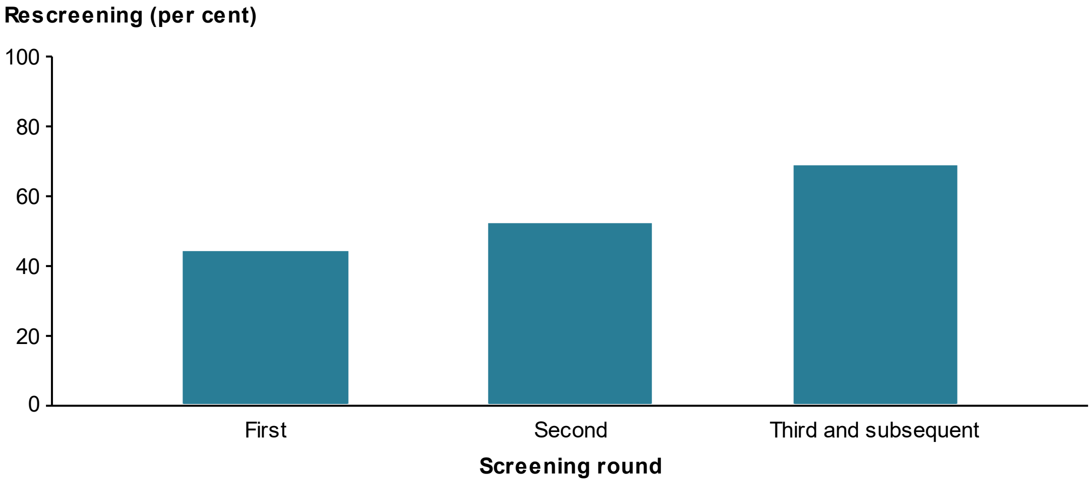
More information on rescreening

The rescreening indicator measures the proportion of participants who return for screening at a BreastScreen service within the recommended screening interval. The interval between the screens is an important factor influencing the level of cancer detection. BreastScreen Australia national policy states that women should be screened every 2 years. It has been shown that screening intervals longer than 2 years reduce mortality benefits from screening and result in an increase in interval cancers (BreastScreen Australia 2004). This is because increased time between screening may allow a tumour to grow to the point where symptoms become evident, thus eliminating the advantage of screening.

Results

The proportion of participants aged 50–72 who screened in 2018 and rescreened within 27 months was 44.0% after the first screening round (that is, a participant's first screen with BreastScreen Australia), 52.3% after the second screening round, and 68.4% after the third and subsequent screening rounds (Figure 3.2.1). This indicates that the proportion of participants aged 50–72 who return for a rescreen within 27 months increases with the number of screens previously attended.

Figure 3.2.1: Rescreening by screening round, participants aged 50–72 screened during 2018



Note: Crude rates are the number of participants rescreening within 27 months as a percentage of participants screened.

Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A2.3.

Trend

Between 2014 and 2018 rescreening for participants aged 50–72 for the first screening round varied between 44.2% and 60.9% (Table A2.1). Over the same period the rescreening rate for the second screening round varied between 51.3% and 70.1%. The rescreen rate for the third and subsequent screening rounds ranged between 68.1% and 85.0%.

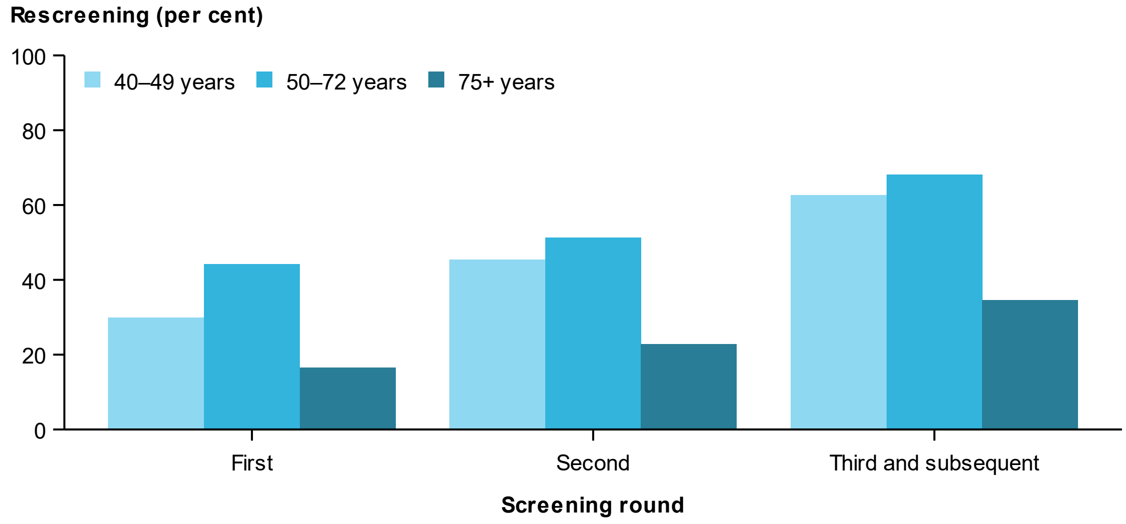
Age

In 2018, regardless of the screening round, the highest rescreen rate was for participants aged 50–72, followed by participants aged 40–49 (Figure 3.2.2). Participants aged 75 and over had the lowest rescreen rate.

State and territory

In 2018, although there was some variation, all states and territories followed the national trend of increasing rescreen rates with increased number of screens previously attended (Table A2.3).

Figure 3.2.2: Rescreening by screening round, participants aged 40–49, 50–72 and 75+, screened in 2018



Note: Rates are the number of participants rescreening within 27 months as a percentage of participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A2.2.

National Accreditation Standard (NAS) Measures related to rescreening

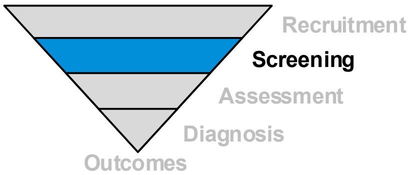
Table 3.2.1 shows the NAS Measures related to rescreening. While NAS Measures for women aged 50–74 do not yet have a target, BreastScreen Australia aims to maximise the participation of women in the target age groups for rescreening.

See Box 3.1.3 for information on the National Accreditation Standards.

Table 3.2.1: NAS Measures for rescreening calculated using BreastScreen Australia data supplied for the *BreastScreen Australia monitoring report 2022*

NAS Measure		Value (crude rate)
NAS Measure 1.1.2(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–72 years who attend for their first screening episode within the Program and who are rescreened within 27 months.	44.0% first
NAS Measure 1.1.3(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–72 years who attend for their second and subsequent screen within the Program who are rescreened within 27 months of their previous screening episode.	52.3% second 68.4% subsequent

Source: AIHW analysis of BreastScreen Australia data.



Screening

Performance indicator 3: Recall to assessment

Summary

In 2020, the crude recall to assessment rate for participants aged 50–74 was higher in the first screening round at 11.4% than in subsequent screening rounds at 3.8%.

Definition

The proportion of participants aged 50–74 screened in a given year who are recalled for assessment.

Rationale

Participants are recalled to assessment for further investigation if their screening mammogram is found to be suspicious for breast cancer. BreastScreen Australia aims to maximise the number of cancers detected while minimising the number of unnecessary investigations.

Guide to interpretation

Recall to assessment is disaggregated into first and subsequent screening rounds because a participant is more likely to be recalled to assessment the first time she visits a BreastScreen service than at subsequent visits. This is for 2 reasons: first, a participant is more likely to have an invasive breast cancer detected on her first visit; and, second, with no previous images against which to compare the images from her first screening mammography, it is more difficult to distinguish between what is normal and what might be suspicious (BreastScreen WA 2008).

Changes to recall to assessment rates should be considered alongside corresponding invasive cancer detection rates, as a higher recall to assessment rate may be considered acceptable if it leads to higher breast cancer detection rates.

The most recent recall to assessment data are for participants screened in 2020.

More information on recall to assessment

A participant is recalled to assessment for mammographic reasons because her screening mammography images are found to be suspicious for breast cancer.

Assessment of participants recalled involves further investigation at the assessment centre. This may include palpation, diagnostic mammography, ultrasound and, if required, a percutaneous biopsy (core biopsy of breast tissue for histological assessment or fine needle aspiration for cytological assessment).

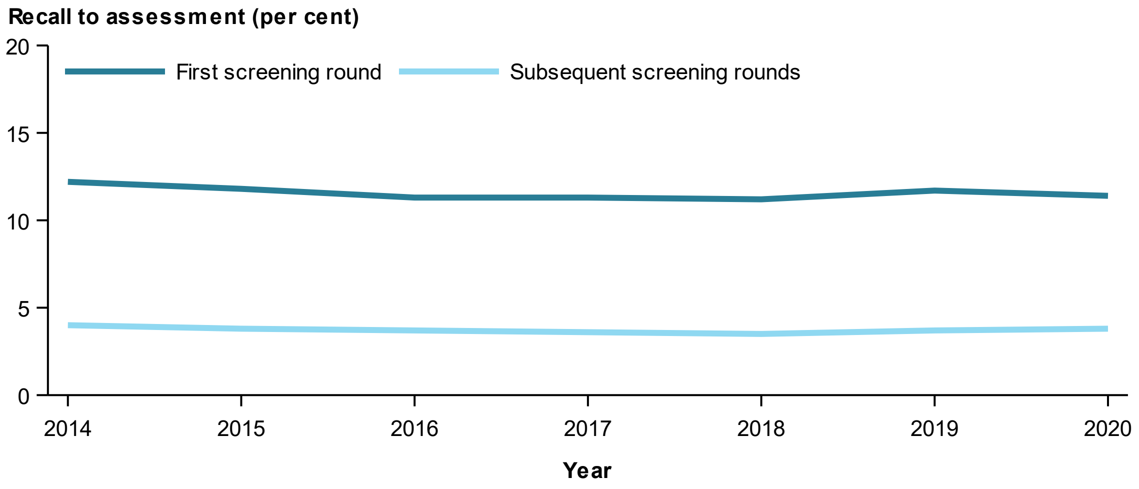
Results

In 2020, the recall to assessment rate for participants aged 50–74 was higher in the first screening round than in subsequent screening rounds. Of the 65,073 participants aged 50–74 who attended their first screening round, 7,416 were recalled to assessment, which equates to a crude rate of 11.4% (Table A3.1). Of the 773,505 participants aged 50–74 who attended subsequent screening rounds, 29,745 were recalled to assessment, which equates to a crude rate of 3.8%.

Trends

Between 2014 and 2020 the recall to assessment rate for participants aged 50–74 for the first screening round varied between 11.2% and 12.2% (Figure 3.3.1). Over the same period, the recall to assessment rate for subsequent screening rounds ranged between 3.5% and 4.0%.

Figure 3.3.1: Recall to assessment, participants aged 50–74, first and subsequent screening rounds, 2014 to 2020



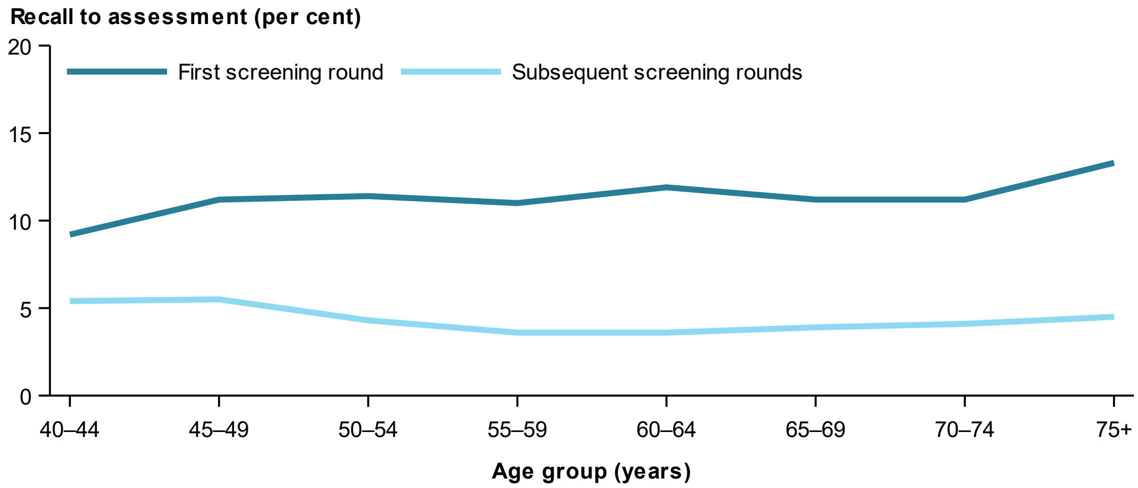
Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A3.1.

Age

In 2020, the proportion of participants attending their first screen who were recalled to assessment for further investigation was between 11.0% and 13.3% for all age groups 45 years and over; participants aged 40–44 had a lower recall rate of 9.2% (Figure 3.3.2).

This pattern differed for participants attending subsequent screens; the proportion recalled to assessment was highest for participants aged 40–44 and 45–49 at 5.4% and 5.5%, followed by participants aged 50–54 and 75 and over at 4.3% and 4.5%. Participants aged 55–74 were least likely to be recalled after a subsequent screen, with recall rates ranging between 3.6% and 4.1% (Figure 3.3.2).

Figure 3.3.2: Recall to assessment, by age group, first and subsequent screening rounds, 2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A3.2.

State and territory

In 2020, the recall to assessment rates for participants aged 50–74 attending their first screen varied across the states and territories, from 9.6% to 14.3% (Table A3.3). The corresponding rates for participants aged 50–74 attending subsequent screens varied from 3.2% to 5.1%.

National Accreditation Standard (NAS) Measures related to recall to assessment

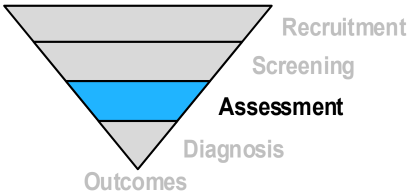
Table 3.3.1 shows the NAS Measures related to recall to assessment. While NAS Measures for women aged 50–74 do not yet have a target, BreastScreen Australia aims to minimise the number of women who are recalled when they do not have breast cancer (false positives).

See Box 3.1.3 for information on the National Accreditation Standards.

Table 3.3.1: NAS Measures for recall to assessment calculated using BreastScreen Australia data supplied for the *BreastScreen Australia monitoring report 2022*

NAS Measure		Value (crude rate)
NAS Measure 1.2.2(b)	The Service and/or SCU monitors the proportion of all women recalled for assessment aged 40–49 years and 75 years and over.	
	40–49	5.5% to 10.1%
	75+	4.5% to 13.3%
NAS Measure 2.6.3(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their first screening episode and are recalled for assessment.	11.4%
NAS Measure 2.6.4(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their second or subsequent screening episode and are recalled for assessment.	3.8%

Source: AIHW analysis of BreastScreen Australia data.



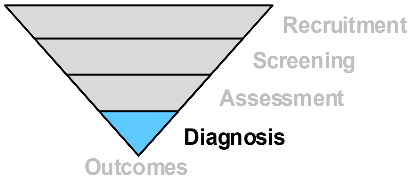
Assessment

There are no performance indicators to report for assessment.

The majority of participants who participate in BreastScreen Australia experience only the screening test, as nothing suspicious is seen on the screening mammogram. However, a subset of participants are recalled for further investigation.

Assessment can include:

- physical examination including palpation (assessment by touch)
- diagnostic mammography—detailed x-rays that use specialised techniques to investigate symptoms or signs
- ultrasound—this diagnostic method is based on the reflection of ultrasonic sound waves to generate a picture of the breast tissue
- percutaneous biopsy—a small sample of tissue that is taken from the suspicious area for testing. May consist of core biopsy of breast tissue for histological assessment or fine needle aspiration for cytological assessment.



Diagnosis

Performance indicator 4: Invasive breast cancer detection

Summary

- 5,694 participants had an invasive breast cancer detected through BreastScreen Australia in 2020, of whom 4,978 (87.4%) were aged 50–74.
- 2,972 participants aged 50–74 had a small (≤15 mm) invasive breast cancer detected through BreastScreen Australia.
- 59.7% of all invasive breast cancers in participants aged 50–74 were small (≤15 mm).

Definition

The number of participants aged 50–74 with invasive breast cancer detected through BreastScreen Australia per 10,000 participants screened. The rate is reported for breast cancers of all sizes, as well as for a subset of breast cancers that are small, having a diameter less than or equal to 15 mm (≤15 mm).

Rationale

The aim of BreastScreen Australia is to reduce morbidity and mortality from breast cancer. This can be achieved by detecting cases of unsuspected breast cancer before women have symptoms, enabling early intervention. BreastScreen Australia aims to maximise the detection of invasive breast cancers, particularly small cancers, to achieve the desired reductions in morbidity and mortality.

Guide to interpretation

Detection of invasive breast cancers is disaggregated into first and subsequent screening rounds because a participant is more likely to have a breast cancer detected the first time she visits a BreastScreen service than in subsequent visits. This is because a participant's first visit detects prevalent cancers that may have been present for some time rather than incident cancers that have grown between screens (Kavanagh et al. 1999). Detection of small invasive breast cancers is presented for all screening rounds combined.

The most recent breast cancer detection data are for participants screened in 2020.

Results

In 2020, 5,694 participants had an invasive breast cancer detected through BreastScreen Australia. Of these participants, 4,978 (87.4%) were aged 50–74 (Table A4.5).

Among the 4,978 participants aged 50–74 who had an invasive breast cancer detected in 2020, 571 were attending their first screen (equivalent to 87.7 participants diagnosed per 10,000 participants screened), and 4,407 were attending a subsequent screen (equivalent to 57.0 participants diagnosed per 10,000 participants screened) (Table A4.5).

In 2020, of the 4,978 participants aged 50–74 who had an invasive breast cancer detected through BreastScreen Australia, 2,972 had a small (≤15 mm) cancer diagnosed. This equates to 35.4 per 10,000 participants screened (Table A4.5).

In 2020, 59.7%, of all invasive breast cancers detected in participants aged 50–74 were small (≤15 mm) (Table A4.4).

The majority of participants who participate in BreastScreen Australia experience only the screening test. In 2020, of the 65,073 participants aged 50–74 who screened for the first time, 7,416 (11.4%) were recalled for further assessment. Of the 773,505 participants attending subsequent screens, 29,745 (3.8%) were recalled (Table 3.4.1).

Most of the participants recalled to assessment did not have an invasive breast cancer detected. Of the 7,416 participants recalled to assessment after a first screen, 571 (7.7%) had an invasive breast cancer detected; of the 29,745 participants recalled to assessment after a subsequent screen, 4,407 (14.8%) had an invasive breast cancer detected (Table 3.4.1).

This means that in 2020, of the 65,073 participants aged 50–74 screened for the first time, 0.9% had an invasive breast cancer detected, and of the 773,505 participants attending subsequent screens, 0.6% had an invasive breast cancer detected through BreastScreen Australia (Table 3.4.1).

Table 3.4.1: Number of participants aged 50–74 who had an invasive breast cancer detected, first and subsequent screening rounds, 2020

	Number	% of participants screened	% of participants recalled to assessment
Screened			
First screening round	65,073	. .	. .
Subsequent screening rounds	773,505	. .	. .
Recalled to assessment			
First screening round	7,416	11.4	. .
Subsequent screening rounds	29,745	3.8	. .
Invasive breast cancer detected			
First screening round	571	0.9	7.7
Subsequent screening rounds	4,407	0.6	14.8

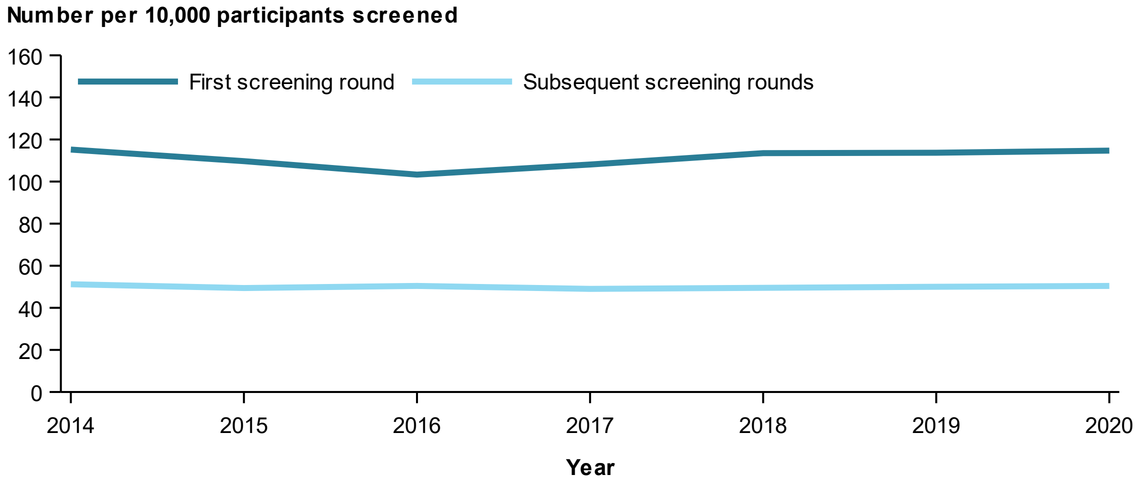
Source: AIHW analysis of BreastScreen Australia data.

Trends

Between 2014 and 2020, the age-standardised invasive breast cancer detection rate for participants aged 50–74 for their first screening round ranged between 103.3 and 115.2 participants with an invasive breast cancer detected per 10,000 participants screened (Figure 3.4.1).

Over the same period, the equivalent rate for subsequent screening rounds for participants aged 50–74 was more stable and ranged between 49.0 and 51.2 participants with an invasive breast cancer detected per 10,000 participants screened (Figure 3.4.1).

Figure 3.4.1: Invasive breast cancer detection (all sizes), participants aged 50–74, first and subsequent screening rounds, 2014 to 2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A4.1.

Small cancers

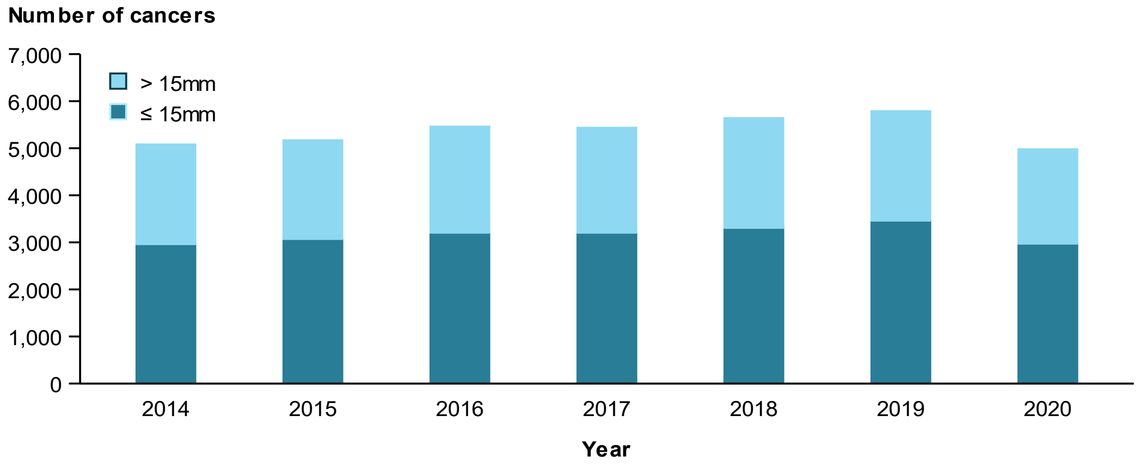
In 2020, for every 10,000 participants aged 50–74 screened through BreastScreen Australia, 35.4 had a small (≤15 mm) invasive breast cancer detected (Table A4.5). As a proportion of all invasive breast cancers detected through BreastScreen Australia in participants aged 50–74, 45.4% were small in participants attending their first screen and 61.6% in participants attending subsequent screens. For all screening rounds combined, 59.7% of all breast cancers detected were small.

A participant is more likely to be diagnosed with a small cancer in subsequent screening visits than at her first visit, since her first screening mammogram detects prevalent cancers that might have been present for some time, whereas subsequent screens detect incident cancers that have grown between screens (Kavanagh et al. 1999). Because they have had less time to grow, incident cancers are more likely to be small. In contrast, invasive breast cancers detected at a first screen are less likely to be small because they are prevalent cancers that have had more time to grow.

Between 2014 and 2020 the proportion of small breast cancers detected for participants aged 50–74 varied between 58.3% and 59.8% (Figure 3.4.2). Of note, more than half of all invasive breast cancers detected through BreastScreen Australia are small. The high proportion of small breast cancers is a positive outcome, because small breast cancers tend to be associated with increased treatment options (NBOCC 2009) and improved survival (AIHW & NBCC 2007). Invasive breast cancers detected outside BreastScreen Australia are less likely to be small, with only 28% measuring ≤15 mm (AIHW 2018).

In 2020, the proportion of invasive breast cancers that were small was lower in younger age groups, comprising 51.0% of cancers detected for participants aged 40–49, compared with 59.7% for participants aged 50–74 and 56.7% for participants aged 75 and over (Table A4.3). The lower proportion of small invasive cancers in young women may be related to greater breast density in younger women, which makes small invasive breast cancers difficult to visualise with screening mammography (Irwig et al. 1997).

Figure 3.4.2: Number of invasive breast cancers, showing the proportion of small (≤15 mm) to other sizes (>15 mm), detected in participants aged 50–74, all screening rounds, 2014 to 2020



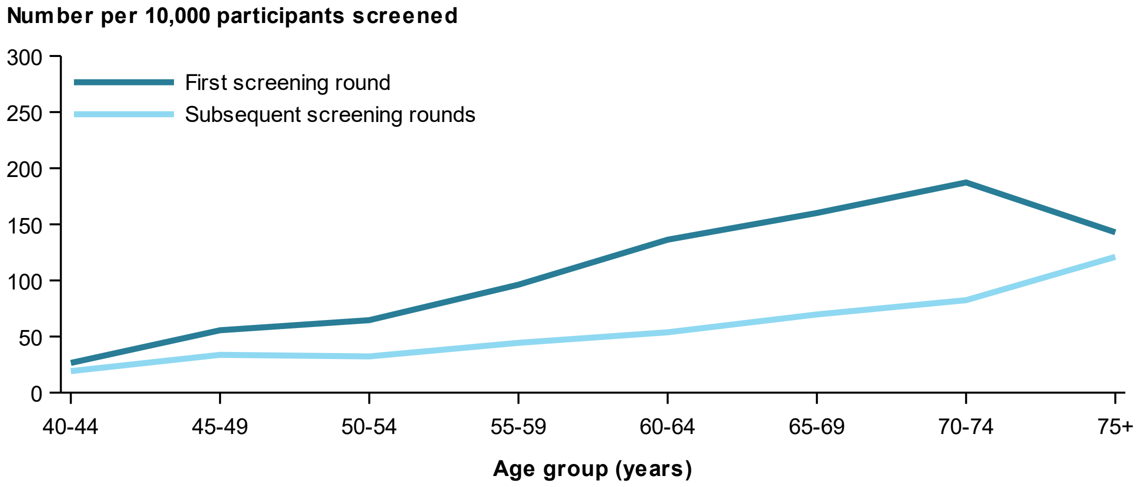
Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A4.4

Age

In 2020, breast cancer detection rates increased with age. For the subsequent rounds the increase was from 19 per 10,000 participants screened for those aged 40–44, to 82 per 10,000 participants screened for those aged 70–74 (Figure 3.4.3). Breast cancer detection rates were highest for participants aged 75 and over, with 121 participants with invasive breast cancer detected through BreastScreen Australia for every 10,000 participants screened.

Over the same period the cancer detection rates for the first screening round increased to 187 per 10,000 participants screened for participants 70–74 and decreased to 143 per 10,000 participants screened for participants aged 75 and over (Figure 3.4.3).

Figure 3.4.3: Invasive breast cancer detection by age group and screening rounds, 2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A4.3.

State and territory

In 2020, the breast cancer detection rate for participants aged 50–74 varied across states and territories for participants attending both their first screening round and subsequent screening rounds (Table A4.5).

National Accreditation Standard (NAS) Measures related to invasive breast cancer detection

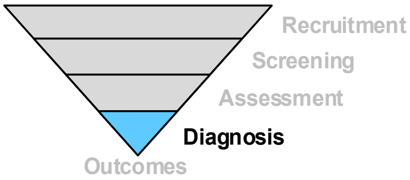
Table 3.4.2 shows the NAS Measures related to invasive breast cancer detection. While NAS Measures for women aged 50–74 do not yet have a target, BreastScreen Australia aims to maximise invasive breast cancer detection.

See Box 3.1.3 for information on the National Accreditation Standards.

Table 3.4.2: NAS Measures for invasive breast cancer detection calculated using BreastScreen Australia data supplied for the *BreastScreen Australia report 2022*

NAS Measure		Value (crude rate)
NAS Measure 2.1.1(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their first screening episode who are diagnosed with invasive breast cancer.	87.7
NAS Measure 2.1.2(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their second or subsequent screening episode who are diagnosed with invasive breast cancer.	57.0
NAS Measure 2.1.3(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their first screening episode who are diagnosed with small (≤15mm) invasive breast cancer.	39.8
NAS Measure 2.1.3(b)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their second or subsequent screening episode who are diagnosed with small (≤15mm) invasive breast cancer.	35.1

Source: AIHW analysis of BreastScreen Australia data.



Performance indicator 5: Ductal carcinoma in situ (DCIS) detection

Summary

- 1,489 participants had DCIS detected through BreastScreen Australia in 2020, of whom 1,307 (87.8%) were aged 50–74.
- In 2020, the DCIS detection rate for participants aged 50–74 was higher in the first screening round at 26.0 per 10,000 participants screened than in subsequent screening rounds at 14.7 per 10,000 participants screened.

Definition

The number of participants aged 50–74 with DCIS detected through BreastScreen Australia per 10,000 participants screened.

Rationale

Women with DCIS are at an increased risk of later developing invasive breast cancer (AIHW 2010; IARC 2002). As it is not currently possible to predict which DCIS cases might progress to invasive breast cancer, they are treated similarly to invasive breast cancer. Further, given the increased risk of invasive breast cancer after a diagnosis of DCIS—and that the detection and subsequent treatment of high-grade DCIS is likely to prevent deaths from invasive breast cancer (Eusebi et al. 1994)—BreastScreen Australia aims to maximise the detection of DCIS, as for invasive breast cancer.

Guide to interpretation

DCIS is disaggregated into first and subsequent screening rounds because a participant is more likely to have DCIS diagnosed at her first screen than subsequent screens, since her first visit detects prevalent cases, not just incident cases.

To produce stable, comparable rates from the relatively small number of DCIS cases, detection of DCIS is reported by 10-year age groups and, when disaggregated by state and territory, is presented for all screening rounds combined.

The most recent DCIS data are for participants screened in 2020.

More information on DCIS

DCIS is a non-invasive tumour that arises from the lining of the ducts that carry milk from the milk-producing lobules to the nipple. The changes to the cells lining the milk ducts seen in DCIS are similar to those in invasive breast cancer, but unlike invasive breast cancer, DCIS does not invade the surrounding breast tissue; instead, it is contained entirely within the milk duct.

Women with DCIS are at an increased risk of later developing invasive breast cancer (AIHW 2010; IARC 2002). BreastScreen Australia aims to maximise the detection of DCIS.

Results

In 2020, 1,489 participants had DCIS detected through BreastScreen Australia, of whom 1,307 (87.8%) were aged 50–74 (Table A5.3).

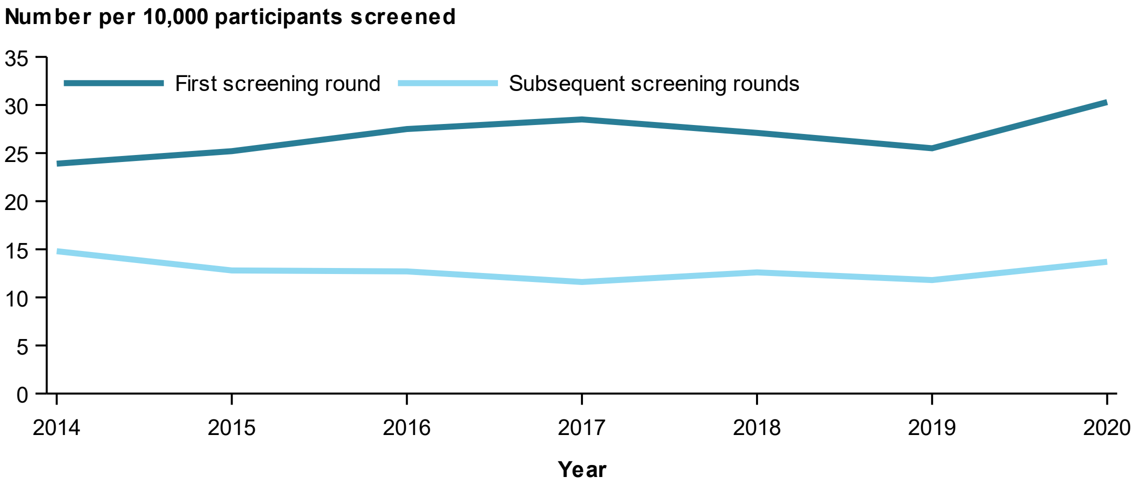
Of these 1,307 participants, 169 were attending their first screen, equivalent to 26.0 participants diagnosed per 10,000 participants screened and 1,138 were attending a subsequent screen, equivalent to 14.7 participants diagnosed per 10,000 (Table A5.1).

Trends

Between 2014 and 2020, the age-standardised DCIS detection rate for participants aged 50–74 for their first screening round varied between 23.9 and 30.3 participants with DCIS detected per 10,000 participants screened (Figure 3.5.1).

Over the same period the age-standardised DCIS detection rate for participants aged 50–74 for subsequent screening rounds varied between 11.6 and 14.8 per 10,000 participants screened (Figure 3.5.1).

Figure 3.5.1: DCIS detection, participants aged 50–74, first and subsequent screening rounds, 2014 to 2020



Source: AIHW analysis of BreastScreen Australia data. Data for this figure are available in Table A5.1.

Age

Similar to invasive breast cancer detection rates, DCIS detection rates increased with age.

In 2020, the DCIS detection rate for all screening rounds per 10,000 participants screened was 13.4 participants with DCIS detected through BreastScreen Australia for those aged 40–49, increasing to 19.0 for those aged 70–74 (Table A5.2).

State and territory

In 2020, the DCIS age-standardised detection rate for participants aged 50–74 for all screening rounds varied between the states and territories, from 12.5 to 23.9 per 10,000 participants screened (Table A5.3).

National Accreditation Standard (NAS) Measures related to DCIS detection

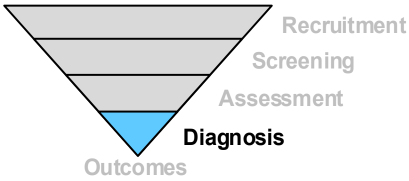
Table 3.5.1 shows the NAS Measures related to DCIS detection. While NAS Measures for women aged 50–74 do not yet have a target, BreastScreen Australia aims to maximise the DCIS detection.

See Box 3.1.3 for information on the National Accreditation Standards.

Table 3.5.1: NAS Measures for DCIS detection calculated using BreastScreen Australia data supplied for the *BreastScreen Australia monitoring report 2022*

NAS Measure		Value (crude rate)
NAS Measure 2.2.1(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their first screening episode who are diagnosed with DCIS.	26.0
NAS Measure 2.2.2(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for their second or subsequent screening episode who are diagnosed with DCIS.	14.7

Source: AIHW analysis of BreastScreen Australia data.



Performance indicator 6a: Interval cancers

Summary

For the index years 2015, 2016 and 2017, for participants aged 50–74, the interval cancer rates for both first and subsequent screening rounds were higher in the second year (13–24 months) after a negative screening episode than in the first year (0–12 months).

Definition

The number of invasive breast cancers detected in participants aged 50–74 screened through BreastScreen Australia that arise during an interval between 2 screening rounds, per 10,000 participants.

Rationale

The ability of screening mammography to successfully detect invasive breast cancer in women in the target age group can be assessed by considering the relative number of:

(a) invasive breast cancers detected at a screening episode
(b) invasive breast cancers diagnosed 0–12 months after a screening episode detected no cancer
(c) invasive breast cancers diagnosed 13–24 months after a screening episode detected no cancer.

The goal of BreastScreen Australia is to have a high proportion of invasive breast cancers detected within screening episodes and a low proportion diagnosed after a screening episode detected no cancer (interval cancers).

Guide to interpretation

Interval cancer rates are disaggregated into time since screening (0–12 months, 13–24 months and 0–24 months) and screening round (first and subsequent).

To produce comparable rates from the relatively small number of cases, interval cancer rates are reported by 10-year age groups and aggregated over 3 years.

The latest data for interval cancers are for participants screened in 2015, 2016 and 2017 (referred to as index years 2015–2017). These are the latest data available because at least 2 years need to have passed since a participant’s last routine screening mammogram in order to know whether she was diagnosed with an interval cancer in that time—often longer due to time required for cancer registries to be notified of the cancer, and for linkage between the BreastScreen registers and cancer registers to occur.

More information on interval cancers

Interval cancers are invasive breast cancers that are diagnosed after a screening episode that detected no cancer and before the next scheduled screening episode (Kavanagh at al. 1999). For most participants, the next screening episode will occur around 24 months after her previous negative screening episode, as the recommended screening interval for most participants in BreastScreen Australia is 24 months. The exception to this is participants on annual screens, for whom the next screening episode will occur around 12 months after her previous negative screening episode.

An interval cancer may be:

(a) an aggressive breast cancer that emerges and grows very rapidly in the period between screening episodes
(b) a breast cancer that, due to the characteristics of the cancer or the breast tissue, is not visible on screening mammography and therefore not able to be detected
(c) a breast cancer that can be retrospectively detected on the previous screening mammogram.

The first two types of interval cancer described above are true interval cancers, and therefore do not represent any failure in detection; the third represents a failure of the screening process. Through the BreastScreen accreditation process, state and territory BreastScreen programs are required to audit interval cancers. All interval cancers in all state and territory BreastScreen Programs undergo clinical review. On investigation, more than 80% are found to be true interval cancers (AIHW 2019).

Interval cancers may be detected outside BreastScreen Australia or through BreastScreen Australia, depending on the policies for screening symptomatic women in each state and territory that can affect interval cancer detection rates.

Box 3.6.1: Different policies across state and territory BreastScreen programs affects interval cancer detection rates

Differences in state and territory policies for managing women with symptoms may affect interval cancer rates. For example, in some jurisdictions, women with a negative screening mammogram but who have symptoms are referred for diagnostic follow-up outside BreastScreen Australia, rather than being recalled for assessment within BreastScreen Australia. Any cancers found in these women will be counted as ‘interval cancers’, leading to a higher apparent interval cancer rate. On the other hand, jurisdictions that do recall women to assessment if they have symptoms (even in the face of a negative screening mammogram) may have lower apparent interval cancer rates. These differing practices and policies affect the comparability of this indicator across jurisdictions.

Results

The latest data for interval cancers are for participants screened in 2015, 2016 and 2017 (referred to as index years 2015–2017). These are the latest data available because at least 2 years need to have passed since a participant’s last routine screening mammogram in order to know whether she was diagnosed with an interval cancer in that time—often longer due to time required for cancer registries to be notified of the cancer, and for linkage between the BreastScreen registers and cancer registers to occur.

For the index years 2015–2017, for participants aged 50–74, the interval cancer rates for both first and subsequent screening rounds were higher in the 13–24 months after a negative screening episode than in the 0–12 months after a negative screening episode (Tables A6.1 and A6.2).

For the index years 2015–2017, for participants aged 50–74, in the 0–12 months after a participant’s first negative screening episode, there were 7.1 interval cancers per 10,000 participants. In the 0–12 months after a subsequent screening episode, there were 6.3 interval cancers per 10,000 participants (Table 3.6.1).

For participants aged 50–74, in the 13–24 months after a participant's first negative screening episode, there were 10.2 interval cancers per 10,000 participants. In the 13–24 months after a subsequent screening episode, there were 12.4 interval cancers per 10,000 participants (Table 3.6.1).

For the index years 2015–2017, there were no appreciable differences in the interval cancer rate between the first and subsequent screening rounds for either 0–12 months or 13–24 months after a negative screening episode (apparent differences are considered not statistically significant due to overlapping confidence intervals). This indicates that the likelihood of participants being diagnosed with an interval cancer is similar between the first and subsequent screening rounds for 0–12 months or 13–24 months after a negative screening episode (Table 3.6.1).

Table 3.6.1: Interval cancer rate, by time since screen, participants aged 50–74 screened in 2015–2017

	Time since screen		
	0–12 months	**13–24 months**	**0–24 months**
First screening round			
Number	178	247	425
Crude rate	7.1	10.2	8.6
AS rate	7.4	10.8	9.1
95% CI	6.1–8.9	9.2–12.6	8.0–10.2
Subsequent screening rounds			
Number	1,559	2,827	4,386
Crude rate	6.3	12.4	9.2
AS rate	6.3	12.1	9.1
95% CI	6.0–6.7	11.6–12.5	8.8–9.4

Notes

1. 'Crude rate' is the number of interval cancers detected per 10,000 person-years; 'age-standardised (AS) rate' is the number of interval cancers detected per 10,000 person-years, age-standardised to the population of participants attending a BreastScreen Australia service in 2008; 95% CI are 95% confidence intervals.
2. For confidence intervals, see Box A1.

Source: AIHW analysis of BreastScreen Australia data.

Age

For the index years 2015–2017, in the 0–12 months after a negative screening episode, the interval cancer rates for all screening rounds were lower for participants aged 50–74, and higher for participants outside these age groups (Table 3.6.2). In the 13–24 months after a negative screening round, the interval cancer rates were lower for participants aged 40–49 and 50–59, and higher for participants outside these age groups.

Table 3.6.2: Interval cancer rate, all screening rounds, by age group, participants screened in 2015–2017

	Time since screen			
	0–12 months		13–24 months	
Age group (years)	Number	Crude rate	Number	Crude rate
40–49	277	7.7	367	11.3
50–59	776	6.4	1,219	10.9
60–69	726	6.4	1,363	12.8
70–74	235	6.4	492	14.4
75+	70	7.7	118	13.9

Note: ‘Crude rate’ is the number of interval cancers detected per 10,000 person-years.

Source: AIHW analysis of BreastScreen Australia data.

State and territory

For the index years 2015–2017, in the 0–24 months after a negative screening episode, the interval cancer rate for participants aged 50–74 varied across states and territories, from 6.8 to 11.9 per 10,000 participants (for all screening rounds) (Table A6.4).

See Box 3.6.1 for information on how different policies across all states and territories BreastScreen programs affects interval cancer detection rates.

National Accreditation Standard (NAS) Measures related to interval cancers

Table 3.6.3 shows the NAS Measures related to interval cancers for women aged 50–74. BreastScreen Australia aims to minimise the number of cancers that are missed (false negatives).

See Box 3.1.3 for information on the National Accreditation Standards.

Table 3.6.3: NAS Measures for interval cancers calculated using BreastScreen Australia data supplied for the *BreastScreen Australia monitoring report 2022*

NAS Measure		Value (crude rate)
NAS Measure 2.3.1(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for screening who are diagnosed with an interval invasive breast cancer in the first calendar year following a negative screening episode.	7.1 first screen 6.3 subsequent screens
NAS Measure 2.3.2(a)	The Service and/or SCU monitors and reports the proportion of women aged 50–74 years who attend for screening who diagnosed with an interval invasive breast cancer in the second calendar year following a negative screening episode.	10.2 first screen 12.4 subsequent screens

Source: AIHW analysis of BreastScreen Australia data.

Performance indicator 6b: Program sensitivity

Summary

- For the index years 2015, 2016 and 2017, program sensitivity for participants aged 50–74 differs by screening round, being higher after a participant's first screen than after subsequent screens.
- Program sensitivity over the same period for both 0–12 months and 0–24 months (for all screening rounds) were lowest for participants aged 40–49.

Definition

Program sensitivity is directly related to interval cancers. It is the proportion of invasive breast cancers detected by BreastScreen Australia (screen-detected cancers) out of all invasive breast cancers (interval cancers plus screen-detected cancers) diagnosed in program-screened participants aged 50–74 in the screening interval (2 years).

Rationale

High program sensitivity indicates that few cancers in screened participants are missed by BreastScreen Australia—that is, most breast cancers are detected by BreastScreen Australia and reported in Performance Indicator 4 (*Invasive breast cancer detection*) rather than in Performance Indicator 6a (*Interval cancers*). High program sensitivity is desirable.

Guide to interpretation

Program sensitivity is disaggregated into time since screening (0–12 months and 0–24 months) and screening round (first and subsequent).

To produce comparable rates from the relatively small number of cases, program sensitivity is reported by 10-year age groups and aggregated over 3 years.

The latest program sensitivity data are for participants aged 50–74 screened in 2015, 2016 and 2017 (referred to as index years 2015–2017). These are the latest data available because at least 2 years need to have passed since a participant's last routine screening mammogram in order to know whether she was diagnosed with an interval cancer in that time—often longer due to time required for cancer registries to be notified of the cancer and for linkage between the BreastScreen registers and cancer registers to occur.

Results

For participants aged 50–74 in the index years 2015–2017, program sensitivity in the first year (0–12 months) was 92.6% after their first screening round and 89.9% after subsequent screening rounds (Table 3.6.4).

Program sensitivity in the 2 years (0–24 months) was 84.0% for the first screening round and 76.0% for subsequent screening rounds (Table 3.6.4).

Unlike the interval cancer data, program sensitivity differs by screening round, being higher after a participant's first visit compared with her subsequent visits. This may be because participants at their first screening visit are more likely to be recalled to assessment for further investigation, and thus more likely to have a breast cancer detected.

Table 3.6.4: Program sensitivity, by time since screen, participants aged 50–74 screened in 2015–2017

	Time since screen	
	0–12 months	0–24 months
First screening round		
Crude rate	92.6	84.0
AS rate	93.2	85.0
Subsequent screening rounds		
Crude rate	89.9	76.0
AS rate	88.5	73.9

Note: 'Crude rate' is the number of screen detected cancers as a percentage of all cancers (screen-detected and interval cancers); 'Age-standardised (AS) rate' is the number of screen-detected cancers as a percentage of all cancers (screen-detected and interval cancers), age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Age

For the index years 2015–2017, program sensitivity (for both 0–12 months and 0–24 months) was lowest for participants aged 40–49, increasing with each 10-year age group to be highest for participants aged 75 and over (Table 3.6.5).

These results point to lower sensitivity of screening mammography for participants aged 40–49, meaning that BreastScreen Australia is less accurately able to detect invasive breast cancers in participants aged 40–49 who attend for screening. This is likely to be due to features of young breasts, such as high density, which can make breast cancers difficult to visualise with screening mammography (Irwig et al. 1997).

Table 3.6.5: Program sensitivity, all screening rounds, by age group, participants screened in 2015–2017

	Time since screen	
	0–12 months	0–24 months
Age group (years)	Crude rate	Crude rate
40–49	82.0	66.2
50–59	87.6	73.4
60–69	91.0	77.9
70–74	93.3	81.7
75+	94.4	86.2

Note: 'Crude rate' is the number of screen detected cancers as a percentage of all cancers (screen detected and interval cancers).

Source: AIHW analysis of BreastScreen Australia data.

State and territory

For the index years 2015–2017, for participants aged 50–74, program sensitivity rates for the period (0–24 months) varied across states and territories, ranging from 72.8% to 84.5% (all screening rounds) (Table A6.8).

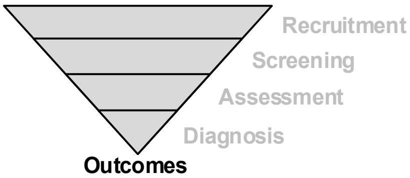
As noted for the interval cancer data, both interval cancers and program sensitivity in each state and territory are affected by the varying jurisdictional policies for managing symptomatic women. This affects the comparability of this indicator across jurisdictions.

See Box 3.6.1 for information on how different policies across state and territory BreastScreen programs affect interval cancer detection rates.

Box 3.6.2: Specificity

Sensitivity is the ability of a screening test to accurately identify the disease in people who have that disease. Specificity, on the other hand, is the ability of a screening test to accurately identify people who do not have the disease—referred to as a ‘true negative’ screening result. The vast majority of participants who are given a negative screening result after their screening mammography through BreastScreen Australia do not have breast cancer, and thus receive a true negative screening result.

Participants who are not given a negative screening result are recalled to assessment for further investigation. A ‘true positive’ screening result is when they are found to have breast cancer at assessment; a ‘false positive’ screening result is when participants are recalled to assessment for further investigation when they do not have breast cancer. Most participants who are recalled to assessment through BreastScreen Australia do not have breast cancer.



Outcomes

Performance indicator 7a: Invasive breast cancer incidence

Summary

- In 2018, 18,538 new cases of breast cancer were diagnosed in women in Australia. Of these, 11,401 (61.5%) occurred in women aged 50–74.
- Breast cancer incidence for women aged 50–74 decreased with increasing remoteness.
- Breast cancer incidence in women aged 50–74 decreased with increasing socioeconomic disadvantage.
- Indigenous women aged 50–74 had a lower breast cancer incidence rate than non-Indigenous women.

Definition

The number of new cases of invasive breast cancer in women aged 50–74 per 100,000 resident female population in a calendar year.

Rationale

Incidence data provide information about the number of new cases of invasive breast cancer in the population, which is an indicator of the program’s performance against its aim to detect unsuspected breast cancer in women through organised screening.

Guide to interpretation

Incidence data include both screen-detected breast cancers (detected through BreastScreen Australia) and breast cancers detected outside BreastScreen Australia.

Incidence of invasive breast cancer by state and territory, remoteness area, socioeconomic status and Indigenous status is reported over a 5-year (instead of a 12-month) period.

Invasive breast cancer incidence data are reported per 100,000 women in the population.

Lower breast cancer incidence is better.

The Australian Cancer Database (ACD) currently contains data on all cases of cancer diagnosed from 1982 to 2018 for all states and territories.

The most recent invasive breast cancer incidence data are for new cases diagnosed in 2018 and estimates to 2021.

Results

In 2018, the latest year of national data available in the Australian Cancer Database, there were 18,538 new cases of breast cancer diagnosed in women in Australia, equivalent to a crude rate of 147.2 new cases per 100,000 women (Table A7.2).

Of these 18,538 new cases, 61.5% (11,401) occurred in women aged 50–74. This is equivalent to a crude rate of 336.2 new cases per 100,000 women aged 50–74 (Table A7.2).

Box 3.7.1: Estimated incidence to 2021

Incidence data are estimated to the current year of reporting, based on 2008–2018 incidence data (note that actual incidence data for 2019–2021 may differ from estimated data for these years due to current and ongoing program or practice changes).

In 2021, it is estimated that there will be 19,866 new cases of breast cancer in Australian women, equivalent to 129.9 new cases per 100,000 women when age-standardised.

Of these 19,866 new cases, it is estimated that 12,139 will occur in women aged 50–74, equivalent to 328.2 new cases per 100,000 women when age-standardised (Table A7.1).

Box 3.7.2: Invasive breast cancer detected through BreastScreen Australia

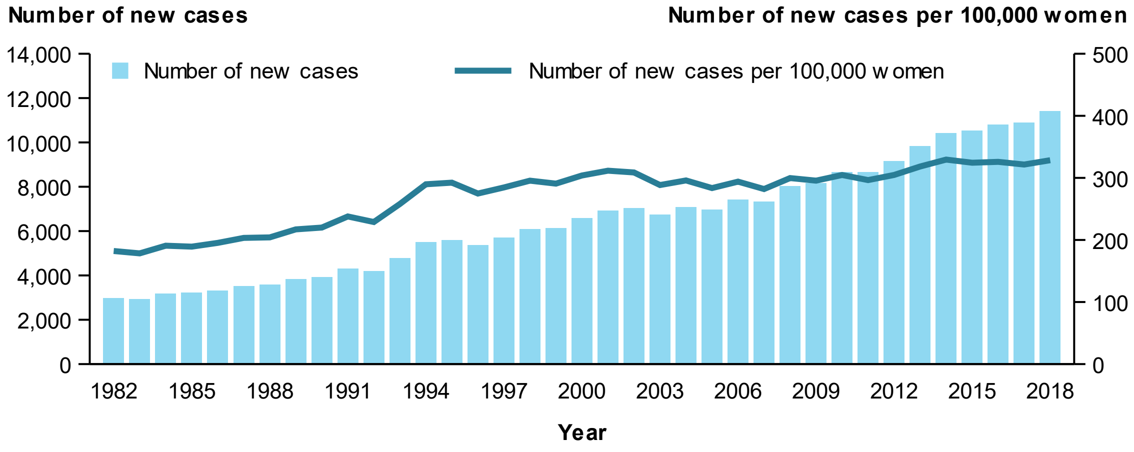
Around half (49.5%) of all invasive breast cancer cases diagnosed in 2018 in women aged 50–74 were detected through BreastScreen Australia (37.0% for women aged 40 and over).

Trends

Prior to introduction of BreastScreen Australia in 1991, the age-standardised incidence rate of breast cancer per 100,000 women aged 50–74 had increased from 182 new cases in 1982 to 220 in 1990.

Following the introduction of BreastScreen Australia, the age-standardised incidence rate of breast cancer per 100,000 women aged 50–74 increased from 238 new cases in 1991 to 312 in 2001. From 2001 to 2012, the rate per 100,000 women remained relatively steady at around 300, before increasing to 330 in 2014, and remaining relatively steady thereafter until 2018 (Figure 3.7.1).

Figure 3.7.1: Incidence of breast cancer in women aged 50–74, 1982 to 2018



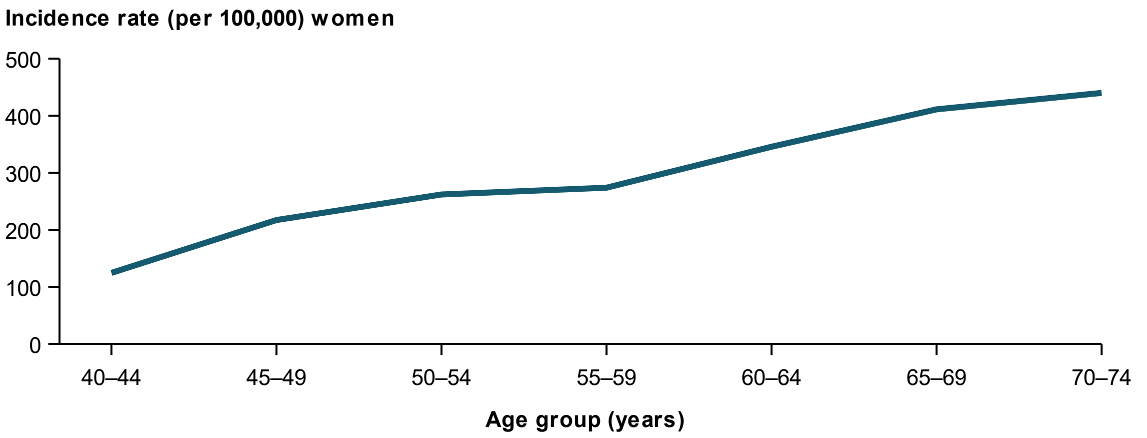
Note: Rates are age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 women.

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table A7.1.

Age

In 2018, breast cancer incidence increased with age, from 124.4 new cases per 100,000 women aged 40–44 to 440.0 per 100,000 women aged 70–74 (Figure 3.7.2).

Figure 3.7.2: Incidence of breast cancer in women, by age group, 2018



Note: 'Crude rates' is the number of new cases of breast cancer expressed per 100,000 women.

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table A7.2.

Type

Invasive breast cancers by type are shown in Table 3.7.1.

In 2018, the most common breast cancer type for women aged 50–74 was invasive ductal carcinoma, at 77.3% of all breast cancers; invasive lobular cancer was the second most common, at 14.1%. Other breast cancer types were rarer, ranging between fewer than 1 and 7 new cases per 100,000 women aged 50–74. These rarer cancer types accounted for between less than 0.1% and 2.0% of all invasive breast cancers; 'unspecified' breast cancers accounted for 1.2% of cases (Table 3.7.1).

Table 3.7.1: Incidence of breast cancer in women aged 50–74, by type, 2018

Type of breast cancer	New cases	Crude rate	Percentage of breast cancers
Invasive ductal carcinoma	8,808	259.8	77.3
Invasive lobular carcinoma	1,604	47.3	14.1
Medullary carcinoma and atypical medullary carcinoma	20	0.6	0.2
Tubular carcinoma and invasive cribriform carcinoma	179	5.3	1.6
Mucinous carcinoma	209	6.2	1.8
Invasive papillary carcinoma	229	6.7	2.0
Inflammatory carcinoma	19	0.6	0.2
Mesenchymal	8	0.2	0.1
Other—specified	187	5.5	1.6
Unspecified	136	4.0	1.2
Total	**11,401**	**336.2**	**100.0**

Notes

1. 'Crude rate' is the number of new cases of breast cancer per 100,000 women.
2. Histology codes that comprise each breast cancer group appear in Table D1.

Source: AIHW Australian Cancer Database 2018.

State and territory

In 2014–2018, the incidence of breast cancer for women aged 50–74 varied between 258.9 and 343.5 new cases per 100,000 women. Of note, the data for the least-populated jurisdictions are subject to variation due to smaller numbers, even with 5 years of combined data (Table A7.4).

Remoteness area

In 2014–2018, breast cancer incidence for women aged 50–74 fell with increasing remoteness.

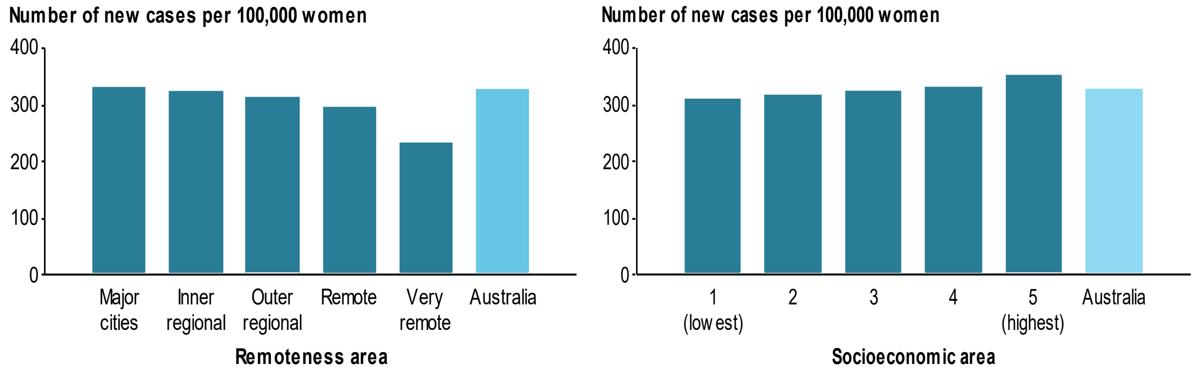
The age-standardised incidence rate for women aged 50–74 per 100,000 women was highest for those living in *Major cities* at 328.9 new cases and lower for those living in *Inner regional* areas and *Outer regional* areas at 323.1 and 314.0 new cases, respectively. The lowest incidence rates were for women living in *Remote* and *Very remote* areas at 294.2 and 231.1 new cases per 100,000 women, respectively (Figure 3.7.3).

Socioeconomic area

In 2014–2018, breast cancer incidence for women aged 50–74 fell with increasing socioeconomic disadvantage.

The age-standardised incidence rate for women aged 50–74 per 100,000 women was highest for those living in the highest socioeconomic areas at 351.1 new cases, and lowest for those living in the lowest socioeconomic areas at 307.7 new cases (Figure 3.7.3).

Figure 3.7.3: Incidence of breast cancer in women aged 50–74, by remoteness area and socioeconomic area, 2014–2018



Note: Rates age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in tables A7.5 and A7.6.

Indigenous Australians

Reliable national data on the diagnosis of 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. Information in the ACD on Indigenous status is considered to be of sufficient completeness for reporting for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

While the majority (90%) of Australian Indigenous people live in these 5 jurisdictions, the degree to which data for these jurisdictions are representative of data for all Indigenous people is unknown (ABS 2018).

The incidence counts and rates for Indigenous and non-Indigenous Australians presented are underestimates due to the relatively large proportion of people whose Indigenous status is not stated, or not available. Also, it is likely that some Indigenous Australians are misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution. In addition, age-standardised incidence rates should be used to compare the incidence of breast cancer for Indigenous and non-Indigenous Australians to account for the different age structures of Indigenous and non-Indigenous populations.

Box 3.7.3: Indigenous Australians—incidence and mortality: populations and rates

To derive breast 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.

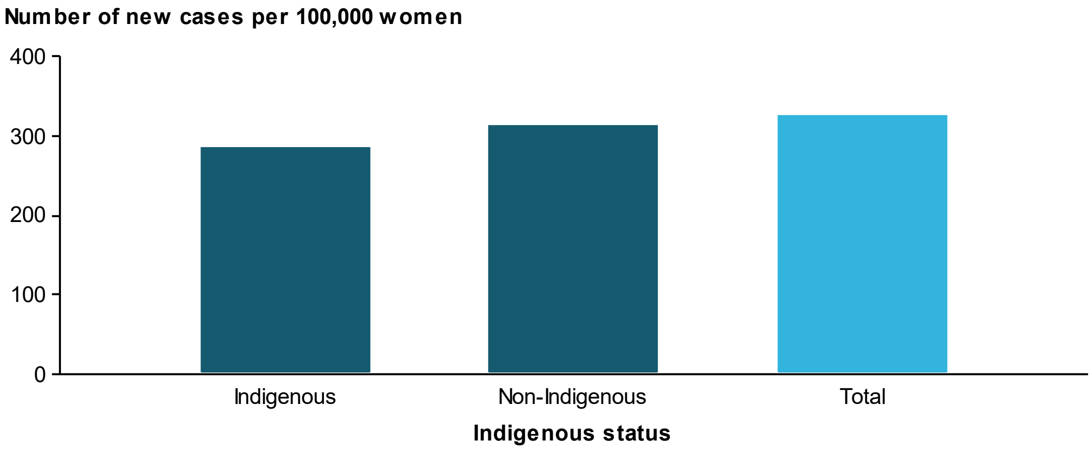
The final estimated resident Aboriginal and Torres Strait Islander population as at 30 June 2016 was 19% larger than the estimated population as at 30 June 2011 (ABS 2018). The Australian Bureau of Statistics (ABS) notes that the population increase is greater than demographic factors alone can explain. 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, in 2014–2018, there were 1,150 Indigenous women diagnosed with breast cancer, of whom 720 (62.6%) were aged 50–74 (Table A7.7). This equates a crude incidence rate of 266.2 new cases per 100,000 women aged 50–74.

In 2014–2018, Indigenous women aged 50–74 had a lower age-standardised incidence rate of breast cancer than non-Indigenous women—284.5 new cases per 100,000 Indigenous women compared with 314.0 new cases per 100,000 non-Indigenous women (Figure 3.7.4).

Figure 3.7.4: Incidence of breast cancer in women aged 50–74 (New South Wales, Victoria, Queensland, Western Australia and the Northern Territory), by Indigenous status, 2014–2018



Notes

1. ‘Total’ includes women with a ‘not stated’ Indigenous status.
2. See Box 3.7.3 for more information on rates calculated using the 2016 Census.
3. Rates age-standardised to the Australian population as at 30 June 2001.

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in table A7.7.

Survival from breast cancer

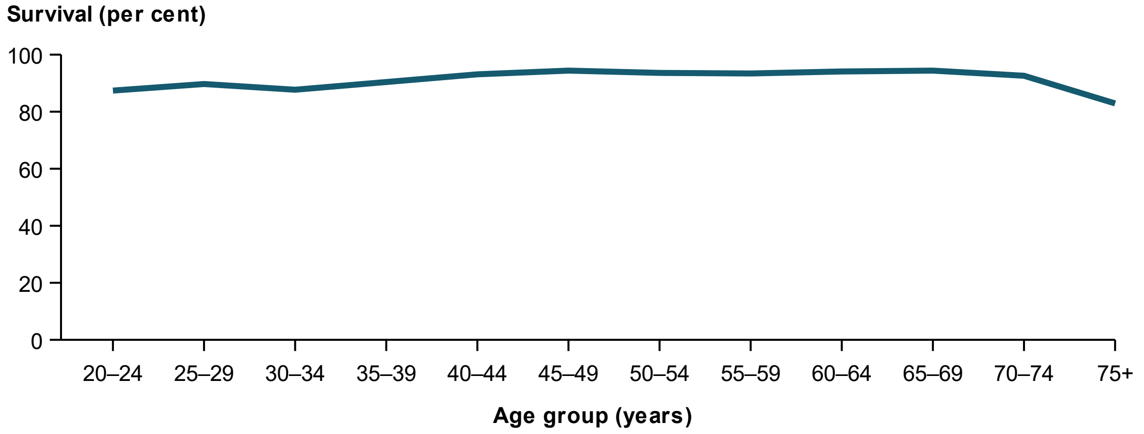
Survival in this report refers to ‘relative survival’; that is, survival figures reflect the probability of being alive for a given amount of time after a cancer diagnosis, compared with the general population, and reflects the impact of a cancer diagnosis.

Between 2014 and 2018, women diagnosed with breast cancer in Australia had a 91.8% chance of surviving for 5 years, compared with their counterparts in the general population (Table A7.8). For the target age group (50–74), 5-year relative survival was 93.7%.

Target age group (50–74 years)	**All ages**
93.7% 5-year relative survival (2014–2018)	91.8% 5-year relative survival (2014–2018)

Between 2014 and 2018, the 5-year survival rate from breast cancer was highest for women aged 45–49 and women aged 65–69, followed by women aged 50–64 (Table A7.8). Women aged 75 and over had a lower chance of surviving for 5 years, with a 5-year relative survival rate of 82.9% (Figure 3.7.5).

Figure 3.7.5: Five-year relative survival from breast cancer I women, by age group, 2014–2018



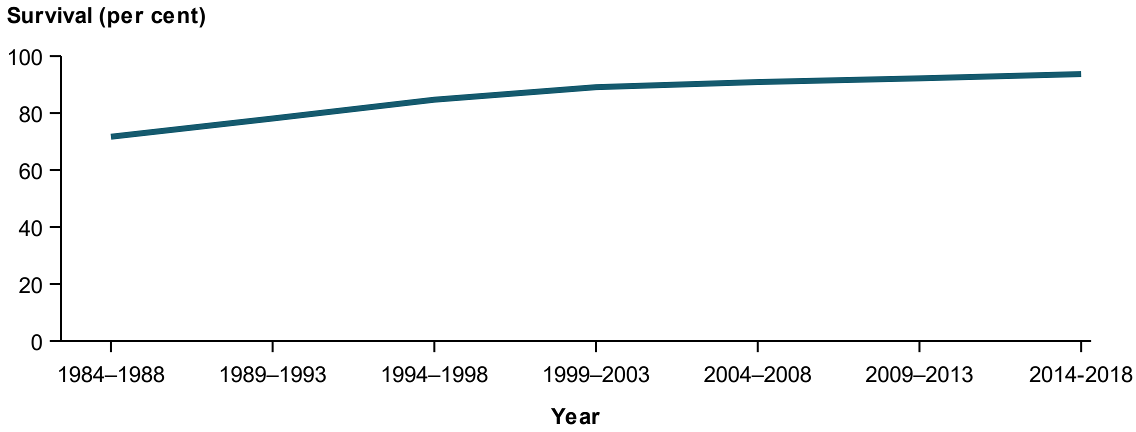
Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table A7.8.

Survival comparisons over time

Survival from breast cancer for women aged 50–74 has improved over time. Between 1984–1988 and 2014–2018, the 5-year relative survival rate rose from 71.7% to 93.7% (Figure 3.7.6).

Figure 3.7.6: Trends in 5-year relative survival from breast cancer in women aged 50–74, 1984–1988 to 2014–2018



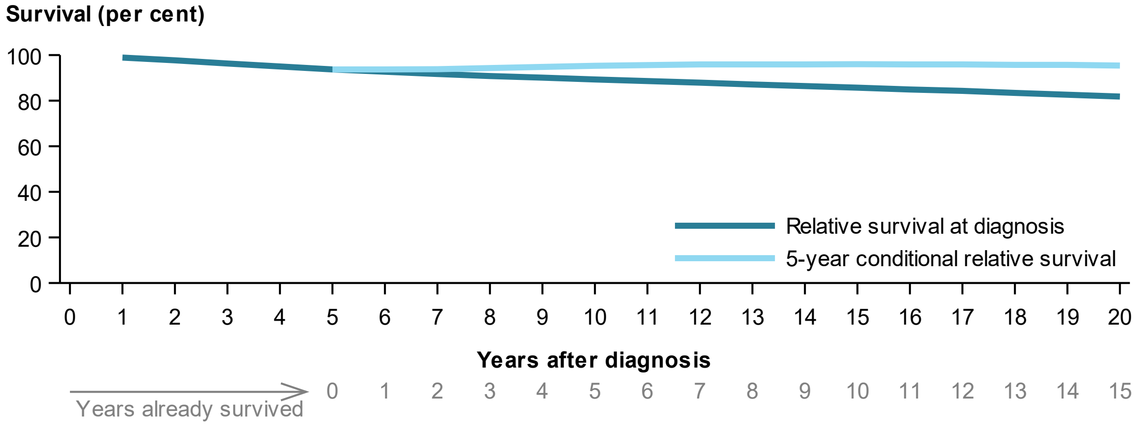
Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table A7.9.

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.

Between 2014 and 2018, when women aged 50–74 were first diagnosed with breast cancer, they had a 93.7% chance of surviving for at least 5 years after diagnosis compared with the general population (Figure 3.7.7). For those women who had already survived 5 years after being diagnosed with breast cancer, the chance of surviving for at least another 5 years (5-year conditional relative survival) was around 95%.

Figure 3.7.7: Relative survival at diagnosis and 5-year conditional survival from breast cancer in women aged 50–74, 2014–2018



Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table A7.10.

Prevalence of breast 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; if incidence and survival are both low, prevalence will be low.

At the end of 2018, there were 51,373 women aged 50–74 alive who had been diagnosed with breast cancer in the previous 5 years and 90,623 who had been diagnosed in the previous 10 years (Table 3.7.2).

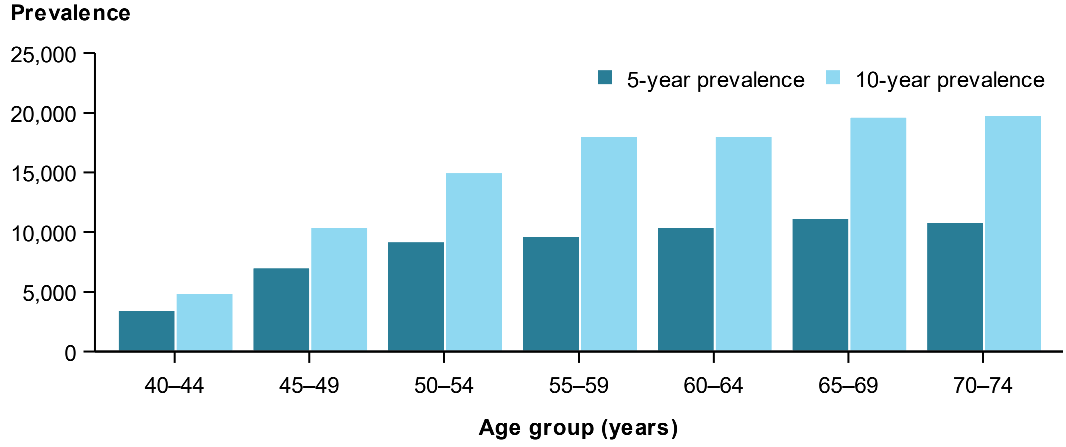
Table 3.7.2: Prevalence of breast cancer in women, by age group, Australia, end of 2018

Age group (years)	5-year prevalence	10-year prevalence
<40	2,777	3,529
40–44	3,492	4,881
45–49	7,048	10,426
50–54	9,230	15,014
55–59	9,659	18,035
60–64	10,449	18,070
65–69	11,198	19,675
70–74	10,837	19,829
75–79	7,219	13,278
80–84	4,568	8,647
85+	4,438	8,297
Ages 50–74	*51,373*	*90,623*
All ages	**80,916**	**139,682**

Note: Prevalence refers to the number of living people previously diagnosed with cancer, not the number of cancer cases.

Source: AIHW Australian Cancer Database 2018.

Figure 3.7.8: Prevalence of breast cancer in women, by age group, end of 2018



Source: AIHW Australian Cancer Database 2018. Data for this figure are available in Table 3.7.2.

Performance indicator 7b: Ductal carcinoma in situ (DCIS) incidence

Summary

In 2018, 2,356 new cases of DCIS were diagnosed in women in Australia. Of these, 1,747 (74.2%) occurred in women aged 50–74.

Definition

The number of new cases of DCIS in women aged 50–74 per 100,000 estimated resident female population in a 12-month period.

Rationale

DCIS incidence data provide information about the underlying level of DCIS in Australia. DCIS is known as a ‘disease of screening’ and was rarely detected before breast screening was introduced. Since the introduction of screening mammography, detection of DCIS has increased. Annual monitoring of these data by various groupings (such as age or location) may reveal findings of concern or positive trends that can be used to inform BreastScreen Australia as well as broader policies for DCIS in Australian women.

Guide to interpretation

These data include both screen-detected DCIS cases (through BreastScreen Australia) and DCIS cases detected outside the screening program.

DCIS incidence data are reported per 100,000 women in the population.

To produce reliable rates from the relatively small number of DCIS cases, incidence of DCIS is reported by 10-year age groups.

The Australian Cancer Database (ACD) is the source of DCIS incidence data.

The counting rules for DCIS incidence were revised for the 2016 ACD. For this reason, comparisons should not be made with DCIS data from previous versions of the ACD. See Box 3.7.4 for more details.

The most recent incidence of DCIS data are for new cases diagnosed in 2018.

Results

In 2018, there were 2,356 new cases of DCIS diagnosed in Australian women, equivalent to a crude rate of 18.7 new cases for every 100,000 women in the population (Table A7.11).

Of these 2,356 new cases, 74.2% (1,747) were in women aged 50–74, the target population of BreastScreen Australia. These 1,747 new cases equated to a crude rate of 51.5 new cases of DCIS for every 100,000 women aged 50–74 (Table A7.11).

Box 3.7.4: Changes in counting rules for DCIS incidence in the 2016 ACD

The counting rules for DCIS incidence were revised for the 2016 ACD. This affects the counts for women who have been diagnosed with both an invasive and an in situ ductal carcinoma. In previous versions of the ACD, a woman's first DCIS was always counted. Starting with the 2016 ACD, a woman's first DCIS is counted if it is diagnosed before her first invasive ductal carcinoma but not counted if it is diagnosed at the same time or afterwards. This change brings the counting rules for DCIS into line with the rules for counting multiple invasive ductal carcinomas. The new rules lead to lower counts and rates of DCIS incidence than the old rules. For this reason, comparisons should not be made with DCIS data from previous versions of the ACD.

Box 3.7.5: DCIS cases detected through BreastScreen Australia

Around 4 in 5 (79.2%) DCIS cases diagnosed in 2018 in women aged 50–74 were detected through BreastScreen Australia (69.5% for women aged 40 and over). See Box 3.7.4 for more information on DCIS incidence.

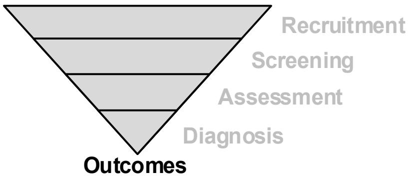
Trends

DCIS incidence rates have increased over time. For women aged 50–74, the age-standardised DCIS rate per 100,000 women rose from 40.6 new cases in 2002 to a peak of 55.3 in 2014, before falling to 50.8 new cases in 2018 (Table A7.11).

Age

Similar to invasive breast cancer, the incidence of DCIS increases with increasing age. In 2018, the age-specific incidence rate of DCIS per 100,000 women rose from 20.0 new cases for women aged 40–49 to 55.0 for those aged 60–69 before falling to 36.0 for those aged 70 and over (Table A7.12).

In 2018, DCIS in women aged 50–74 represented 74.2% of all DCIS cases diagnosed in that year (Table A7.12).



Performance indicator 8: Mortality from breast cancer

Summary

- In 2020, there were 3,110 deaths from breast cancer in women in Australia. Of these, 1,517 (48.8%) occurred in women aged 50–74.
- Breast cancer mortality in women aged 50–74 was highest for those living in *Inner regional* areas and lowest for those in *Very Remote* areas.
- Breast cancer mortality in women aged 50–74 increased with increasing socioeconomic disadvantage.
- Indigenous women aged 50–74 had higher breast cancer mortality rate than non-Indigenous women.

Definition

The number of deaths from breast cancer in women aged 50–74 per 100,000 estimated resident female population in a calendar year.

Rationale

Mortality data provide contextual information on the number of deaths from breast cancer in the population. This is an indicator of BreastScreen Australia's performance against its aim to reduce mortality from breast cancer through organised screening.

Guide to interpretation

Mortality data include both mortality from screen-detected breast cancers (detected through BreastScreen Australia) and mortality from breast cancers detected outside BreastScreen Australia.

Mortality from breast cancer data are reported per 100,000 women in the population.

Mortality from breast cancer by state and territory, remoteness area, socioeconomic status and Indigenous status is reported over a 5-year (instead of a 12-month) period.

The National Mortality Database (NMD) is the source of breast cancer mortality data.

The most recent data for mortality from breast cancer are deaths in 2020.

Results

In 2020, the latest year of national data available in the AIHW National Mortality Database, there were 3,110 deaths from breast cancer in women in Australia. This is equivalent to a crude rate of 24.0 deaths per 100,000 women (Table A8.2).

Of these 3,110 deaths, 48.8% (1,517) occurred in women aged 50–74, equivalent to a crude rate of 42.7 deaths per 100,000 women aged 50–74 (Table A8.2).

Box 3.8.1: Estimated mortality to 2021

Mortality data are estimated to 2021. These estimates are based on analysis of 2010–2020 mortality data. (Note that actual mortality data for 2021 may differ from estimated data for these years, due to current and ongoing program or practice changes).

In 2021, it is estimated that there will be 3,101 deaths from breast cancer in women, equivalent to 18.3 deaths per 100,000 women when age-standardised.

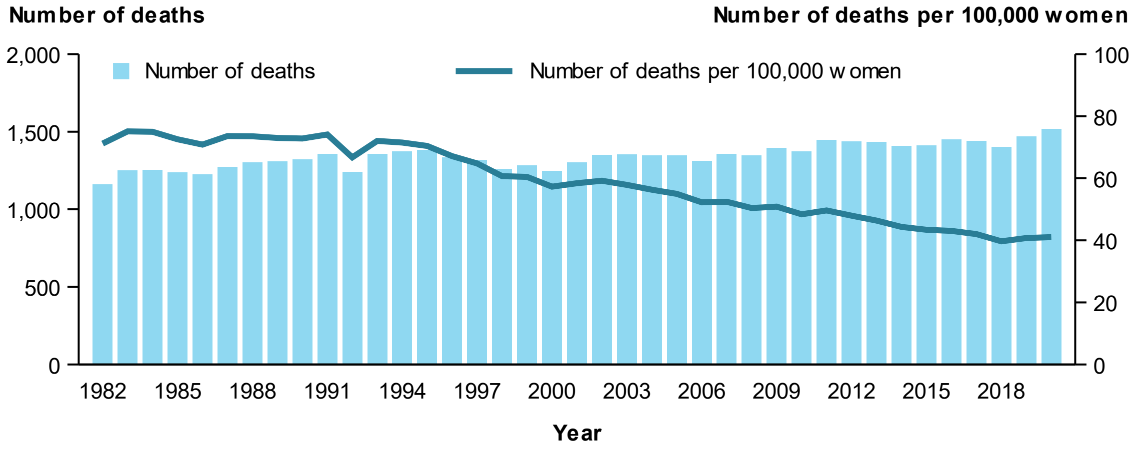
Of these 3,101 deaths, it is estimated that 1,408 will occur in women aged 50–74, equivalent to 37.3 deaths per 100,000 when age-standardised.

Trends

Breast cancer mortality rates have fallen over time, with this decrease evident after the introduction of BreastScreen Australia in 1991. The age-standardised mortality rate from breast cancer in women aged 50–74 fell from 74 deaths per 100,000 in 1991 to 41 deaths per 100,000 in 2020 (Figure 3.8.1).

The fall in breast cancer mortality in women aged 50–74 has been attributed in part to the early detection of breast cancer through BreastScreen Australia, along with advances in the management and treatment of breast cancer (BreastScreen Australia EAC 2009).

Figure 3.8.1: Mortality from breast cancer in women aged 50–74, 1982–2020



Notes

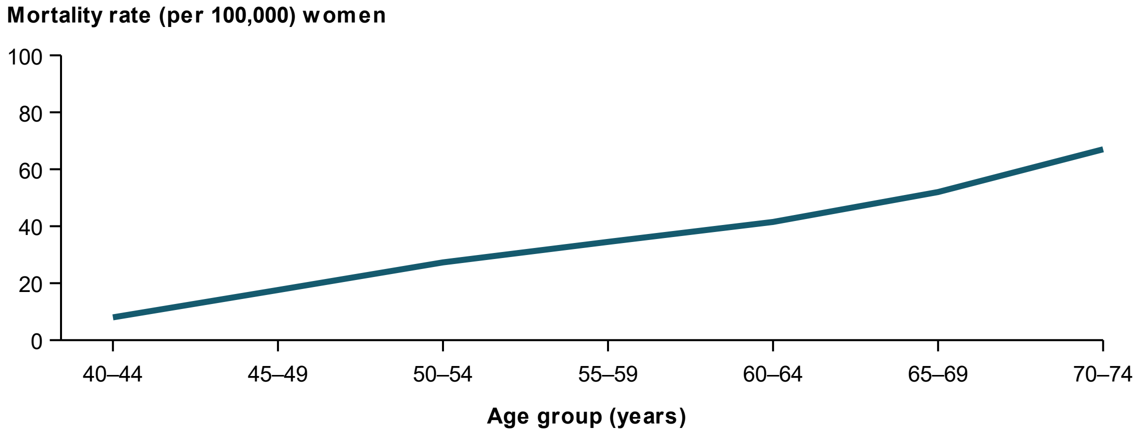
1. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 were derived by year of registration of death. Deaths registered in 2017 and earlier are based on the final version of cause-of-death data; deaths registered in 2018 are based on revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. Rates age-standardised to the Australian population as at 30 June 2001.

Source: AIHW National Mortality Database. Data for this figure are available in Table A8.1.

Age

In 2020, breast cancer mortality increased with age, from 8.0 deaths per 100,000 women aged 40–44 to 67.0 per 100,000 women aged 70–74 (Figure 3.8.2).

Figure 3.8.2: Mortality from breast cancer in women, by age group, 2020



Note: 'Crude rate' is the number of deaths of breast cancer expressed per 100,000 women.

Source: AIHW National Mortality Database. Data for this figure are available in Table A8.2.

State and territory

In 2016–2020, the age-standardised mortality rate from breast cancer for women aged 50–74 varied between the states and territories, from 34.5 deaths per 100,000 women in the Australian Capital Territory to 43.4 deaths per 100,000 in Victoria (Table A8.3).

Remoteness area

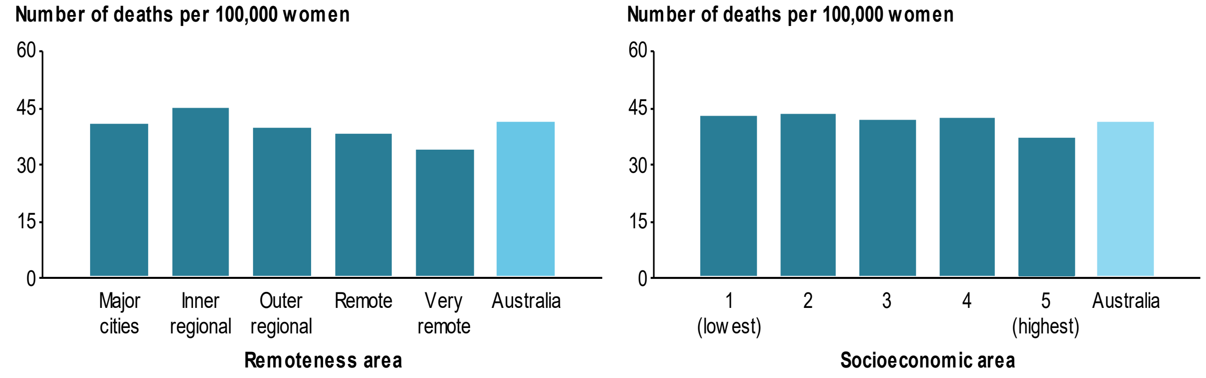
In 2016–2020, the age-standardised mortality rate from breast cancer for women aged 50–74 was highest per 100,000 women for those living in *Inner regional* areas, at 44.7 deaths, and lowest for those living in *Very remote* areas, at 33.5 deaths (Figure 3.8.3).

Socioeconomic area

In 2016–2020, the breast cancer mortality rate for women aged 50–74 increased with increasing socioeconomic disadvantage.

The age-standardised mortality rate for women aged 50–74 was highest per 100,000 women for those living in the second lowest socioeconomic areas, at 43.0 deaths, and lowest for those living in the highest socioeconomic areas, at 37.1 deaths (Figure 3.8.3).

Figure 3.8.3: Mortality from breast cancer in women aged 50–74, by remoteness area and by socioeconomic area, 2016–2020



Notes

1. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. Rates age-standardised to the Australian population as at 30 June 2001.

Source: AIHW National Mortality Database. Data for this figure are available in tables A8.4 and A8.5.

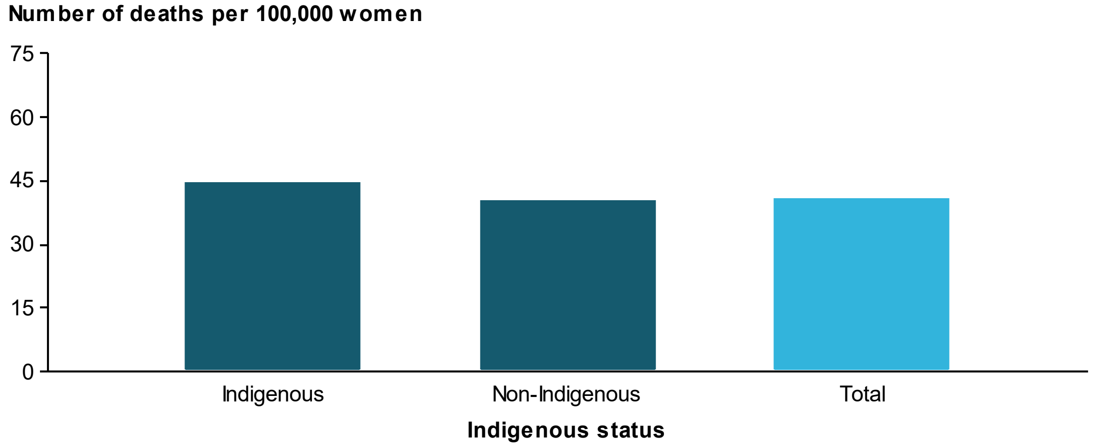
Indigenous Australians

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 3.7.3 for information on Indigenous rates calculated using Indigenous population estimates from the 2016 Census.

In these jurisdictions, for the period 2016–2020, there were 213 deaths from breast cancer among Indigenous women, of whom 120 (56.3%) were aged 50–74 (Table A8.6). This was a crude rate of 41.5 deaths from breast cancer per 100,000 women aged 50–74 (Table A8.6).

In 2016–2020, Indigenous women aged 50–74 had a higher mortality rate from breast cancer than non-Indigenous women aged 50–74 at 44.5 compared to 40.4 deaths per 100,000 women (Figure 3.8.4).

Figure 3.8.4: Mortality from breast cancer in women aged 50–74 (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory), by Indigenous status, 2016–2020



Note: Rates age-standardised to the Australian population as at 30 June 2001.

Source: AIHW National Mortality Database. Data for this figure are available in Table A8.6.

Appendix A: Supporting data tables

A1 Participation

Table A1.1: BreastScreen Australia participation, by reporting period, participants aged 50–74, 2014–2015 to 2019–2020

Reporting period	Participants[(a)]	Population[(b)]	Crude rate[(c)]	AS rate[(d)]
2014–2015	1,701,854	3,166,455	53.7	53.2
2015–2016	1,772,540	3,233,276	54.8	54.3
2016–2017	1,812,835	3,297,208	55.0	54.5
2017–2018	1,841,333	3,358,612	54.8	54.3
2018–2019	1,875,751	3,425,595	54.8	54.2
2019–2020[(e)]	1,750,263	3,506,201	49.9	49.4

(a) 'Participants' refers to the number of participants aged 50–74 screened through BreastScreen Australia in each 2-year reporting period. The reporting periods cover 1 January of the initial year to 31 December of the latter year indicated.

(b) 'Population' is the average of the ABS estimated resident population, for women aged 50–74, for the 2 reporting years.

(c) 'Crude rate' is the number of participants aged 50–74 screened in each 2-year reporting period, as a percentage of the ABS estimated resident population.

(d) 'Age-standardised (AS) rate' is the number of participants aged 50–74 screened in each 2-year reporting period, as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.

(e) COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.2: BreastScreen Australia participation, by age group, 2019–2020

Age group (years)	Number	Crude rate
40–44	73,249	9.1
45–49	129,127	15.1
50–54	355,431	44.8
55–59	378,968	47.8
60–64	377,277	51.9
65–69	348,722	54.4
70–74	289,865	52.5
75+	68,740	6.9

Notes

1. 'Crude rate' is the number of participants screened in 2019–2020, as a percentage of the ABS estimated resident population.
2. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.3: BreastScreen Australia participation, by state and territory, participants aged 50–74, 2019–2020

State and territory	Number	Crude rate	AS rate
NSW	561,375	50.2	49.6
Vic	409,127	46.1	45.7
Qld	371,570	52.3	51.7
WA	179,977	50.5	50.0
SA	138,884	52.2	51.4
Tas	49,076	55.7	55.1
ACT	30,609	57.6	57.2
NT	9,645	36.3	36.4
Australia	**1,750,263**	**49.9**	**49.4**

Notes

1. 'Crude rate' is the number of participants screened in 2019–2020, as a percentage of the ABS estimated resident population; 'age-standardised (AS) rate' is the number of participants screened in 2019–2020, as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
2. Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions including population, geographical size and structure, policies and other factors.
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.4: Number of screening mammograms performed, by month, participants aged 50–74, 2019 and 2020

	Year	
Month	**2019**	**2020**[(a)]
January	76,106	77,959
February	83,472	86,146
March	84,064	70,336
April	75,464	1,116
May	92,140	38,005
June	80,517	70,481
July	90,786	87,277
August	86,274	86,376
September	80,718	91,323
October	90,933	87,058
November	84,916	84,453
December	50,543	58,208

(a) COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Note: Data are number of screening mammograms performed in participants aged 50–74 screened through BreastScreen Australia between 1 January 2019 and 31 December 2019, and between 1 January 2020 and 31 December 2020.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.5: BreastScreen Australia participation, by remoteness area, participants aged 50–74, 2019–2020

Remoteness area	Number	Crude rate	AS rate
Major cities	1,151,258	48.1	47.7
Inner regional	393,409	53.8	52.7
Outer regional	178,296	55.6	54.7
Remote	18,905	49.5	49.2
Very Remote	7,988	36.0	35.9
Australia[(a)]	**1,750,263**	**49.9**	**49.4**

(a) Includes participants in the ‘not stated’ category; therefore, rows may not sum to the Australia row.

Notes

1. ‘Crude rate’ is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population; ‘age-standardised (AS) rate’ is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
2. Remoteness areas were assigned using the participant’s residential postcode according to the Australian Statistical Geography Standard (ASGS) for 2016. Not all postcodes can be assigned to a remoteness area, therefore categories do not add exactly to the total for Australia. Caution is required when examining differences across remoteness areas (see Appendix D).
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.6: BreastScreen Australia participation, by socioeconomic area, participants aged 50–74, 2019–2020

Socioeconomic area	Number	Crude rate	AS rate
1 (lowest)	341,609	48.4	47.5
2	374,303	51.7	50.9
3	339,672	49.5	49.0
4	344,040	50.1	49.7
5 (highest)	348,631	49.7	49.4
Australia[(a)]	**1,750,263**	**49.9**	**49.4**

(a) Includes participants in the ‘not stated’ category; therefore, rows may not sum to the Australia row.

Notes

1. ‘Crude rate’ is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population; ‘age-standardised (AS) rate’ is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
2. Participants were allocated to a socioeconomic area using their residential postcode according to the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage for 2016. Not all postcodes can be assigned to a socioeconomic area, therefore categories do not add exactly to the total for Australia. Caution is required when examining differences across socioeconomic areas (see Appendix D).
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.7: BreastScreen Australia participation, by main language spoken at home, participants aged 50–74, 2019–2020

Main language spoken at home	Number	Crude rate	AS rate
English-speaking	1,483,526	52.0	51.5
Non-English-speaking	264,930	40.6	40.2
Australia[a]	**1,750,263**	**49.9**	**49.4**

(a) Includes participants in the 'not stated' category for main language other than English spoken at home; therefore, rows may not sum to the Australia row.

Notes

1. Some jurisdictions do not use the 'not stated' category, and there may also be differences in how these data are collected. This means that the analysis based on main language spoken at home should be interpreted with caution.
2. 'Crude rate' is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population; 'age-standardised (AS) rate' is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.8: BreastScreen Australia participation, by Indigenous status, participants aged 50–74, 2019–2020

Indigenous status	Number	Crude rate	AS rate
Indigenous	24,918	35.5	35.8
Non-Indigenous	1,719,784	50.1	49.5
Australia[a]	**1,750,263**	**49.9**	**49.4**

(a) Includes participants with a 'not stated' Indigenous status; therefore, rows may not sum to the Australia row.

Notes

1. Indigenous status is self-reported; therefore, accuracy of Indigenous participation rates will be affected if participants choose not to identify as Indigenous at the time of screening.
2. 'Crude rate' is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population; 'age-standardised (AS) rate' is the number of participants screened in 2019–2020 as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.9: BreastScreen Australia participation, by Indigenous status, participants aged 50–74, 2014–2015 to 2019–2020

	Indigenous			Non-Indigenous		
Reporting period	Number	Crude rate	AS rate	Number	Crude rate	AS rate
2014–2015	18,692	33.3	33.7	1,675,265	53.9	53.4
2015–2016	20,505	34.9	35.2	1,743,863	55.0	54.5
2016–2017	22,218	36.1	36.4	1,776,275	55.0	54.4
2017–2018	24,001	37.3	37.6	1,810,553	55.0	54.4
2018–2019	25,544	38.0	38.3	1,844,216	54.9	54.4
2019–2020[a]	24,918	35.5	35.8	1,719,784	50.1	49.5

(a) COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Notes

1. Indigenous status is self-reported; therefore, accuracy of Indigenous participation rates will be affected if participants choose not to identify as Indigenous at the time of screening.
2. 'Crude rate' is the number of participants screened as a percentage of the ABS estimated resident population; 'age-standardised (AS) rate' is the number of participants screened as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
3. The reporting periods cover 1 January of the initial year to 31 December of the latter year indicated.
4. The participation data from 2014–2015 to 2016–2017 have been updated. Therefore, these data may differ from previously published data.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.10: Preliminary participation in BreastScreen Australia, by age group, 2020–2021

Age group (years)	Number	Crude rate
40–44	62,495	7.6
45–49	109,463	13.0
50–54	345,088	42.5
55–59	359,154	45.4
60–64	369,379	49.5
65–69	341,345	52.1
70–74	290,353	50.6
75+	64,210	6.2

Notes

1. ‘Crude rate’ is the number of participants screened in 2020–2021, as a percentage of the ABS estimated resident population.
2. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.
3. Note that actual participation data for 2020–2021 may differ from preliminary data for these years.

Source: AIHW analysis of BreastScreen Australia data.

Table A1.11: Preliminary participation in BreastScreen Australia, by state and territory, participants aged 50–74, 2020–2021

State and territory	Number	Crude rate	AS rate
NSW	496,684	43.7	43.0
Vic	415,576	45.9	45.5
Qld	379,902	52.1	51.6
WA	182,336	49.9	49.3
SA	140,941	52.2	51.1
Tas	51,786	58.1	57.3
ACT	28,684	53.0	52.6
NT	9,410	34.5	34.6
Australia	1,705,319	47.7	47.1

Notes

1. ‘Crude rate’ is the number of participants screened in 2020–2021, as a percentage of the ABS estimated resident population; ‘age-standardised (AS) rate’ is the number of participants screened in 2020–2021, as a percentage of the ABS estimated resident population, age-standardised to the Australian population at 30 June 2001.
2. Direct comparisons between the states and territories of Australia are not advised, due to the substantial differences that exist between the jurisdictions including for population, geographical size and structure, policies and other factors.
3. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.
4. Note that actual participation data for 2020–2021 may differ from preliminary data for these years.

Source: AIHW analysis of BreastScreen Australia data.

A2 Rescreening

Table A2.1: Rescreening, by screening round, participants aged 50–72, 2014 to 2018

	First screening round	Second screening round	Third and subsequent screening rounds
Year	AS rate	AS rate	AS rate
2014	60.0	70.1	85.0
2015	60.9	69.8	84.6
2016	60.6	68.2	84.5
2017	59.5	68.5	84.1
2018(a)	44.2	51.3	68.1

(a) COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Note: 'Age-standardised (AS) rate' is the number of participants rescreened within 27 months as a percentage of participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A2.2: Rescreening, by age group and screening round, participants screened during 2018

	First screening round	Second screening round	Third and subsequent screening rounds
Age group (years)	Crude rate	Crude rate	Crude rate
40–49	29.1	45.4	62.1
50–72	44.0	52.3	68.4
75+	16.4	22.7	34.6

Notes

1. 'Crude rate' is the number of participants rescreened within 27 months as a percentage of participants screened.
2. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

Table A2.3: Rescreening, by state and territory and screening round, participants aged 50–72 screened during 2018

	First screening round		Second screening round		Third and subsequent screening rounds	
State and territory	Crude rate	AS rate	Crude rate	AS rate	Crude rate	AS rate
NSW	47.4	46.1	57.3	55.4	72.8	72.2
Vic	37.2	35.3	44.8	42.5	58.9	59.2
Qld	50.5	52.6	58.1	58.5	76.1	75.4
WA	37.2	36.3	46.8	44.9	65.8	65.0
SA	40.4	39.9	45.8	44.8	61.9	61.4
Tas	56.7	57.2	61.0	61.6	67.8	70.6
ACT	51.5	50.9	62.9	61.3	78.6	78.5
NT	40.0	37.1	42.5	40.4	69.8	70.0
Australia	**44.0**	**44.2**	**52.3**	**51.3**	**68.4**	**68.1**

Notes

1. 'Crude rate' is the number of participants rescreened within 27 months as a percentage of participants screened'; 'age-standardised (AS) rate' is the number of participants rescreened within 27 months as a percentage of participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.
2. COVID-19 affected these results. Services had to reduce capacity due to the need to implement COVID-19 safety measures.

Source: AIHW analysis of BreastScreen Australia data.

A3 Recall to assessment

Table A3.1: Recall to assessment, participants aged 50–74, first and subsequent screening rounds, 2014 to 2020

	First screening round			Subsequent screening rounds		
Year	**Number**	**Crude rate**	**AS rate**	**Number**	**Crude rate**	**AS rate**
2014	9,379	12.3	12.2	31,080	3.9	4.0
2015	9,747	11.8	11.8	31,344	3.8	3.8
2016	10,133	11.5	11.3	31,635	3.7	3.7
2017	9,813	11.2	11.3	30,427	3.5	3.6
2018	9,794	11.3	11.2	31,231	3.5	3.5
2019	10,864	11.7	11.7	32,825	3.7	3.7
2020	7,416	11.4	11.4	29,745	3.8	3.8

Note: 'Crude rate' is the number of participants recalled for assessment as a percentage of participants screened; 'age-standardised (AS) rate' is the number of participants recalled for assessment as a percentage of participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A3.2: Recall to assessment, by age group, first and subsequent screening rounds, 2020

	First screening round		Subsequent screening rounds	
Age group (years)	**Number**	**Crude rate**	**Number**	**Crude rate**
40–44	1,982	9.2	539	5.4
45–49	2,111	11.2	2,116	5.5
50–54	4,622	11.4	5,307	4.3
55–59	1,282	11.0	6,048	3.6
60–64	815	11.9	6,222	3.6
65–69	463	11.2	6,417	3.9
70–74	234	11.2	5,751	4.1
75+	65	13.3	1,475	4.5

Note: 'Crude rate' is the number of participants recalled for assessment as a percentage of participants screened.

Source: AIHW analysis of BreastScreen Australia data.

Table A3.3: Recall to assessment, by state and territory, participants aged 50–74, first and subsequent screening rounds, 2020

	First screening round			Subsequent screening rounds		
State and territory	**Number**	**Crude rate**	**AS rate**	**Number**	**Crude rate**	**AS rate**
NSW	2,605	11.5	12.0	8,791	3.6	3.6
Vic	1,610	11.4	11.6	6,947	4.2	4.2
Qld	1,310	10.6	10.4	6,442	3.7	3.6
WA	772	10.6	10.1	2,803	3.3	3.2
SA	718	14.1	14.3	3,111	5.1	5.1
Tas	138	9.2	9.6	759	3.3	3.3
ACT	155	11.6	10.3	727	5.0	5.1
NT	108	13.7	13.1	165	4.2	4.4
Australia	**7,416**	**11.4**	**11.4**	**29,745**	**3.8**	**3.8**

Note: ‘Crude rate’ is the number of participants recalled for assessment as a percentage of participants screened; ‘age-standardised (AS) rate’ is the number of participants recalled for assessment as a percentage of participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

A4 Invasive breast cancer detection

Table A4.1: All-size invasive breast cancer detection in participants aged 50–74, first and subsequent screening rounds, 2014 to 2020

	First screening round			Subsequent screening rounds		
Year	**Number**	**Crude rate**	**AS rate**	**Number**	**Crude rate**	**AS rate**
2014	672	88.0	115.2	4,408	56.0	51.2
2015	685	83.3	109.7	4,485	54.5	49.4
2016	739	83.9	103.3	4,721	55.4	50.4
2017	795	90.9	108.1	4,641	54.1	49.0
2018	789	90.7	113.5	4,851	54.8	49.5
2019	841	90.7	113.7	4,940	55.9	49.9
2020	571	87.7	114.7	4,407	57.0	50.4

Note: ‘Crude rate’ is the number of participants with all size invasive breast cancer detected per 10,000 participants screened; ‘age-standardised (AS) rate’ is the number of participants with all size invasive breast cancer detected per 10,000 participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A4.2: Small (≤15 mm) invasive breast cancer detection in participants aged 50–74, all screening rounds, 2014 to 2020

	All screening rounds		
Year	**Number**	**Crude rate**	**AS rate**
2014	2,962	34.3	32.3
2015	3,071	33.9	31.6
2016	3,205	34.1	31.7
2017	3,205	33.9	31.5
2018	3,308	34.0	31.5
2019	3,459	35.5	32.5
2020	2,972	35.4	32.0

Note: ‘Crude rate’ is the number of participants with small (≤15 mm) invasive breast cancer detected per 10,000 participants screened; ‘age-standardised (AS) rate’ is the number of participants with small (≤15 mm) invasive breast cancer detected per 10,000 participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A4.3: All-size and small (≤15 mm) invasive breast cancer detection, by age group, all screening rounds, 2020

	Size of breast cancer			
	All-size		Small (≤15 mm)	
Age group (years)	Number	Crude rate	Number	Crude rate
40–44	76	24.2	34	10.8
45–49	234	40.9	124	21.7
50–54	664	40.2	328	19.9
55–59	854	47.8	508	28.4
60–64	1,031	57.0	622	34.4
65–69	1,220	71.9	748	44.1
70–74	1,209	83.9	766	53.2
75+	406	121.4	230	68.8

Note: 'Crude rate' is the number of participants with all-size and small (≤15 mm) invasive breast cancer detected per 10,000 participants screened.

Source: AIHW analysis of BreastScreen Australia data.

Table A4.4: Proportion of small (≤15 mm) invasive breast cancers detected in participants aged 50–74, all screening rounds, 2014 to 2020

	2014	2015	2016	2017	2018	2019	2020
Proportion (%)	58.3	59.4	58.7	59.0	58.7	59.8	59.7

Note: Figures are the number of participants with small (≤15 mm) invasive breast cancer detected, as a proportion of the number of participants with invasive breast cancer detected.

Source: AIHW analysis of BreastScreen Australia data.

Table A4.5: All-size and small (≤15 mm) invasive breast cancer detection by state and territory, participants aged 50–74, first and subsequent screening rounds, 2020

	Size of breast cancer								
	All size						Small (≤15 mm)		
	First screening round			Subsequent screening rounds			All screening rounds		
State and territory	Number	Crude rate	AS rate	Number	Crude rate	AS rate	Number	Crude rate	AS rate
NSW	223	98.8	137.0	1,360	55.6	49.2	975	36.5	33.0
Vic	101	71.4	97.0	959	57.9	52.1	610	33.9	31.1
Qld	113	91.6	102.1	980	56.1	49.6	649	34.7	31.4
WA	67	91.7	143.6	499	58.2	49.9	330	35.4	31.5
SA	34	66.7	79.7	372	60.5	53.3	252	37.9	33.3
Tas	13	86.8	103.3	132	58.0	53.5	81	33.4	29.8
ACT	12	89.6	82.9	83	56.6	53.8	60	37.5	35.5
NT	8	101.1	156.2	22	56.5	48.3	15	32.0	26.7
Australia	**571**	**87.7**	**114.7**	**4,407**	**57.0**	**50.4**	**2,972**	**35.4**	**32.0**

Notes

1. 'Crude rate' is the number of participants with all size and small (≤15 mm) invasive breast cancer detected per 10,000 participants screened; 'age-standardised (AS) rate' is the number of participants with all size and small (≤15 mm) invasive breast cancer detected per 10,000 participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.
2. State and territory differences need to be taken into consideration when interpreting breast cancer detection results.
3. A small number of participants may be screened in one jurisdiction but have their breast cancer detected in another.

Source: AIHW analysis of BreastScreen Australia data.

A5 Ductal carcinoma in situ detection

Table A5.1: DCIS detection, by year, participants aged 50–74, first and subsequent screening rounds, 2014 to 2020

	First screening round			Subsequent screening rounds		
Year	Number	Crude rate	AS rate	Number	Crude rate	AS rate
2014	173	22.7	23.9	1,197	15.2	14.8
2015	186	22.6	25.2	1,125	13.7	12.8
2016	209	23.7	27.5	1,131	13.3	12.7
2017	213	24.3	28.5	1,057	12.3	11.6
2018	202	23.2	27.1	1,182	13.4	12.6
2019	222	23.9	25.5	1,117	12.7	11.8
2020	169	26.0	30.3	1,138	14.7	13.7

Note: 'Crude rate' is the number of participants with DCIS detected per 10,000 participants screened; 'age-standardised (AS) rate' is the number of participants with DCIS detected per 10,000 participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A5.2: DCIS detection, by age group, all screening rounds, 2020

Age group (years)	Number	Crude rate
40–49	119	13.4
50–59	483	14.0
60–69	551	15.7
70–74	273	19.0
75+	63	18.8

Note: 'Crude rate' is the number of participants with DCIS detected per 10,000 participants screened.

Source: AIHW analysis of BreastScreen Australia data.

Table A5.3: DCIS detection, by state and territory, participants aged 50–74, all screening rounds, 2020

State and territory	Number	Crude rate	AS rate
NSW	415	15.5	14.9
Vic	267	14.8	14.8
Qld	295	15.8	15.1
WA	151	16.2	15.3
SA	95	14.3	13.7
Tas	33	13.6	12.5
ACT	41	25.6	23.9
NT	10	21.3	19.4
Australia	**1,307**	**15.6**	**15.0**

Notes

1. 'Crude rate' is the number of participants with DCIS detected per 10,000 participants screened; 'age-standardised (AS) rate' is the number of participants with DCIS detected per 10,000 participants screened, age-standardised to the population of participants attending a BreastScreen Australia service in 2008. Rates based on numbers less than 20 should be interpreted with caution.
2. State and territory differences need to be taken into consideration when interpreting DCIS detection results.
3. A small number of participants may be screened in one jurisdiction but have their DCIS detected in another.

Source: AIHW analysis of BreastScreen Australia data.

A6a Interval cancers

Box A6.1: Confidence intervals

Confidence intervals (CIs) are presented in this report only for interval cancer rates. This is because it is deemed important to show the degree of error due to rare events in small populations to avoid potential misinterpretation of data and/or to present data consistently with data in other publications.

Where shown, 95% CIs can be used to determine if a statistically significant difference exists between compared values: where the CIs do not overlap, the difference between rates is greater than that which could be explained by chance and is therefore regarded as statistically significant. Because overlapping CIs do not imply that the difference between 2 rates is definitely due to chance, it can only be stated that no statistically significant differences were found—and not that no differences exist.

Judgment should be exercised in deciding whether any differences shown are of clinical significance.

Table A6.1: Interval cancer rate for participants aged 50–74 screened in index years 2015, 2016 and 2017, by state and territory, first and subsequent screening rounds, 0–12 months follow-up

	First screening round		Subsequent screening rounds	
State and territory	**AS rate**	**95% CI**	**AS rate**	**95% CI**
NSW	7.1	5.0–9.7	6.2	5.7–6.8
Vic	8.2	5.6–11.5	5.9	5.3–6.6
Qld	7.1	4.3–11.1	5.7	5.0–6.4
WA	5.9	2.6–10.7	8.0	6.9–9.2
SA	6.6	2.2–13.6	6.4	5.3–7.7
Tas	5.1	0.8–15.3	6.3	4.5–8.6
ACT	14.9	3.8–34.6	10.4	7.3–14.3
NT	2.8	0.1–15.6	5.8	2.1–12.7
Australia	**7.4**	**6.1–8.9**	**6.3**	**6.0–6.7**

Note: 'Age-standardised (AS) rate' is the number of interval cancers detected per 10,000 person-years, age-standardised to the population of participants attending a BreastScreen Australia service in 2008; '95% CI' are 95% confidence intervals.

Source: AIHW analysis of BreastScreen Australia data.

Table A6.2: Interval cancer rate for participants aged 50–74 screened in index years 2015, 2016 and 2017, by state and territory, first and subsequent screening rounds, 13–24 months follow-up

	First screening round		Subsequent screening rounds	
State and territory	**AS rate**	**95% CI**	**AS rate**	**95% CI**
NSW	9.0	6.6–11.9	11.4	10.6–12.3
Vic	11.7	8.2–15.8	12.5	11.6–13.5
Qld	11.1	7.4–15.8	11.9	10.9–12.9
WA	13.1	7.0–21.5	14.3	12.8–16.0
SA	16.1	8.9–25.8	11.8	10.3–13.5
Tas	7.8	1.9–20.4	7.5	5.5–10.0
ACT	4.7	1.3–12.1	14.0	10.2–18.8
NT	9.0	1.1–32.5	11.4	5.2–21.7
Australia	**10.8**	**9.2–12.6**	**12.1**	**11.6–12.5**

Note: 'Age-standardised (AS) rate' is the number of interval cancers detected per 10,000 person-years, age-standardised to the population of participants attending a BreastScreen Australia service in 2008; '95% CI' are 95% confidence intervals.

Source: AIHW analysis of BreastScreen Australia data.

Table A6.3: Interval cancers for participants screened in index years 2015, 2016 and 2017, by age group, all screening rounds, 0–12 months and 13–24 months follow-up

	Time since screen			
	0–12 months		13–24 months	
Age group (years)	**Number**	**Crude rate**	**Number**	**Crude rate**
40–49	277	7.7	367	11.3
50–59	776	6.4	1,219	10.9
60–69	726	6.4	1,363	12.8
70–74	235	6.4	492	14.4
75+	70	7.7	118	13.9

Note: 'Crude rate' is the number of interval cancers detected per 10,000 person-years.

Source: AIHW analysis of BreastScreen Australia data.

Table A6.4: Interval cancer rate for participants aged 50–74 screened in index years 2015, 2016 and 2017, by state and territory and screening round, 0–24 months follow-up

	First screening round		Subsequent screening rounds		All screening rounds	
State and territory	**AS rate**	**95% CI**	**AS rate**	**95% CI**	**AS rate**	**95% CI**
NSW	8.1	6.4–9.9	8.7	8.2–9.2	8.6	8.2–9.1
Vic	9.9	7.7–12.5	9.2	8.7–9.8	9.3	8.8–9.8
Qld	9.1	6.7–12.0	8.7	8.1–9.3	8.7	8.1–9.3
WA	9.4	5.8–13.8	11.0	10.0–12.0	10.8	9.9–11.7
SA	11.3	7.0–16.9	9.0	8.0–10.0	9.0	8.1–9.9
Tas	6.4	2.4–13.5	6.9	5.5–8.6	6.8	5.5–8.4
ACT	9.9	3.6–19.8	12.1	9.6–15.0	11.9	9.6–14.5
NT	5.2	1.1–15.1	8.2	4.6–13.5	8.4	5.0–13.2
Australia	**9.1**	**8.0–10.2**	**9.1**	**8.8–9.4**	**9.1**	**8.8–9.3**

Note: 'Age-standardised (AS) rate' is the number of interval cancers detected per 10,000 person-years, age-standardised to the population of participants attending a BreastScreen Australia service in 2008; '95% CI' are 95% confidence intervals.

Source: AIHW analysis of BreastScreen Australia data.

A6b Program sensitivity

Table A6.5: Program sensitivity for participants aged 50–74 screened in index years 2015, 2016 and 2017, by state and territory, first and subsequent screening rounds, 0–12 months follow-up

	First screening round	Subsequent screening rounds
State and territory	**AS rate**	**AS rate**
NSW	93.4	88.4
Vic	91.8	89.0
Qld	94.5	89.9
WA	94.5	86.1
SA	93.3	88.4
Tas	95.7	86.9
ACT	. .	83.2
NT	97.1	91.7
Australia	**93.2**	**88.5**

Note: 'Age-standardised (AS) rate' is the number of screen-detected cancers as a percentage of all cancers (screen-detected and interval cancers), age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A6.6: Program sensitivity for participants aged 50–74 screened in index years 2015, 2016 and 2017, by state and territory, first and subsequent screening rounds, 0–24 months follow-up

	First screening round	Subsequent screening rounds
State and territory	**AS rate**	**AS rate**
NSW	86.2	74.5
Vic	82.7	72.4
Qld	86.7	75.9
WA	85.1	70.9
SA	80.5	74.4
Tas	90.4	76.4
ACT	. .	70.1
NT	92.2	81.8
Australia	**85.0**	**73.9**

Note: 'Age-standardised (AS) rate' is the number of screen-detected cancers as a percentage of all cancers (screen-detected and interval cancers), age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

Table A6.7: Program sensitivity for participants screened in index years 2015, 2016 and 2017, all screening rounds, by age group, 0–12 months and 0–24 months follow-up

	Time since screen	
	0–12 months	0–24 months
Age group (years)	Crude rate	Crude rate
40–49	82.0	66.2
50–59	87.6	73.4
60–69	91.0	77.9
70–74	93.3	81.7
75+	94.4	86.2

Note: 'Crude rate' is the number of screen detected cancers as a percentage of all cancers (screen detected and interval cancers).

Source: AIHW analysis of BreastScreen Australia data.

Table A6.8: Program sensitivity for participants aged 50–74 screened in index years 2015, 2016 and 2017, all screening rounds, by state and territory, 0–12 months and 0–24 months follow-up

	Time since screen	
	0–12 months	0–24 months
State and territory	AS rate	AS rate
NSW	89.5	76.7
Vic	89.4	74.3
Qld	90.6	77.2
WA	87.5	73.3
SA	89.5	75.8
Tas	88.7	79.0
ACT	84.6	72.8
NT	93.3	84.5
Australia	**89.4**	**75.8**

Note: 'Age-standardised (AS) rate' is the number of screen detected cancers as a percentage of all cancers (screen detected and interval cancers), age-standardised to the population of participants attending a BreastScreen Australia service in 2008.

Source: AIHW analysis of BreastScreen Australia data.

A7a Invasive breast cancer incidence

Table A7.1: Incidence of invasive breast cancer in women, 1982 to 2018 (with estimates to 2021)

	New cases		AS rate	
Year of diagnosis	**50–74**	**All ages**	**50–74**	**All ages**
1982	2,977	5,318	182.2	81.2
1983	2,934	5,377	178.4	80.9
1984	3,184	5,715	190.8	83.7
1985	3,212	5,923	189.2	84.5
1986	3,324	6,086	195.3	85.1
1987	3,526	6,710	203.3	91.5
1988	3,583	6,737	204.1	89.7
1989	3,839	7,179	217.0	93.6
1990	3,920	7,443	220.0	95.2
1991	4,303	8,042	237.9	100.4
1992	4,184	8,022	228.9	98.2
1993	4,779	8,792	257.9	105.6
1994	5,497	9,761	289.7	114.7
1995	5,598	10,090	292.3	116.5
1996	5,366	9,749	274.8	109.8
1997	5,712	10,219	284.6	112.3
1998	6,079	10,763	295.5	115.6
1999	6,126	10,697	290.7	112.3
2000	6,572	11,429	303.9	117.2
2001	6,918	11,856	311.6	118.6
2002	7,033	12,113	308.7	118.6
2003	6,744	11,890	288.5	113.7
2004	7,078	12,233	295.9	114.7
2005	6,962	12,310	283.6	113.2
2006	7,417	12,748	293.9	114.7
2007	7,329	12,682	282.0	111.3
2008	8,017	13,694	299.7	117.7
2009	8,156	13,824	295.6	115.9
2010	8,656	14,420	304.7	118.2
2011	8,665	14,598	296.4	117.1
2012	9,161	15,369	304.7	120.9
2013	9,824	16,450	318.3	126.9
2014	10,427	16,984	329.5	128.1
2015	10,540	17,002	324.4	125.6
2016	10,801	17,478	325.8	126.7
2017	10,886	17,753	321.5	125.9
2018	11,401	18,538	328.5	128.4
2019	11,614	18,939	327.9	128.9
2020	11,945	19,498	328.0	129.3
2021	12,139	19,866	328.2	129.9

Notes

1. 'Age-standardised (AS) rate' is the number of new cases of breast cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.
2. Estimated incidence data for 2019–2021 are based on 2008–2018 incidence data. Actual incidence data for 2019–2021 may differ from estimated data due to current and ongoing program or practice changes.

Source: AIHW Australian Cancer Database 2018.

Table A7.2: Incidence of invasive breast cancer in women, by age group, 2018

Age group (years)	New cases	Crude rate
40–44	996	124.4
45–49	1,851	217.1
50–54	2,041	261.9
55–59	2,134	273.8
60–64	2,411	345.6
65–69	2,537	411.2
70–74	2,277	440.0
75–79	1,312	358.2
80–84	1,009	377.4
85+	1,046	334.9
50–74	*11,401*	*336.2*
All ages	***18,538***	***147.2***

Notes

1. ‘Crude rate’ is the number of new cases of breast cancer per 100,000 women.
2. All ages includes age groups from <20 to 85+.

Source: AIHW Australian Cancer Database 2018.

Table A7.3: Incidence of invasive breast cancer in women, by age group and histology group, 2018

	Age group (years)			
Type of breast cancer	**40–49**	**50–59**	**60–69**	**70+**
Invasive ductal carcinoma	2,399	3,352	3,781	3,973
Invasive lobular carcinoma	269	502	735	879
Medullary carcinoma and atypical medullary carcinoma	1	11	7	5
Tubular carcinoma and invasive cribriform carcinoma	33	73	67	61
Mucinous carcinoma	42	39	107	201
Invasive papillary carcinoma	37	55	123	144
Inflammatory carcinoma	4	5	5	13
Mesenchymal	2	4	3	3
Other–specified	36	78	76	111
Unspecified	24	56	43	253

Source: AIHW Australian Cancer Database 2018.

Table A7.4: Incidence of invasive breast cancer in women aged 50–74, by state and territory, 2014–2018

State and territory	New cases	AS rate
NSW	17,607	328.6
Vic	13,417	323.6
Qld	10,774	323.5
WA	5,398	325.5
SA	4,406	340.6
Tas	1,288	299.2
ACT	855	343.5
NT	308	258.9
Australia	**54,055**	**325.8**

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

Source: AIHW Australian Cancer Database 2018.

Table A7.5: Incidence of invasive breast cancer in women aged 50–74, by remoteness area, 2014–2018

Remoteness area	New cases	AS rate
Major cities	36,581	328.9
Inner regional	11,503	323.1
Outer regional	5,088	314.0
Remote	577	294.2
Very remote	221	231.1
Australia	**54,055**	**325.8**

Notes

1. Remoteness was classified according to the Australian Statistical Geography Standard (ASGS).
2. 'Australia' does not match the total, because some women were not allocated to a remoteness area.
3. 'Age-standardised (AS) rate' is the number of new cases of breast cancers per 100,000 women age-standardised to the Australian population at 30 June 2001.

Source: AIHW Australian Cancer Database 2018.

Table A7.6: Incidence of invasive breast cancer in women aged 50–74, by socioeconomic area, 2014–2018

Socioeconomic area	New cases	AS rate
1 (lowest)	10,269	307.7
2	10,888	314.9
3	10,861	321.8
4	10,495	331.6
5 (highest)	11,449	351.1
Australia	**54,055**	**325.8**

Notes

1. Socioeconomic area was allocated using the ABS Index of Relative Socio-economic Disadvantage (IRSD).
2. 'Australia' does not match the total because some women were not allocated to a socioeconomic area.
3. 'Age-standardised (AS) rate' is the number of new cases of breast cancers per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW Australian Cancer Database 2018.

Table A7.7: Incidence of invasive breast cancer in women aged 50–74 (New South Wales, Victoria, Queensland, Western Australia and the Northern Territory), by Indigenous status, 2014–2018

Indigenous status	New cases	Crude rate	AS rate
Indigenous[(a)]	720	266.2	284.5
Non-Indigenous[(a)]	45,054	319.4	314.0
Total[(a)]	**47,503**	**330.4**	**325.1**

(a) Data shown for 'Indigenous', 'Non Indigenous' and 'Total' are for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory only; data from these jurisdictions were considered to have adequate levels of Indigenous identification in cancer registration data at the time that this report was prepared. 'Total' includes women with a 'not stated' Indigenous status.

Notes

1. 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.
2. 'Crude rate' is the number of new cases of breast cancer per 100,000 women; 'age-standardised (AS) rates' are the number of breast cancers per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW Australian Cancer Database 2018.

Table A7.8: Five-year relative survival from breast cancer in females, by age group, 2014–2018

Age group (years)	5-year relative survival (%)
<20	n.p.
20–24	87.4
25–29	89.7
30–34	87.7
35–39	90.4
40–44	93.1
45–49	94.4
50–54	93.6
55–59	93.4
60–64	94.1
65–69	94.4
70–74	92.6
75+	82.9
50–74	*93.7*
All ages	**91.8**

n.p. = not published

Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018.

Table A7.9: Trend in 5-year relative survival from breast cancer in women aged 50–74, 1984–1988 to 2014–2018

Year	5-year relative survival (%)
1984–1988	71.7
1989–1993	78.1
1994–1998	84.7
1999–2003	89.1
2004–2008	90.9
2009–2013	92.2
2014–2018	93.7

Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018.

Table A7.10: Relative survival at diagnosis and 5-year conditional relative survival from breast cancer in women aged 50–74, 2014–2018

	Relative survival	Conditional survival	
Years after diagnosis	Relative survival (%)	Years already survived	5-year conditional relative survival (%)
1	98.9	. .	. .
2	97.7	. .	. .
3	96.3	. .	. .
4	95.0	. .	. .
5	93.7	0	93.7
6	92.7	1	93.7
7	91.7	2	93.8
8	90.8	3	94.3
9	90.1	4	94.8
10	89.3	5	95.3
11	88.6	6	95.6
12	87.9	7	95.9
13	87.1	8	95.9
14	86.4	9	95.9
15	85.7	10	96.0
16	84.9	11	95.9
17	84.3	12	95.9
18	83.4	13	95.7
19	82.6	14	95.7
20	81.8	15	95.4

Note: Relative survival was calculated with the period method, using the period 2014–2018 (Brenner & Gefeller 1996).

Source: AIHW Australian Cancer Database 2018.

A7b Ductal carcinoma in situ incidence

Table A7.11: Incidence of DCIS in women, 2002 to 2018

	New cases of DCIS		AS rate	
Year of diagnosis	**50–74**	**All ages**	**50–74**	**All ages**
2002	923	1,338	40.6	13.4
2003	977	1,402	41.8	13.6
2004	1,040	1,498	43.6	14.3
2005	1,052	1,501	42.8	14.0
2006	1,030	1,458	40.8	13.4
2007	1,073	1,550	41.3	13.8
2008	1,197	1,649	44.6	14.3
2009	1,238	1,735	45.0	14.8
2010	1,293	1,781	45.5	14.8
2011	1,317	1,822	44.9	14.8
2012	1,389	1,879	46.1	14.8
2013	1,569	2,147	50.8	16.7
2014	1,753	2,357	55.3	17.9
2015	1,709	2,283	52.6	16.9
2016	1,688	2,285	51.1	16.7
2017	1,612	2,179	47.8	15.6
2018	1,747	2,356	50.8	16.5

Notes

1. New South Wales has been collecting DCIS incidence data from early 2000, with its collection considered complete from 2002. New South Wales does not report these data, which means that it is unable to validate the data in this report.
2. 'Age-standardised (AS) rate' is the number of new cases of DCIS per 100,000 women, age-standardised to the Australian population at 30 June 2001.
3. The counting rules for DCIS incidence were revised for the 2016 ACD. For this reason, comparisons should not be made with DCIS data from previous versions of the ACD. See Box 3.7.4 for more details.

Source: AIHW Australian Cancer Database 2018.

Table A7.12: Incidence of DCIS in women, by age group, 2018

Age group (years)	New cases of DCIS	Crude rate
40–49	331	20.0
50–59	698	44.8
60–69	723	55.0
70+	527	36.0
50–74	*1,747*	*51.5*
All Ages	**2,356**	**18.7**

Notes

1. New South Wales does not report these data, which means that it is unable to validate the data in this report.
2. 'Crude rate' is the number of new cases of DCIS per 100,000 women.
3. All ages includes age groups from <20 to 85+.
4. The counting rules for DCIS incidence were revised for the 2016 ACD. For this reason, comparisons should not be made with DCIS data from previous versions of the ACD. See Box 3.7.4 for more details.

Source: AIHW Australian Cancer Database 2018.

A8 Mortality from breast cancer

Table A8.1: Mortality from breast cancer in women, 1982 to 2020 (with estimates to 2021)

	Number of deaths		AS rate	
Year of death	**50–74**	**All ages**	**50–74**	**All ages**
1982	1,160	1,987	71.2	30.4
1983	1,250	2,040	75.1	30.2
1984	1,255	2,166	75.0	31.6
1985	1,238	2,196	72.6	31.2
1986	1,224	2,165	70.8	29.9
1987	1,274	2,293	73.6	31.1
1988	1,302	2,361	73.5	31.2
1989	1,307	2,449	73.0	31.6
1990	1,320	2,422	72.8	30.6
1991	1,357	2,526	74.1	31.3
1992	1,240	2,429	66.7	29.4
1993	1,357	2,611	72.0	30.8
1994	1,372	2,669	71.5	30.9
1995	1,381	2,635	70.4	29.7
1996	1,335	2,620	67.1	28.8
1997	1,318	2,604	64.8	27.9
1998	1,260	2,541	60.7	26.5
1999	1,282	2,512	60.4	25.6
2000	1,247	2,521	57.3	24.9
2001	1,303	2,594	58.4	25.0
2002	1,349	2,681	59.2	25.2
2003	1,352	2,710	57.9	24.9
2004	1,347	2,665	56.3	24.0
2005	1,346	2,710	55.0	23.8
2006	1,311	2,624	52.3	22.4
2007	1,358	2,724	52.4	22.6
2008	1,347	2,746	50.4	22.3
2009	1,394	2,786	50.9	22.2
2010	1,372	2,837	48.4	21.7
2011	1,447	2,901	49.6	21.8
2012	1,438	2,824	48.0	20.8
2013	1,435	2,864	46.4	20.4
2014	1,407	2,836	44.3	19.8
2015	1,413	2,900	43.4	19.9
2016	1,449	2,987	43.0	19.9
2017	1,440	2,957	42.0	19.3
2018	1,401	2,975	39.7	18.9
2019	1,468	3,204	40.7	19.8
2020	1,517	3,110	41.0	18.7
2021	1,408	3,101	37.3	18.3

Notes

1. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. 'Age-standardised (AS) rate' is the number of deaths from breast cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.
3. Estimated mortality data for 2021 are based on 2010–2020 mortality data.

Source: AIHW National Mortality Database.

Table A8.2: Mortality from breast cancer in women, by age group, 2020

Age group (years)	Number of deaths	Crude rate
40–44	65	8.0
45–49	150	17.6
50–54	219	27.3
55–59	275	34.5
60–64	307	41.5
65–69	338	52.0
70–74	378	67.0
75–79	320	79.4
80–84	358	124.0
85+	634	195.2
50–74	*1,517*	*42.7*
All Ages	**3,110**	**24.0**

Notes

1. Deaths in 2020 were derived by year of registration of death; these are based on the preliminary version of cause of death data and are subject to further revision by the ABS.
2. 'Crude rate' is the number of deaths from breast cancer per 100,000 women.
3. All ages includes age groups from <20 to 85+.

Source: AIHW National Mortality Database.

Table A8.3: Mortality from breast cancer in women aged 50–74, by state and territory, 2016–2020

State and territory	Number of deaths	AS rate
NSW	2,311	40.7
Vic	1,921	43.4
Qld	1,444	40.7
WA	691	39.3
SA	582	42.7
Tas	190	41.3
ACT	93	34.5
NT	42	35.3
Australia	**7,275**	**41.3**

Notes

1. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. 'Age-standardised (AS) rate' is the number of deaths from breast cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW National Mortality Database.

Table A8.4: Mortality from breast cancer in women aged 50–74, by remoteness area, 2016–2020

Remoteness area	Number of deaths	AS rate
Major cities	4,801	40.4
Inner regional	1,696	44.7
Outer regional	654	39.4
Remote	72	38.0
Very remote	35	33.5
Australia	**7,275**	**41.3**

Notes

1. Remoteness classification according to the ASGS.
2. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
3. 'Age-standardised (AS) rate' is the number of deaths from breast cancer per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW National Mortality Database.

Table A8.5: Mortality from breast cancer in women aged 50–74, by socioeconomic area, 2016–2020

Socioeconomic area	Number of deaths	AS rate
1 (lowest)	1,512	42.4
2	1,605	43.0
3	1,457	41.4
4	1,384	41.9
5 (highest)	1,300	37.1
Australia	**7,275**	**41.3**

Notes

1. Socioeconomic areas were classified according to the ABS IRSD.
2. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
3. 'Age-standardised (AS) rate' is the number of deaths from breast cancers per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW National Mortality Database.

Table A8.6: Mortality from breast cancer in women aged 50–74 (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory), by Indigenous status, 2016–2020

Indigenous status	Number of deaths	Crude rate	AS rate
Indigenous[(a)]	120	41.5	44.5
Non-Indigenous[(a)]	4,925	42.0	40.4
Total[(a)(b)]	**5,070**	**42.2**	**40.7**

(a) 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.

(b) Total includes women whose Indigenous status is not stated.

Notes

1. Deaths from 2016 to 2019 were derived by year of death; deaths in 2020 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 revised versions; and deaths registered in 2019 and 2020 are based on preliminary version. Revised and preliminary versions are subject to further revision by the ABS.
2. 'Crude rate' is the number of deaths from breast cancer per 100,000 women; 'age-standardised (AS) rates' are the number of deaths from breast cancers per 100,000 women, age-standardised to the Australian population at 30 June 2001.

Source: AIHW National Mortality Database.

Appendix B: BreastScreen Australia information

Australia's national breast cancer screening program was established in 1991 as the National Program for the Early Detection of Breast Cancer. This program is now known as BreastScreen Australia, and is a joint program of the Australian and state and territory governments. BreastScreen Australia aims to reduce mortality and morbidity from breast cancer.

BreastScreen Australia provides free biennial breast cancer screening through dedicated screening and assessment services. Participants have a screening mammogram performed at a screening unit (which may be fixed, relocatable or mobile). Participants whose images are suspicious for breast cancer are recalled for further investigation by a multidisciplinary team at an assessment centre. Further investigation may include clinical examination, mammography, ultrasound and biopsy procedures. Most participants who are recalled for assessment are found not to have breast cancer.

Box B1: Objectives of BreastScreen Australia

The objectives of the BreastScreen Australia Program are to:

1. Reduce the mortality and morbidity attributable to breast cancer.
2. Maximise early detection of breast cancer in the target population.
3. Maximise the proportion of women in the target population who are screened every two years.
4. Provide high-quality services that are equitable, acceptable and appropriate to the needs of the population and equally accessible to all women in the target age group.
5. Provide screening and assessment services in accredited Screening and Assessment Services as part of the BreastScreen Australia program.
6. Provide high standards of program management, service delivery, monitoring, evaluation and accountability.

Source: BreastScreen Australia 2020.

Box B2: All BreastScreen services now use digital mammography

Digital mammography is a technique for recording breast X-ray images in computer code instead of on X-ray film (as with conventional film mammography). Digital mammography is as accurate as film mammography in screening asymptomatic women for breast cancer.

Advantages of digital mammography include increased efficiencies, improved working environment for radiographers, less physical storage requirements, and reduced need for radiologists to be on site to read mammograms.

In 2009, it was announced that $120 million would be provided over 4 years to ensure BreastScreen Australia would be fully digital by June 2013.

All BreastScreen services now use digital mammography.

Box B3: National policy features of BreastScreen Australia

Services accredited under BreastScreen Australia are expected to operate according to the National Accreditation Standards (NAS) of BreastScreen Australia, along with the national policy features and protocols detailed in this box.

1: Access and participation

Appropriate levels of access and participation in the target and eligible populations:

a. Women are selected for screening on the basis of age alone. (That is, women 40 years of age and above are eligible to participate and recruitment strategies are targeted at women aged 50–74).

b. The screening interval is every two years.

c. Screening is provided at minimal or no cost to the women, and free of charge to eligible women who would not attend if there were a charge.

d. Patterns of participation are representative of the socioeconomic, ethnic and cultural profiles of the target population.

2: Cancer detection

Breast cancer detection is maximised in the target population and harm is minimised:

a. Screening employs mammography as the primary screening method.

b. All women are screened with two view mammography. Reasons for any variation from this policy are documented.

c. All mammograms are taken by a mammographic technologist or radiographer appropriately trained in screening mammography.

d. All mammographic images are read and reported independently, in a blind relationship, by two or more readers, at least one of whom shall be a radiologist.

e. All mammography results are combined into a single recommendation, which indicates whether or not further assessment for the presence of breast cancer is required.

3: Assessment

Assessment and diagnosis of breast cancer is appropriate, safe and effective:

a. A comprehensive approach is employed in the assessment of breast abnormalities.

b. A multidisciplinary team is involved in the assessment of women recalled from screening.

c. The pre-operative diagnosis of breast cancer is maximised, and recommendations for surgery for benign lesions are minimised.

d. The outcomes for all women recommended for surgery are collected, reviewed and utilised in continuing professional education for members of the multidisciplinary team.

e. Women's general practitioners are kept informed of the results of screening and assessment, unless a participant directs otherwise.

(continued)

Box B3 (continued): National policy features of BreastScreen Australia

4: Timeliness

Screening and assessment services are provided to women in a timely and efficient manner:

a. Women have timely access to screening.

b. The time from screening to assessment is minimised.

c. The results of screening and assessment are provided promptly and directly to the participant concerned in ways which are sensitive to her possible anxiety.

5: Data management and information systems

Effective data and information management systems:

a. Data are collected, stored and managed using secure, quality, contemporary data management and communication systems that comply with relevant state and national standards, and that enable valid, reliable system and service performance analysis and evaluation.

b. Data are used for strategic purposes, quality improvement of services and for clinical and service management.

c. Data are collected in line with the requirements of the BreastScreen Australia Data Dictionary.

d. Data are to be submitted annually to the Australian Institute of Health and Welfare, for use in a national program monitoring report, and annual performance data reports for review by the National Quality Management Committee.

6: Client focus

Services are of high quality and client focused:

a. High quality information is provided to inform women, and women feel appropriately engaged and supported.

b. Screening services are provided in a manner which is acceptable to women in accessible, non-threatening and comfortable environments.

c. Women and health-care providers are given comprehensive and easily understood information about the Program, from screening up to and including diagnosis of breast cancer.

d. Counselling and information are an integral part of the Program.

e. Women are advised of the benefits and risks of mammography.

f. Women are provided with written information and actively involved in decisions about their management, particularly in relation to further assessment and treatment.

7: Governance and management

Effective structures and processes are in place to ensure high-quality governance and management:

a. Screening and assessment are carried out at BreastScreen Australia accredited services.

b. Key stakeholders and stakeholder groups participate in the monitoring and management of the Program.

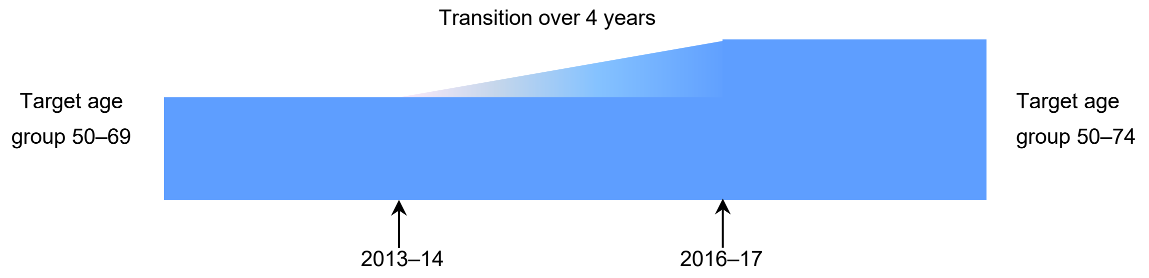
Women aged 50–74 now targeted by BreastScreen Australia

As part of the 2013–14 Federal Budget, the Australian Government committed $55.7 million over 4 years to expand BreastScreen Australia's target age range from 50–69 to 50–74, resulting in a change to the age group actively targeted for 2-yearly screening mammograms.

Therefore, from 1 July 2013 women aged 70–74 were actively targeted by BreastScreen Australia, along with women aged 50–69.

Both the funding and the targeting activities associated with increasing the target age range by 5 years were phased in over several years, and fully implemented by 2016–17. This meant that participation of women aged 70–74 was likely to increase until 2016–17, and thereafter be relatively stable (as illustrated in Figure 3.2).

Figure B.1: Transition of the target age range of BreastScreen Australia, from women aged 50–69 to women aged 50–74, between the financial years 2013–14 and 2016–17



More recently, the 2017–18 Federal Budget announced funding of $64.3 million over the next 4 years, from 2017–18 to 2020–21, to enable BreastScreen Australia to continue to actively invite women aged 70–74 to screen for the early detection of breast cancer.

Reporting on participants aged 50–74

Each performance indicator is reported using the target age group of 50–74. This approach is detailed in Box 3.1.

Box B:4: Reporting on BreastScreen Australia's new target age group of 50–74

The new target age group of 50–74 is included in indicator reporting as follows:

Participation: for participants screened in the 2 years 2014–2015, onwards.

Recall to assessment, invasive breast cancer detection and DCIS: for participants screened in the year 2014, onwards.

Rescreening, interval cancers and program sensitivity: for participants screened in the index year 2014 and onwards (noting that at least 27 months need to have passed after the index year to know if a participant rescreened or had an interval cancer detected).

This means that in the current report the target age group of 50–74 is reported for *Participation, Rescreening, Recall to assessment, Invasive breast cancer detection, DCIS detection*, *Interval cancers* and *Program sensitivity*, *Incidence* and *Mortality.*

Performance indicators

The performance of a population-based cancer screening program such as BreastScreen Australia needs to be assessed as it relates to the underlying aims of the program. At the national level, this is achieved by reporting data against a series of performance indicators to allow screening outcomes to be monitored, and positive and negative trends identified early.

BreastScreen Australia has been monitored since 1996–1997 using performance indicators developed and endorsed by the former National Screening Information Advisory Group and by jurisdictional BreastScreen programs. These national performance indicators represent key measures of the progress BreastScreen Australia is making towards reducing morbidity and mortality from breast cancer; they are listed in Table B1.

Table B1: Performance indicators for BreastScreen Australia

Performance indicators	
1 Participation	The percentage of participants aged 50–74 who have a screening mammogram through BreastScreen Australia in a 2-year period
2 Rescreening	The proportion of participants screened who return for a rescreen within 27 months
3 Recall to assessment	The proportion of participants screened who are recalled for further investigation
4 Invasive breast cancer detection	The number of participants with invasive breast cancer detected through BreastScreen Australia
5 Ductal carcinoma in situ detection	The number of participants with DCIS detected through BreastScreen Australia
6 Sensitivity	The ability of screening mammography to successfully detect cancers
6a Interval cancers	
6b Program sensitivity	
7 Incidence	The number of new cases of invasive breast cancer or DCIS
7a Invasive breast cancer incidence	
7b Ductal carcinoma in situ incidence	
8 Mortality	The number of deaths from invasive breast cancer

Note: Further details and definitions of performance indicators are available in previous BreastScreen Australia monitoring reports and in the *BreastScreen Australia data dictionary: version 1.2* (AIHW 2019).

Source: *BreastScreen Australia data dictionary: version 1.2* (AIHW 2019).

National Accreditation Standards (NAS) Measures

Provision of a high-quality service is of great importance to BreastScreen Australia. For this reason, services accredited under BreastScreen Australia are expected to operate according to the National Accreditation Standards (NAS) of BreastScreen Australia, along with national policy features and protocols. The accreditation system, of which the NAS are an integral part, intends to drive continuous quality improvement in the delivery of breast screening services to ensure women receive safe, effective and high-quality care.

The BreastScreen Australia NAS have been developed to ensure that all women receive breast screening services that are of a consistently high quality, regardless of where they attend for screening or assessment.

A number of NAS are consistent with the performance indicators in this report. For this reason, where appropriate, the data in this report are benchmarked against the NAS. These benchmarks are useful in helping to interpret the data presented, although in considering how these national data compare with the NAS, it should be noted that the NAS were not designed to be used as standards for the BreastScreen Australia performance indicators.

NAS Measures that relate to these data, along with data analysed by the Australian Institute of Health and Welfare (AIHW), appear in tables 3.1.1, 3.2.1, 3.3.1, 3.4.2, 3.5.1 and 3.6.3 in this report.

Contact details and online resources for BreastScreen Australia components are provided in Table B2.

Table B2: Contacts and links for the state, territory and Australian government components of BreastScreen Australia

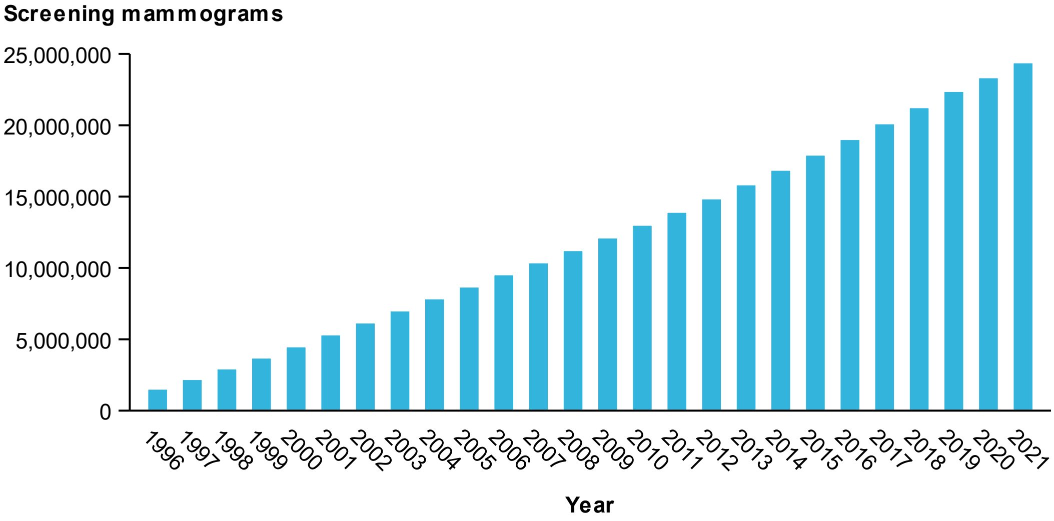
BreastScreen New South Wales	
Tel: (02) 8374 5777 Fax: (02) 8374 5699 Email: information@cancerinstitute.org.au	www.bsnsw.org.au
BreastScreen Victoria	
Tel: (03) 9660 6888 Fax: (03) 9662 3881 Email: info@BreastScreen.org.au	www.BreastScreen.org.au
BreastScreen Queensland	
Tel: (07) 3328 9467 Fax: (07) 3328 9487 Email: cssb@health.gov.au	www.health.qld.gov.au/breastscreen
BreastScreen Western Australia	
Tel: (08) 9323 6700 Fax: (08) 9323 6799 Email: BreastScreenwa@health.wa.gov.au	www.BreastScreen.health.wa.gov.au
BreastScreen South Australia	
Tel: (08) 8274 7100 Fax: (08) 8373 4395 Email: HealthBSSAEnquiries@sa.gov.au	www.breastscreensa.sa.gov.au
BreastScreen Tasmania	
Tel: (03) 6216 4300 Fax: (03) 6216 4326 Email: canscreen@dhhs.tas.gov.au	http://www.dhhs.tas.gov.au/service_information/services_files/breastscreen_tasmania
BreastScreen ACT	
Tel: (02) 6205 4444 Fax: (02) 6205 1394 Email: BreastScreen@act.gov.au	https://www.health.act.gov.au/services-and-programs/women-youth-and-children/womens-health/breast-screening
BreastScreen NT	
Tel: (08) 8922 6449 Fax: (08) 8922 6440 Email: wcpp.ths@nt.gov.au	https://nt.gov.au/wellbeing/cancer-services/breastscreennt
Department of Health	
Email: cancerscreening@health.gov.au	http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/breast-screening-1
AIHW	
Email: screening@aihw.gov.au	https://www.aihw.gov.au/reports-data/health-welfare-services/cancer-screening/overview

Box B5: BreastScreen Australia 1991 to 2021

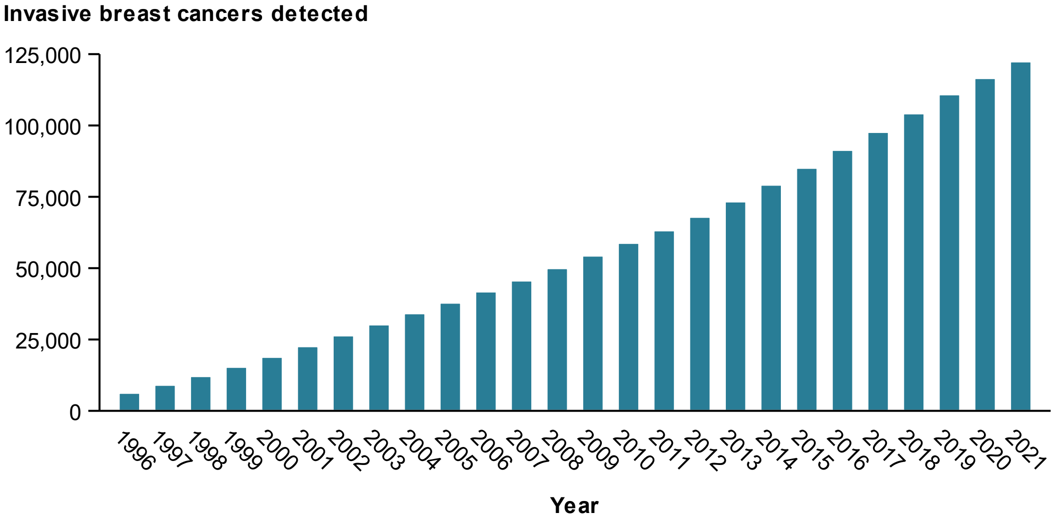
BreastScreen Australia was established in 1991 as the National Program for the Early Detection of Breast Cancer, with national data reported from 1996 onwards.

The number of screening mammograms performed, and invasive breast cancers detected by BreastScreen Australia, has been estimated over the years 1991 to 2021.

Over the years 1991 to 2021, it is estimated that BreastScreen has performed close to 25 million screening mammograms (cumulative total shown in figure below).



Over the years 1991 to 2021, it has been estimated that BreastScreen has detected over 120,000 invasive breast cancers (cumulative total shown in figure below).



Notes:

1. Data from 1991–1995 are included in the total for 1996 in the figures above.
2. Some state and territory BreastScreen programs did not commence from 1991 and/or do not have data for 1991–1995, so some data for 1991–1995 are estimates.
3. Invasive breast cancers exclude ductal carcinoma in situ (DCIS).

Source: State and territory BreastScreen register data.

Appendix C: Data sources

Data used in this report are derived from multiple sources and are summarised in Table C1.

Table C1: Data sources for *BreastScreen Australia monitoring report 2022*

Data used to monitor BreastScreen	Data source
Monitoring BreastScreen Australia using BreastScreen data	
Performance Indicator 1 Participation	State and territory BreastScreen registers; ABS population data
Performance Indicator 2 Rescreening	State and territory BreastScreen registers
Performance Indicator 3 Recall to assessment	State and territory BreastScreen registers
Performance Indicator 4 Invasive breast cancer detection	State and territory BreastScreen registers
Performance Indicator 5 DCIS detection	State and territory BreastScreen registers
Performance Indicator 6 Sensitivity	State and territory BreastScreen registers
Monitoring BreastScreen Australia using AIHW data	
Performance Indicator 7 Incidence	AIHW Australian Cancer Database; ABS population data
Performance Indicator 8 Mortality	AIHW National Mortality Database; ABS population data

State and territory BreastScreen registers

Data for the performance indicators *Participation, Rescreening, Recall to assessment, Invasive breast cancer detection, DCIS detection*, and *Sensitivity* are sourced from the BreastScreen register in each state and territory according to definitions and data specifications in the *BreastScreen Australia data dictionary version 1.2* (AIHW 2019). These data are compiled into national figures by the AIHW to allow national monitoring of BreastScreen Australia.

The Data Quality Statement for BreastScreen Australia data can be found on the AIHW website at: https://meteor.aihw.gov.au/content/741983

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 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 2018 for all states and territories.

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. As a result, 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 same year.

The 2019–2022 estimates for incidence used a method described in the technical notes of *Cancer data in Australia* (AIHW 2022).

The Data Quality Statement for the 2018 ACD can be found on the AIHW website at https://meteor.aihw.gov.au/content/757686

National Death Index

The National Death Index is a database, housed at the AIHW, which contains records of all deaths occurring in Australia since 1980. The data are obtained from the registrars of Births, Deaths and Marriages in each state and territory. The National Death Index is designed to facilitate the conduct of epidemiological studies and its use is strictly confined to medical research.

Cancer incidence records from the ACD were linked to the National Death Index and used to calculate the survival and prevalence data presented in this report.

The Data Quality Statement for the National Death Index can be found at http://meteor.aihw.gov.au/content/index.phtml/itemId/480010.

National Mortality Database

The AIHW NMD contains information supplied by the registrars of Births, Deaths and Marriages and the National Coronial Information System—and coded by the ABS—for deaths from 1964 to 2019. Registration of deaths is the responsibility of the Registry of Births, Deaths and Marriages in each state and territory. 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 the death occurred and the year in which it was registered are provided. For the purposes of this report, actual mortality data are shown based on the year the death occurred, except for the most recent year (2020), where 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 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 and 2020 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

The 2021 estimates for mortality were based on the 2010–2020 NMD and used a method as described in the technical notes of *Cancer data in Australia* (AIHW 2022).

The data quality statements underpinning the AIHW NMD can be found on the following ABS internet pages:

- ABS quality declaration summary for Deaths, Australia https://www.abs.gov.au/methodologies/deaths-australia-methodology/2020
- ABS quality declaration summary for Causes of death, Australia https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2020

For more information on the AIHW NMD, see the section ‘Deaths data at AIHW’ on the following web site: https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/.

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.

Australian Burden of Disease Study

The Australian Burden of Disease Study (ABDS) 2018 used burden of disease analysis to measure the impact of 219 diseases and injuries on the health of the Australian population. The study provides a detailed picture of the burden of disease in the population in 2003, 2011, 2015 and 2018. It includes estimates of total, fatal and non-fatal burden for the total Australian population, as well as by state and territory, remoteness areas and socioeconomic areas. It also includes estimates of the contribution made by selected risk factors on the disease burden in Australia, and by socioeconomic areas for some risk factors.

The ABDS 2018 uses and adapts the methods of global studies to produce estimates that are more relevant to the Australian health policy context. The chosen reference period (2018) reflects the data availability from key data sources (such as the National Health Survey, deaths data, hospital admissions data and various disease registers) at the time of analysis.

Results from the study provide an important resource for health policy formulation, health service planning, and population health monitoring. The results provide a foundation for further assessments; for example, in relation to health interventions that aim to prevent or treat diabetes and its complications, and disease expenditure.

Full details on the various methods, data sources and standard inputs used in the ABDS 2018 are available in *Australian Burden of Disease Study 2018: methods and supplementary material* (AIHW 2021b).

Population data

Throughout this report, population data were used to derive rates of participation in breast cancer screening, breast cancer incidence and mortality rates. 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 and adjusts them 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 people 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 http://www.abs.gov.au.

For the Indigenous incidence and mortality comparisons in this report, the most recently released ABS Indigenous estimated resident populations were used. Those estimates were based on the 2016 Census of Population and Housing (ABS 2018).

Appendix D: Classifications

Age

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

State or territory

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

Index of Relative Socio-economic Disadvantage

The Index of Relative Socio-economic Disadvantage (IRSD) is one of 4 Socio-Economic Indexes for Areas developed by the ABS. This index 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 corresponds to geographical areas containing the 20% of the population with the greatest socioeconomic disadvantage according to the IRSD, and the fifth area corresponds to the 20% of the population with the least socioeconomic disadvantage. Caution should always be used when analysing the results of data that have been converted using correspondences, with the potential limitations of the data taken into account.

Socioeconomic areas for screening data

Participants' areas of residence were assigned to socioeconomic areas using the participant's residential postcode according to the IRSD for 2016. Socioeconomic groupings (based on IRSD rankings) were calculated with a postal area correspondence, using a population-based method at the Australia-wide level. Participants whose postcode was not available in the socioeconomic correspondence were included in an 'Unknown' column in the relevant tables.

Socioeconomic areas for incidence and mortality

Socioeconomic disadvantage areas were assigned to cancer cases according to the IRSD for 2011 of the Statistical Area Level 2 of residence at the time of diagnosis, and to deaths according to the Statistical Area Level 2 of residence at the time of death. The 2011 IRSD classifications were used for cancer cases as data were more complete using the 2011 Statistical Area Level 2, than the 2016 Statistical Area Level 2 within the 2016 ACD. For consistency between incidence and mortality reporting, 2011 classifications were also used for mortality reporting.

International Statistical Classification of Diseases and Related Health Problems

The International Statistical Classification of Diseases and Related Health Problems (ICD) is used to classify diseases and other health problems (including symptoms and injuries) in clinical and administrative records. The use of a standard classification system enables the storage and retrieval of diagnostic information for clinical and epidemiological purposes that is comparable between different service providers, across countries and over time.

In 1903, Australia adopted the ICD to classify causes of death and it was fully phased in by 1906. Since 1906, the ICD has been revised 9 times in recognition of new diseases (for example, Acquired Immunodeficiency Syndrome, or AIDS), increased knowledge of diseases, and changing terminology in describing diseases. The version currently in use, the ICD-10 (WHO 1992), was endorsed by the 43rd World Health Assembly in May 1990 and officially came into use in World Health Organization member states from 1994.

International Statistical Classification of Diseases and Related Health Problems, Australian Modification

The Australian modification of the ICD-10, referred to as the ICD-10-AM (NCCH 2010), is based on the ICD-10. The ICD-10 was modified for the Australian setting by the National Centre for Classification in Health, with assistance from clinicians and clinical coders. Despite the modifications, compatibility with the ICD-10 at the higher levels of the classification (that is, up to 4-character codes) has been maintained. The ICD-10-AM has been used to classify diagnoses in hospital records in all states and territories since 1999–2000 (AIHW 2000).

Remoteness Areas

The Remoteness Areas divide Australia for statistical purposes into broad geographic regions that share common characteristics of remoteness. 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 in the Remoteness Structure: *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.

Remoteness Area for screening data

Postcodes of participants were mapped to the 2016 Australian Statistical Geography Standard Remoteness Areas. Residential postcodes were used where available, with non-residential identifiers (such as post office boxes) used otherwise. As some postcodes can span different Remoteness Areas, a weighting for each Remoteness Area is attributed to the postcode. This can result in non-integer counts for remoteness classifications. For example, the Northern Territory postal area 0822 is classified as 62.3% *Very remote*, 20.3% *Remote* and 17.3% *Outer regional*. Participants with postcode 0822 have their counts apportioned accordingly.

Remoteness Area for incidence and mortality

Each unit record in the ACD contains 2011 Statistical Area Level 2 and 2016 Statistical Area Level 2, but not the Remoteness Area. To calculate both the cancer incidence rates and the cancer mortality rates by Remoteness Area, a correspondence was used to map the 2011 Statistical Area Level 2 to the 2011 Remoteness Area. The 2011 Statistical Area Level 2 classification was used for cancer cases as data were more complete using that than the 2016 Statistical Area Level 2 classification within the 2016 ACD. For consistency between incidence and mortality reporting, 2011 classifications were also used for mortality reporting.

Tables in this report based on geographical location were rounded to integer values. Where figures were rounded, discrepancies may occur between totals and sums of the component items. Participants whose postcode was not available in the remoteness correspondence were included in an 'Unknown' column in the relevant tables.

Classification of invasive breast cancer and ductal carcinoma in situ

Histology

Invasive breast cancer

Histology codes to classify invasive breast cancer into the groups that appear in Table 4.1 in this report were developed with the assistance of the state and territory cancer registries. Groupings for invasive breast cancers are listed in Table D1.

Table D1: Breast cancer by histology group

Breast cancer group	Type of breast cancer (ICD-O-3 codes)
Invasive ductal carcinoma	Pleomorphic carcinoma (8022)
	Carcinoma with osteoclast-like giant cells (8035)
	Basaloid carcinoma (8123)
	Scirrhous adenocarcinoma (8141)
	Carcinoma simplex (8231)
	Infiltrating duct carcinoma, NOS (8500)
	Duct carcinoma, desmoplastic type (8514)
	Infiltrating ductular carcinoma (8521)
	Infiltrating duct and lobular carcinoma (8522)
	Infiltrating duct mixed with other types of carcinoma (8523)
	Paget disease and infiltrating duct carcinoma of breast (8541)
	Paget disease and intraductal carcinoma of breast (8543)
Invasive lobular carcinoma	Pleomorphic lobular carcinoma, NOS (8519)
	Lobular carcinoma, NOS (8520)
	Infiltrating lobular mixed with other types of carcinoma (8524)
Medullary carcinoma and atypical medullary carcinoma	Medullary carcinoma, NOS (8510)
	Atypical medullary carcinoma (8513)
	Medullary carcinoma with lymphoid stroma (8512)

(continued)

Table D1 (continued): Breast cancer by histology group

Breast cancer group	Type of breast cancer (ICD-O-3 codes)
Tubular carcinoma and invasive cribriform carcinoma	Tubular adenocarcinoma (8211)
	Cribriform carcinoma, NOS (8201)
Mucinous carcinoma	Mucinous adenocarcinoma (8480)
	Mucin-producing adenocarcinoma (8481)
	Signet ring cell carcinoma (8490)
Invasive papillary carcinoma	Intraductal papillary adenocarcinoma with invasion (8503)
	Papillary adenocarcinoma, NOS (8260)
	Intracystic (papillary) adenocarcinoma (8504)
	Papillary carcinoma, NOS (8050)
	Solid papillary carcinoma (8509)
	Invasive micropapillary carcinoma (8507)
	Micropapillary carcinoma NOS (8265)
Inflammatory carcinoma	Inflammatory carcinoma (8530)
Mesenchymal	Sarcoma, NOS (8800)
	Spindle cell sarcoma (8801)
	Giant cell sarcoma (8802)
	Epithelioid sarcoma (8804)
	Undifferentiated sarcoma (8805)
	Fibrosarcoma (8810)
	Fibromyxosarcoma (8811)
	Low grade myofibroblastic sarcoma (8825)
	Malignant fibrous histiocytoma (8830)
	Liposarcoma, NOS (8850)
	Well differentiated liposarcoma, NOS (excluding superficial soft tissue) (8851)
	Myxoid liposarcoma (8852)
	Pleomorphic liposarcoma (8854)
	Leiomyosarcoma (8890)
	Angiomyosarcoma (8894)
	Myosarcoma (8895)
	Rhabdomyosarcoma (8900)
	Alveolar rhabdomyosarcoma (8920)
	Stromal sarcoma, NOS (8935)
	Haemangiosarcoma (9120)
	Haemangioendothelioma, malignant (9130)
	Haemangiopericytoma, malignant (9150)
	Lymphangiosarcoma (9170)
	Osteosarcoma, NOS (9180)
	Chondrosarcoma, NOS (9220)
	Metaplastic carcinoma, NOS (8575)

(continued

Table D1 (continued): Breast cancer by histology group

Breast cancer group	Type of breast cancer (ICD-O-3 codes)
Other—specified	Adenocarcinoma with squamous differentiation (8570)
	Adenocarcinoma with spindle cell metaplasia (8572)
	Squamous cell carcinoma, NOS (8070)
	Squamous cell carcinoma, keratinising, NOS (8071)
	Squamous cell carcinoma, large cell nonkeratinising, NOS (8072)
	Squamous cell carcinoma, spindle cell (8074)
	Spindle cell carcinoma, NOS (8032)
	Carcinosarcoma, NOS (8980)
	Adenocarcinoma with cartilaginous and osseous metaplasia (8571)
	Pseudosarcomatous carcinoma (8033)
	Malignant myoepithelioma (8982)
	Adenocarcinoma, NOS (8140)
	Phyllodes tumour, malignant (9020)
	Paget disease, mammary (8540)
	Adenocarcinoma with apocrine metaplasia (8573)
	Apocrine adenocarcinoma (8401)
	Neuroendocrine carcinoma, NOS (8246)
	Small cell carcinoma, NOS (8041)
	Carcinoma with neuroendocrine differentiation (8574)
	Large cell neuroendocrine carcinoma (8013)
	Carcinoid, NOS (8240)
	Atypical carcinoid tumour (8249)
	Adenocarcinoma with mixed subtypes (8255)
	Mixed cell adenocarcinoma (8323)
	Secretory carcinoma of breast (8502)
	Acinar cell carcinoma (8550)
	Mucoepidermoid carcinoma (8430)
	Lipid-rich carcinoma (8314)
	Glycogen-rich carcinoma (8315)
	Clear cell adenocarcinoma, NOS (8310)
	Sebaceous carcinoma (8410)
	Mixed tumour, malignant (8940)
	Lymphoepithelial carcinoma (8082)
	Basal cell adenocarcinoma (8147)
	Trabecular carcinoma (8190)
	Solid carcinoma, NOS (8230)
	Adenomyoepithelioma, malignant (8983)
	Adenoid cystic carcinoma (8200)

(continued

Table D1 (continued): Breast cancer by histology group

Breast cancer group	Type of breast cancer (ICD-O-3 codes)
Other—specified (continued)	Epithelial myoepithelial carcinoma (8562)
	Peripheral neuroectodermal tumour, NOS (9364
	Granular cell tumour, malignant (9580)
	Adenosquamous carcinoma (8560)
	Comedocarcinoma, NOS (8501)
	Small cell-large cell carcinoma (8045)
	Myxosarcoma (8840)
	Adenocarcinoma in adenomatous polyp (8210)
	Solitary fibrous tumour, malignant (8815)
	Papillary carcinoma, encapsulated (8343)
	Granular cell carcinoma (8320)
	Sex cord-gonadal stromal tumour, incompletely differentiated, malignant (8591)
	Carcinoma in pleomorphic adenoma (8941)
	Non-small cell carcinoma (8046)
	Basal cell carcinoma, nodular (8097)
	Superficial spreading adenocarcinoma (8143)
	Alveolar adenocarcinoma (8251)
	Papillary carcinoma, columnar cell (8344)
	Papillary cystadenocarcinoma NOS (8450)
	Hepatoid adenocarcinoma (8576)
	Malignant melanoma NOS (8720)
	Spindle cell rhabdomyosarcoma (8912)
	Synovial sarcoma NOS (9040)
	Malignant peripheral nerve sheath tumour (9540)
Unspecified	Neoplasm, malignant (8000)
	Tumour cells, malignant (8001)
	Malignant tumour, spindle cell type (8004)
	Carcinoma, NOS (8010)
	Large cell carcinoma, NOS (8012)
	Carcinoma, undifferentiated (8020)
	Carcinoma, anaplastic (8021)
	Giant cell and spindle cell carcinoma (8030)
	Giant cell carcinoma (8031)

Non-invasive breast tumours

Histology codes to classify non-invasive breast tumours were also developed with the assistance of the state and territory cancer registries. Groupings for non-invasive breast tumours are listed in Table D2. Only the histology codes for DCIS are relevant to this report, because other non-invasive breast tumours have not been reported here.

In interpreting incidence of non-invasive breast tumours, it should be noted that non-invasive tumours that are diagnosed within 4 months of an invasive breast cancer are excluded. This is referred to as the ‘4-month rule’ and is based on the consensus view that, in such a situation, the invasive breast cancer was almost certainly present at the time of the DCIS diagnosis, but was not detected.

The effect of applying this rule was the removal of any non-invasive records in which an invasive breast cancer was diagnosed in less than or equal to 121 days of a non-invasive tumour.

Table D2: Non-invasive breast tumours by histology group

Breast cancer group	Type of breast cancer (ICD-O-3 codes)
Ductal carcinoma in situ (DCIS)	Papillary carcinoma in situ, NOS (8050)
	Cribriform carcinoma in situ (8201)
	Ductal carcinoma in situ, solid type (8230)
	Papillary adenocarcinoma, NOS, in situ (8260)
	Apocrine adenocarcinoma in situ (8401)
	Intraductal carcinoma, non-infiltrating, NOS (8500)
	Comedocarcinoma, non-infiltrating (8501)
	Secretory carcinoma of breast in situ (8502)
	Non-infiltrating intraductal papillary adenocarcinoma (8503)
	Non-infiltrating intracystic carcinoma (8504)
	Intraductal micropapillary carcinoma (8507)
	Cystic hypersecretory carcinoma in situ (8508)
	Solid papillary carcinoma in situ (8509)
	Non infiltrating ductular carcinoma (8521)
	Intraductal carcinoma and lobular carcinoma in situ (8522)
	Ductal carcinoma in situ mixed with other types of carcinoma in situ (8523)
	Paget disease, in situ, and intraductal carcinoma of breast (8543)
Lobular carcinoma in situ (LCIS)	Pleomorphic lobular carcinoma in situ (8519)
	Lobular carcinoma in situ, NOS (8520)
Other specified carcinoma in situ	Squamous cell carcinoma in situ, NOS (8070)
	Adenocarcinoma in situ (8140)
	Mucinous adenocarcinoma in situ, NOS (8480)
	Paget disease, in situ, mammary (8540)
	Adenocarcinoma in situ with squamous metaplasia (8570)
Unspecified	Carcinoma in situ, NOS (8010)

Appendix E: Statistical methods

Comparisons and tests of statistical significance

This report includes statistical tests of the significance of comparisons of rates between population groups. Any statistical comparison applied to 1 variable must take account of any other potentially relevant variables. For example, any comparison of participation by state must also take account of differences in the distribution of age and sex between the states. These other variables are known as ‘confounding’ variables.

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 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. They are 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 others (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 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 group 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 10,000 or 100,000, as appropriate.

Confidence intervals

Population numbers for incidence and mortality and screening have a natural level of variability for a single year above and below what might be expected in the mean over many years. The percentage variability is small for large population numbers but high for small numbers such as mortality in a young age group. One measure of the likely difference is that of standard error, which indicates the extent to which a population number might have varied by chance in only 1 year of data. In the 95% confidence interval, there are around 19 chances in 20 that the difference will be less than 2 standard errors.

There are several methods for calculating confidence intervals. The 95% confidence intervals (CIs) in this report were calculated using a method developed by Dobson and others (1991). This method calculates approximate confidence intervals for a weighted sum of Poisson parameters.

Interpretation of confidence intervals

Some indicators have a 95% confidence interval presented along with the rates. This is because the observed value of a rate may vary due to chance, even where there is no variation in the underlying value of the rate. The 95% confidence interval represents a range (interval) over which variation in the observed rate is consistent with this chance variation. In other words, there is a 95% chance that the true value of the rate is somewhere within this range.

These confidence intervals can be used as a guide to whether differences in a particular rate are consistent with chance variation. Where the confidence intervals do not overlap, the difference between rates is greater than that which could be explained by chance, and is regarded as statistically significant.

It is important to note that the overlapping of confidence intervals does not imply that the difference between 2 rates is definitely due to chance. Instead, an overlapping confidence interval represents a difference in rates that is too small to allow differentiation between a real difference and one that is due to chance variation. It can therefore only be stated that no statistically significant differences were found, and not that no differences exist.

The approximate comparisons presented might understate the statistical significance of some differences, but they are sufficiently accurate for the purposes of this report.

As with all statistical comparisons, care should be exercised in interpreting the results of the comparison. If 2 rates are statistically significantly different from each other, this means that the difference is unlikely to have arisen by chance. Judgment should, however, be exercised in deciding whether the difference is of any clinical significance.

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Abbreviations

ABDS	Australian Burden of Disease Study
ABS	Australian Bureau of Statistics
ACD	Australian Cancer Database
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
AS	age-standardised
ASR	age-standardised rate
CI	confidence interval
DALY	disability-adjusted life year
DCIS	ductal carcinoma in situ
DRF	Death Registration Form
ICD	International Classification of Disease
IRSD	Index of Relative Socio economic Disadvantage
MCCD	Medical Certificate of Cause of Death
NAS	National Accreditation Standards
NCSP	National Cervical Screening Program
NMD	National Mortality Database
NOS	not otherwise specified
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
RA	remoteness area
SA	South Australia
SEIFA	Socio Economic Indexes for Areas
SCU	State Coordination Unit
Tas	Tasmania
Vic	Victoria
WA	Western Australia
YLD	years lived with disability
YLL	years of life lost

Symbols

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

Glossary

Note: Terms in bold within definitions are defined elsewhere in the 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 method of removing the influence of age when comparing populations with different age structures. This is usually necessary because 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 comparison of disease rates.

assessment: Further investigation of a mammographic abnormality or symptom reported at **screening**.

Australian Statistical Geography Standard (ASGS): Common framework defined by the Australian Bureau of Statistics for collection and dissemination of geographically classified statistics. The ASGS replaced the Australian Standard Geographical Classification (ASGC) in July 2011.

benign: Not **malignant**.

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

BRCA1 or BRCA2 mutation: BRCA1 and BRCA2 are human genes that produce tumour suppressor proteins. These proteins help repair damaged DNA and, therefore, play a role in ensuring the stability of the cell's genetic material. When either of these genes is mutated, or altered, such that its protein product either is not made or does not function correctly, DNA damage may not be repaired properly. As a result, cells are more likely to develop additional genetic alterations that can lead to cancer.

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.

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.

confidence interval: A range determined by variability in data, within which there is a specified (usually 95%) chance that the true value of a calculated parameter lies.

DALY (disability-adjusted life years): Measure (in years) of healthy life lost, either through premature death defined as dying before the expected life span at the age of death (YLL) or, equivalently, through living with ill health due to illness or injury (YLD).

ductal carcinoma in situ (DCIS): A non-invasive tumour of the mammary gland (breast) arising from cells lining the ducts.

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

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

first screening round: See **screening round**.

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

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

index screening year: The year for which an **interval cancer** rate and program sensitivity rate are determined.

index screens: All screening examinations performed within the index screening 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**.

interval cancer (invasive): (as defined for national reporting purposes by Kavanagh and others (1999), with minor changes endorsed by the then-named National Advisory Committee):

(a) an invasive breast cancer diagnosed after completion of a negative screening episode and before the next screening examination (within 24 months from the date of the previous screen)
(b) a case of invasive breast cancer that is diagnosed at early review or in the interval between assessment and early review, where the recommendation for early review is 6 months or more from the screening date
(c) breast cancer diagnosed in a participant by BreastScreen Australia within 24 months of a negative screen (early rescreen) if the participant presents with a breast lump and/or clear or bloodstained nipple discharge in the breast in which the breast cancer is diagnosed
(d) an invasive breast cancer diagnosed between 6 and 24 months after a recommendation for assessment is made and a participant fails to attend assessment.

invasive cancer: A **tumour** whose cells have spread locally and have the potential to spread to nearby healthy or normal tissue or to more distant parts of the body.

malignant: Abnormalities in cells or tissues consistent with **cancer**.

mammogram: A radiographic depiction of the breast.

menarche: The first menstrual period.

menopause: Permanent cessation of menstruation.

morbidity: Illness.

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

new case (of cancer): A person who has a new cancer diagnosed for the first time. One person may have more than one cancer and therefore may be counted twice in **incidence** statistics if it is decided that the two 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).

person-years: The denominator for the interval cancer rate, it is the ‘number of years at risk’ of being diagnosed with an interval cancer and takes into account participants who screen annually rather than every 2 years (who would be at risk for the first year after their screen but not the second).

rescreening: The next screening examination after the screening episode in the index screening year.

risk factor: An attribute or exposure that is associated with an increased probability of a specified outcome, such as the occurrence of a disease. Risk factors are not necessarily the causes of disease.

screening: The performance of tests on apparently well people in order to detect a medical condition at an earlier stage than would otherwise be the case.

screening episode: All attendances for screening and assessment within 6 months relating to a particular round of screening. It starts at the date of attendance for screening. It is completed when:

(a) a recommendation is made to return the participant to routine rescreening
(b) a recommendation is made for early review at 6 months or more from the screening date
(c) a diagnosis of cancer is made
(d) the participant fails to attend for technical recall or assessment within 6 months
(e) the woman dies.

screening round: The first screening round is a participant's first visit to a mammography screening service; a subsequent screening round means that she has been screened before. For example, if she attends for a fourth screening round, she has been screened 3 times before.

significant difference: Where rates are referred to as significantly different, or one rate is deemed significantly higher or lower than another, these differences are statistically significant. Rates are deemed statistically significantly different when their **confidence intervals** do not overlap, since their difference is greater than what could be explained by chance. See 'confidence intervals' in Appendix E for more information.

symptom: Any evidence of disease apparent to the patient. For the purposes of this report, symptoms refer to a self-reported breast lump and/or bloodstained or watery nipple discharge.

target population: Women in the population who are actively targeted by BreastScreen Australia; this is done on the basis of age and was women aged 50–69 until July 2013, after which time this changed to women aged 50–74.

tumour: An abnormal growth of tissue. Can be **benign** (not a cancer) or **malignant** (cancer).

ultrasound: Diagnostic method based on the reflection of ultrasonic sound waves generated through scanning of, in this case, the breast. The reflections are viewed on a computer screen or photograph and checked for variations in images.

underlying cause of death: The condition, disease or injury initiating the sequence of events leading directly to death; that is, the primary, chief or principal cause.

YLD (years lived with disability): A measure of the years of what could have been a healthy life but were instead spent in states of less than full health. YLD represent non-fatal burden.

YLL (years of life lost): Years of life lost due to premature death, defined as dying before the global ideal life span at the age of death. YLL represent fatal burden.

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Related publications

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

The following related publications may also be of interest:

AIHW 2022. Cancer data in Australia. Cat no. CAN 122. Canberra: AIHW.

AIHW 2022. Cancer screening programs: quarterly data. Cat no. CAN 114. Canberra: AIHW.

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

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Supplementary online data tables

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 Appendix A. Supplementary data tables have the prefix ‘S’ (for example, ‘Table S1.1’).

There are 8 Excel files, 1 for each performance indicator:

Indicator 1: Participation
Indicator 2: Rescreening
Indicator 3: Recall to assessment
Indicator 4: Invasive breast cancer detection
Indicator 5: DCIS detection
Indicator 6: Sensitivity
Indicator 7: Incidence
Indicator 8: Mortality.

50% of women in the targeted age group of 50–74 participated in the BreastScreen Australia in 2019–2020, with around 1.8 million screening.

Breast cancer mortality has decreased since BreastScreen Australia began, from 74 deaths per 100,000 women aged 50–74 in 1991, to 41 deaths per 100,000 women in 2020.

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