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National Bowel Cancer Screening Program

Monitoring report 2019

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National Bowel Cancer Screening Program

Monitoring report 2019

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Contents

Summary

The National Bowel Cancer Screening Program (NBCSP) began in 2006. It aims to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the eligible target population, aged 50–74, for early detection or prevention of the disease. This monitoring report is the fourth to examine the NBCSP using new key performance indicators.

In 2019, it is estimated that about 8,000 people aged 50–74 will be diagnosed with bowel cancer (approximately 49% of all bowel cancers diagnosed) and 2,000 people aged 50–74 will die from bowel cancer (approximately 35% of all bowel cancer deaths).

Participation

Of the 4.1 million people invited between January 2016 and December 2017, 41% participated in the program. The national participation rate was the same as for the previous rolling 2-year period (2015–2016) (41%). The re-participation rate for people who had taken part in their previous invitation round and were receiving a subsequent screening invitation was 78%.

Screening results

In 2017, about 69,000 Australians returned a positive screening test, giving an 8% screening positivity rate. Of the people who received a positive screening test, 66% had reported a follow-up diagnostic assessment. The median time from positive screening test result to diagnostic assessment was 52 days.

Cancers and adenomas detected

As form return is not mandatory, diagnostic assessment data were not considered complete enough to allow formal performance indicator reporting. However, of the data available for participants who had a diagnostic assessment in 2017, 1 in 29 were diagnosed with a confirmed or suspected cancer (266 and 1,318, respectively) and adenomas were diagnosed in a further 5,237 participants (1 in 9 participants assessed). Adenomas are benign growths that have the potential to become cancerous; their removal lowers the risk of future bowel cancers in these participants.

Population groups

Participants who identified as being of Aboriginal or Torres Strait Islander origin, lived in *Very remote* areas, and those who lived in low socioeconomic areas all had higher rates of positive screens (warranting further assessment), but had lower rates of follow-up diagnostic assessment, and a longer median time between a positive screen and assessment.

Since the NBCSP began

Since the program began in August 2006, about 5.5 million NBCSP screening tests have been completed, with about 280,000 participants having a diagnostic assessment to follow up a positive screening result. From the data available for participants who have had diagnostic assessment, 1 in 29 have been diagnosed with a confirmed or suspected cancer and 1 in 8 have had an adenoma detected. Previous data linkage studies by the Australian Institute of Health and Welfare found that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a, 2018a, 2018c).

Data at a glance

Table 1.1: Summary of NBCSP performance indicators[a], Australia

Performance indicator		Definition	Value
PI 1*	Participation rate	The percentage of people invited to screen through the NBCSP between **1 January 2016 and 31 December 2017** who returned a completed screening test within that period or by **30 June 2018**.	41%
PI 2	Screening positivity rate	The percentage of people who returned a valid NBCSP screening test and received a positive screening result (warranting further assessment) between **1 January 2017 and 31 December 2017**.	8%
PI 3	Diagnostic assessment rate	The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2017 and 31 December 2017** and had follow-up diagnostic assessment within that period or by **31 December 2018**.	66%
PI 4	Time between positive screen and diagnostic assessment	For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2017 and 31 December 2017**, the median time between the positive screen and a follow-up diagnostic assessment within that period, or by **31 December 2018**.	52 days
PI 9	Adverse events—hospital admission	The rate at which people who had a diagnostic assessment between **1 January 2017 and 31 December 2017** were admitted to hospital within 30 days of their assessment.	3 per 10,000 assessments
PI 10	Incidence of bowel cancer	The (estimated) incidence of bowel cancer per 100,000 estimated resident population aged 50–74 in **2019**[b].	112 cases per 100,000 people
PI 11	Mortality from bowel cancer	The (estimated) mortality of bowel cancer per 100,000 estimated resident population aged 50–74 in **2019**[b].	28 deaths per 100,000 people

*PI—performance indicator. Hereafter in this report, the abbreviation is used whenever referring to a specific indicator (for example, PI 3 Diagnostic assessment rate); otherwise the full expression is used.

a) NBCSP performance indicators presented here are different from the performance measures reported in monitoring reports before 2016. See Appendix C for further details.

b) Rates for 2019 are estimated based on data to 2006–2015 for incidence and 2007–2016 for mortality. See Appendix D for further details.

Notes:

1. PIs 3 to 9 rely on information being reported to the NBCSP Register, hereafter referred to as the Register. As the return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.
2. PI 5a (adenoma detection rate), PI 5b (positive predictive value (PPV) of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See ‘Current reporting limitations’ on page 8 for more details.

1 Introduction

1.1 Purpose of this report

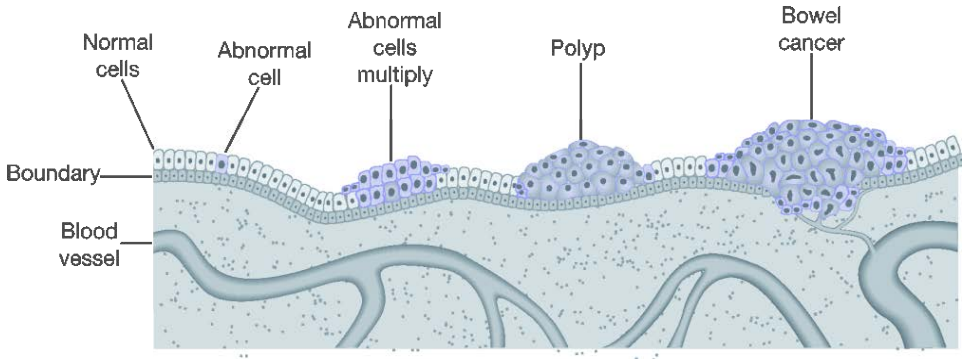
This monitoring report is the fourth to monitor data for the National Bowel Cancer Screening Program (NBCSP) based on the current NBCSP key performance indicators (AIHW 2014b). To ensure that the most recent data are used for each indicator, the time frame in which each performance indicator is analysed can vary. However, where possible, analysis for indicators includes the period from 1 January 2017 to 31 December 2017.

1.2 Bowel cancer facts

Defining bowel cancer

Bowel cancer (or colorectal cancer) generally develops through a multistage process in which a series of cellular mutations occur over time. Most bowel cancers start in the epithelial cells, which form part of the inner lining of the large bowel (intestinal mucosa layer). Early stages of these mutations result in benign polyps. However, polyps may undergo further mutations and become a benign adenoma and, ultimately, a malignant bowel cancer (Figure 1.1). Later stages of bowel cancer can spread to other sites in the body through the lymphatic or vascular system.

Figure 1.1: Beginnings of bowel cancer



Stage

Bowel cancer stage describes the extent or spread of cancer in the body at the time of diagnosis. Staging is usually based on the size of the tumour, whether lymph nodes contain cancer, and whether the cancer has spread from the original site to other parts of the body (Sobin et al. 2010). Cancer Australia, in consultation with state and territory cancer registries and the Australian Institute of Health and Welfare, has been developing cancer staging rules for high-incidence cancers (including bowel cancer). Registry-defined cancer stages are closely related to the Tumour, Nodes and Metastasis (TNM) Classification of Malignant Tumours. Prognosis is often related to what stage of development the cancer has reached when first diagnosed, with smaller, less developed cancers having better prognoses than advanced cancers (Table 1.2).

Table 1.2: Registry-defined Australian stages of bowel cancer, 2011

Registry defined Australian stage	Description	5-year relative survival estimates
I	Stage 1 – equivalent to TNM stage I: Early stage	99% 5-year survival rate
II	Stage 2 – equivalent to TNM stage II: Early stage	89% 5-year survival rate
III	Stage 3 – equivalent to TNM stage III: Locally advanced	71% 5-year survival rate
IV	Stage 4 – Equivalent to TNM stage IV: Metastatic	13% 5-year survival rate

Note: Survival estimates were sourced from 2011 Australian stage data (AIHW 2019).

Risk factors for bowel cancer

A risk factor is any factor associated with an increased likelihood of a person's developing a health disorder or health condition. It is not known what causes bowel cancer; however, as at December 2016, several risk factors have been identified that may increase the chance of developing bowel cancer (Bouvard et al. 2015; IARC 2014; WCRF & AICR 2007).

Personal and lifestyle factors

Personal and lifestyle factors associated with an increased risk of bowel cancer include:

- excess body fat and physical inactivity
- high intake of particular foods (such as processed meat)
- high alcohol consumption
- smoking.

Family history and genetic susceptibility

Some gene mutations increase the risk of bowel cancers being passed from parent to child. About 20% of bowel cancers can be attributed to a hereditary component (Weitz et al. 2005).

Ionising radiation

Ionising radiation from radiology (diagnostic X-rays), working in the nuclear industry and natural sources can be a risk factor for bowel cancer.

Bowel cancer treatment

The aim of bowel cancer treatment is generally to remove the cancer and any cancer cells that may be left in the bowel or other parts of the body. However, treatment can vary based on individual factors such as type of cells involved, size of the tumour and bowel cancer stage—some patients may receive palliative care. Treatment of bowel cancer commonly involves surgery to remove the cancer, with or without added chemotherapy or radiation therapy.

Early diagnosis of bowel cancer can improve treatment outcomes and survival. Further, removal of non-benign polyps (polypectomy) and adenomas during a colonoscopy reduces the risk of their developing into bowel cancer. The excision of adenomatous polyps, together with regular surveillance, has been found to reduce bowel cancer incidence (Winawer et al. 1993) and mortality (Zauber et al. 2012).

1.3 Bowel cancer screening

Bowel cancer may be present for many years before a person shows symptoms such as visible rectal bleeding, change in bowel habit, bowel obstruction or anaemia. Often, symptoms such as these are not exhibited until the cancer has reached a relatively advanced stage. However, non-visible bleeding of the bowel may have been occurring in the pre-cancerous stages (Figure 1.1) for some time. The relatively slow development pathway of bowel cancer means that pre-cancerous and early stage cancers can potentially be screened for and treated. This makes bowel cancer a valid candidate for population screening (Standing Committee on Screening 2016).

A common method of bowel cancer screening is through an immunochemical faecal occult blood test (iFOBT). An iFOBT is a non-invasive test that can detect microscopic amounts of blood in a bowel motion, which may indicate a bowel abnormality such as an adenoma or cancer.

National Bowel Cancer Screening Program

In Australia, government-funded, population-based bowel cancer screening is available through the NBCSP. The NBCSP started in 2006 and is managed by the Department of Health in partnership with state and territory governments. The goal of the NBCSP is to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the target population for early detection or prevention of the disease.

The Australian Institute of Health and Welfare (AIHW) conducted a study of people diagnosed with bowel cancer between 2006 and 2008. This study showed that NBCSP invitees (particularly those who participated) who had been diagnosed with bowel cancer had a lower risk of dying from bowel cancer, and were more likely to have less advanced bowel cancers when diagnosed, than non-invitees. These findings show that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a). Recent AIHW data linkage projects further supported these findings (AIHW 2018a; 2018c).

The latest Clinical Practice Guidelines for the Prevention, Early Detection and Management of Colorectal Cancer were endorsed by the National Health and Medical Research Council in 2017. These guidelines recommend that biennial iFOBT bowel cancer screening for the asymptomatic Australian population begin at age 50 and continue to age 74 (CCACCGWP 2017). Currently, the Australian Government is rolling out biennial screening for those in the target age group, which will be completed by 2020 (see Appendix C). The staged rollout is to help ensure that health services, such as diagnostic assessment and treatment options, are able to meet an increased demand.

Once fully rolled out, eligible Australians will be sent an iFOBT screening kit and invited to screen every 2 years between their 50th and 74th birthdays. To participate, invitees complete the screening test and post it to the NBCSP pathology laboratory for analysis. Results are sent to the participant, to the participant's nominated primary health-care practitioner (PHCP) and to the Register. Participants with a positive screening result, indicated by blood in the stool sample, are advised to consult their PHCP to discuss further diagnostic assessment—in most cases, this will be a colonoscopy.

For more information on the NBCSP see http://www.cancerscreening.gov.au.

Monitoring the NBCSP

NBCSP participant data come from a variety of sources along the screening pathway. Data are collected electronically, and from forms completed and returned to the NBCSP Register

by participants; from PHCPs, colonoscopists and pathologists; and from other medical staff. However, form return is not mandatory, which may mean monitoring data are not complete.

This report is the fourth to present national data for the NBCSP using the current key performance indicators. The National Bowel Cancer Screening Program Report and Indicator Working Group developed these indicators and they have been endorsed by the Standing Committee on Screening, the Community Care and Population Health Principal Committee, the National Health Information Standards and Statistics Committee, and the National Health Information and Performance Principal Committee. The indicators are consistent with the 5 Australian Population-Based Screening Framework steps: recruitment, screening, assessment, diagnosis, and outcomes (AIHW 2014b). See Appendix C for a summary of changes in monitoring the NBCSP.

Current reporting limitations

Except for participation and iFOBT results, the completion and sending of other NBCSP forms or data by practitioners is not mandatory and therefore data—and results—for performance indicators 3 to 9 are not complete.

Other limitations of the NBCSP data include the unavailability of reliable population subgroup identification at the time of invitation. Identification of participants as being an Aboriginal and/or Torres Strait Islander, having a disability or speaking a language other than English at home is by self-identification through the participants' return of a completed participant details form, along with their iFOBT for analysis. As membership of these subgroups is reliably known only for those who participate, it is not possible to accurately determine NBCSP participation rates for these subgroups due to the lack of denominators (invitations issued) for them. Ways to improve upon these limitations are constantly being investigated, and Chapter 5 in this report gives estimates of participation for these subgroups using proportions from the Census.

Some performance indicators are aspirational, in that there is either a lack of national data or a lack of completeness of data. In this report, PI 5a (adenoma detection rate), PI 5b (positive predictive value (PPV) of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate) and PI 6b (the PPV of diagnostic assessment for detecting colorectal cancer) are not formally reported due to data incompleteness. These indicators require complete data return from histopathology. As well, PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not formally reported due to data unavailability. Lastly, PI 9 (adverse events—hospital admission) requires linkage with complete national hospital admissions data, which is not currently performed. However, the NBCSP Register currently has (incomplete) information on adverse events, and this will be used until a more complete adverse event data source becomes available.

Expenditure on the NBCSP in 2016–17

The NBCSP is funded through direct appropriation from the Australian Government, plus a National Partnership payment for the jurisdictional participant follow-up functions. NBCSP invitations are managed and sent out centrally, with states and territories providing local program promotion and a follow-up function for those who receive positive screening results.

In 2016–17, an estimated $74.2 million was spent on the NBCSP (Table A1.1). As the rollout of biennial screening for those aged 50–74 expands (due to be completed by 2020), this amount is expected to increase.

2 Picture of bowel cancer in Australia

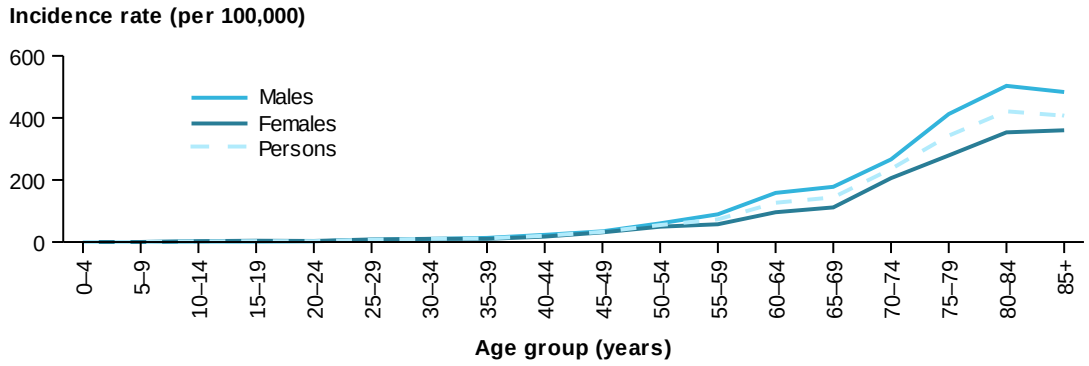
2.1 Number of new cases

In 2019, it is estimated that 8,036 people aged 50–74 will be diagnosed with bowel cancer (approximately 49% of all bowel cancer diagnoses)—an age-standardised rate (ASR) of 112 new cases diagnosed per 100,000 people. It is estimated that, in 2019, bowel cancer will be the third most commonly diagnosed cancer in Australians of all ages (after breast and prostate cancer).

Target age group (50–74 years)	All ages
8,036 new cases estimated for 2019 112 new cases per 100,000 target-age people	16,398 new cases estimated for 2019 54 new cases per 100,000 people

Bowel cancer risk increases with age. In 2019, the incidence rate is expected to remain higher for people aged 45 and over than for younger people (Figure 2.1).

Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2019



Notes

1. The 2019 estimates are based on 2006–2015 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: AIHW ACD 2015 (data for this figure are in Table A3.24).

It is estimated that a person's risk of being diagnosed with bowel cancer between the ages of 50 and 74 is 31 in 1,000 (about 1 in 32). This risk is higher than for those aged 0–49 (5 in 1,000) and lower than for those aged 75 and over (57 in 1,000). This increase in absolute risk from age 50 is part of the evidence base behind the guideline that bowel screening programs begin at age 50 (CCACCGWP 2017).

2.2 Number of deaths

Box 2.1: Changes to bowel cancer mortality coding

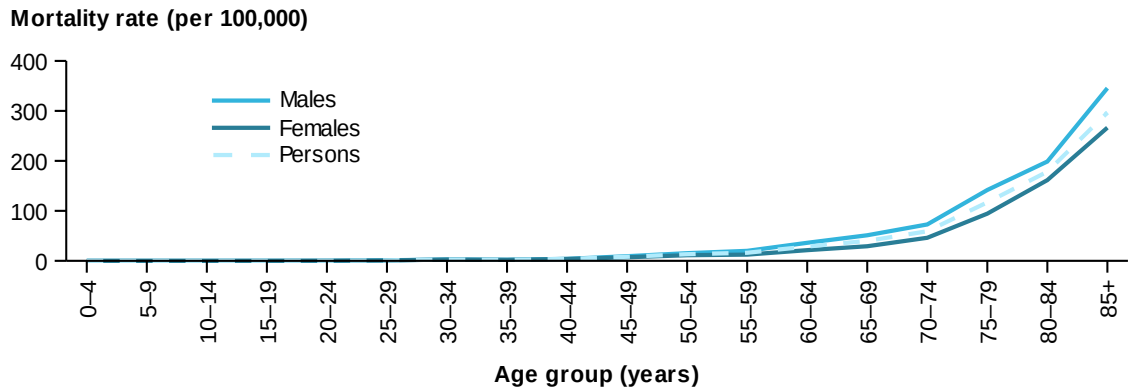
The AIHW uses the National Mortality Database (NMD) for reporting cancer mortality. The NMD is coded and compiled by the Australian Bureau of Statistics (ABS), and ABS advice notes that where 'bowel cancer' is recorded on the death certificate, internationally agreed rules state that the cancer should be coded to a less specific code (C26.0) as the specific site of the cancer is not known. The ABS advises that the code C26.0 should be included alongside deaths due to cancers of the colon and rectum (C18–C20) when assessing 'bowel cancer' deaths. For this reason, *National Bowel Cancer Screening Program Monitoring Report 2019* uses C18–C20, and C26.0 when reporting deaths from bowel cancer using the NMD. This is different from previous versions of this report and will result in a greater number of deaths being attributed to bowel cancer. Caution should be considered when examining trends in bowel cancer mortality with previous versions of the NBCSP Monitoring Report.

In 2019, it is estimated that there will be 1,977 bowel cancer deaths in people aged 50–74 (approximately 35% of all bowel cancer deaths), which is equivalent to 28 deaths for every 100,000 people. It is estimated that bowel cancer will remain the second leading cause of cancer death in Australians of all ages (after lung cancer).

Target age group (50–74 years)	All ages
1,977 deaths estimated in 2019 28 deaths per 100,000 target-age people	5,597 deaths estimated in 2019 18 deaths per 100,000 people

It is estimated that, in 2019, the mortality rate will be higher for people aged 50 and over than for younger people (Figure 2.2).

Figure 2.2: Age-specific mortality rates of bowel cancer, by sex, Australia, 2019



Notes

1. The 2019 estimates are based on 2007–2016 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: AIHW National Mortality Database (NMD) (data for this figure are in Table A3.28).

The risk of dying from bowel cancer increases with age. It is estimated that the risk of dying from bowel cancer between the ages of 50 and 74 is 11 in 1,000. The risk of dying from

bowel cancer before age 50 is 2 in 1,000. It is expected that once biennial screening for those aged 50–74 has been in place for a number of years, the risk of diagnosis and death for those aged 75 and over will also be reduced, as those people will have been consistently invited to screen for abnormalities over the preceding 25 years.

2.3 Survival

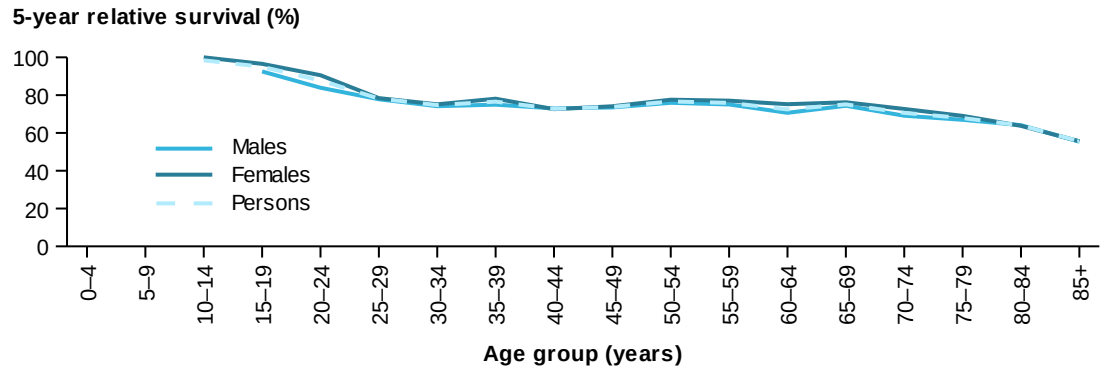
Information on survival gives an indication of cancer prognosis and the effectiveness of treatment available. Survival of less than 100% suggests that those with bowel cancer have a lower chance of surviving for at least 5 years after diagnosis than the general population.

Between 2011 and 2015, Australians who were diagnosed with bowel cancer between the ages of 50 and 74 had a 74% chance of surviving for 5 years compared with their counterparts in the general population.

Target age group (50–74 years)	All ages
74% 5-year relative survival (2011–2015)	70% 5-year relative survival (2011–2015)

Between 2011 and 2015, 5-year relative survival was lower for people over the age of 70 than for younger people (Figure 2.3; Table A2.1).

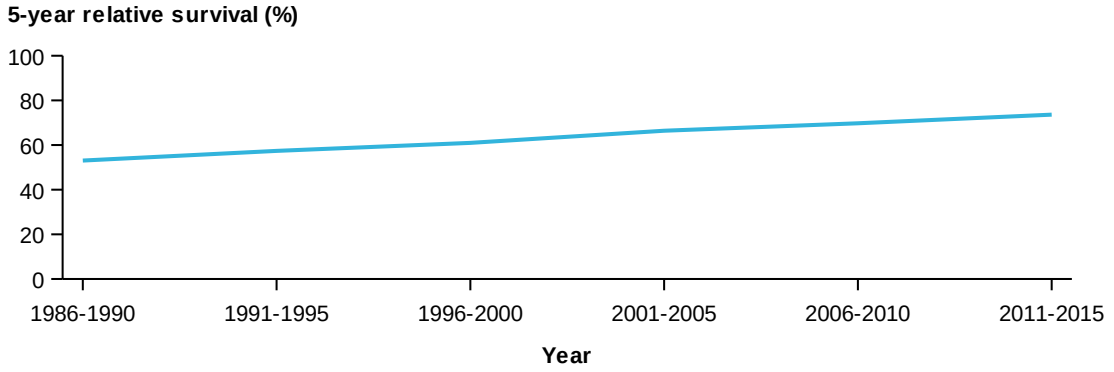
Figure 2.3: Five-year relative survival from bowel cancer, by age and sex, Australia, 2011–2015



Source: AIHW ACD 2015 (data for this figure are in Table A2.1).

Between 1986–1990 and 2011–2015, the 5-year relative survival rate from bowel cancer for people aged 50–74 at diagnosis increased from 53% to 74% (Figure 2.4; Table A2.2).

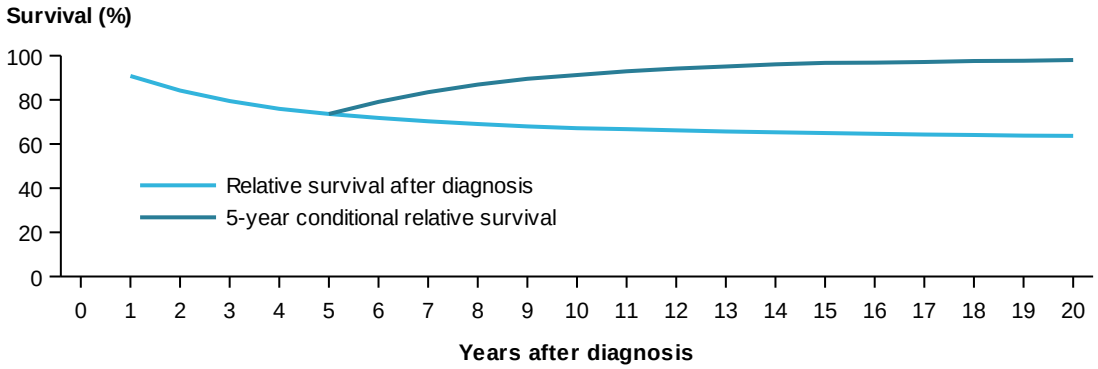
Figure 2.4: Trend in 5-year relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 1986–1990 to 2011–2015



Source: AIHW ACD 2015 (data for this figure are in Table A2.2).

While people aged 50–74 when first diagnosed with bowel cancer had a lower (74%) chance of surviving for at least 5 years after diagnosis than the general population, among those who had already survived 5 years from their initial bowel cancer diagnosis, the chance of surviving for at least another 5 years (5-year conditional relative survival) was 91% (Figure 2.5; Table A2.3).

Figure 2.5: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 2011–2015



Note: Conditional relative survival estimates show the probability of surviving bowel cancer for a given number of years provided an individual has already survived a specified amount of time after diagnosis.

Source: AIHW ACD 2015 (data for this figure are in Table A2.3).

Prevalence of bowel cancer

Cancer survivorship focuses on the health and life of a person diagnosed with cancer after treatment until the end of life (NCI 2015). Cancer survivorship is more than simply not dying from cancer; it focuses on living with, and life after, a cancer diagnosis (Jackson et al. 2013). Survivorship covers the physical, psychosocial and economic issues of cancer, including the later effects of treatment, secondary cancers and quality of life (NCI 2015).

Prevalence is the number of people alive (surviving) after a diagnosis of cancer. At the end of 2014, there were 54,046 Australians alive who had been diagnosed with bowel cancer in the previous 5 years and 88,316 who had been diagnosed in the previous 10 years (Table 2.1).

Table 2.1: Prevalence of bowel cancer, by sex, Australia, end of 2014

	5-year prevalence		10-year prevalence	
Sex	**Number**	**Rate per 100,000**	**Number**	**Rate per 100,000**
Males	29,593	252.0	47,921	408.0
Females	24,453	205.6	40,395	339.6
Persons	**54,046**	**228.6**	**88,316**	**373.6**

Source: AIHW ACD 2015.

2.4 Burden of bowel cancer

Burden of disease analysis is used to assess and compare the impact of different diseases and injuries on a population. It involves determining their impact in terms of the number of years of healthy life lost through living with an illness or injury (the non-fatal burden, years lived with disability, or YLD) and the number of years of life lost through dying prematurely from an illness or injury (the fatal burden, years of life lost, or YLL). The non-fatal and fatal burden can then be combined into a summary measure of health called the disability-adjusted life year (DALY). Burden of disease studies can also estimate the contribution of specific risk factors to disease burden (known as the attributable burden).

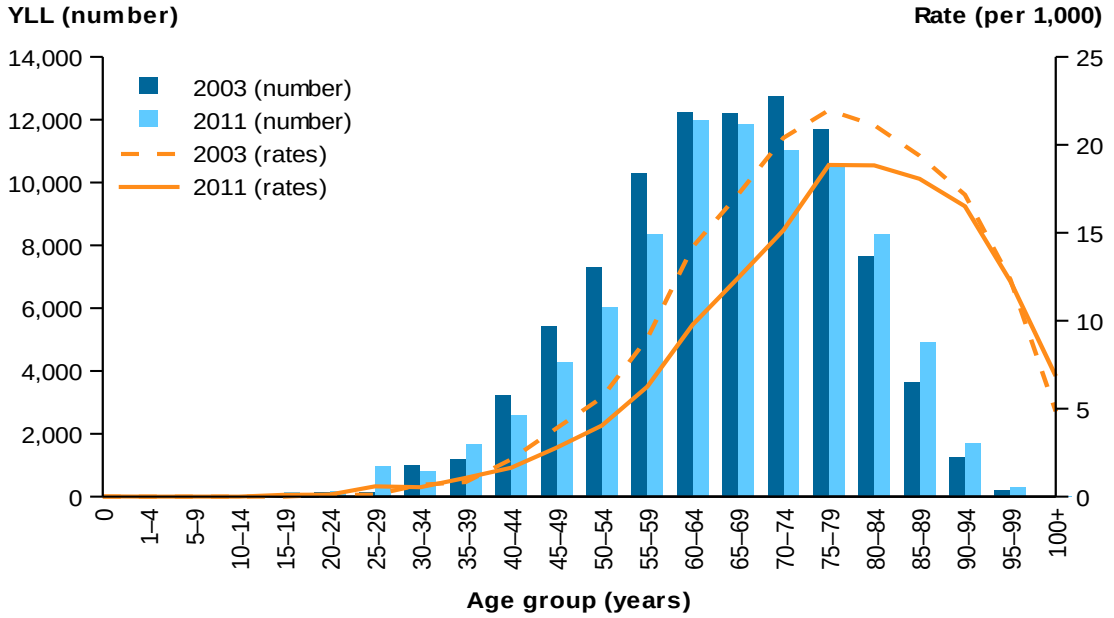
The Australian Burden of Disease Study (ABDS) 2011, undertaken by the AIHW, found that over 90,000 years of healthy life were lost (from fatal and non-fatal outcomes) due to bowel cancer in 2011 (AIHW 2016a). This meant bowel cancer accounted for 2.1% of the total disease burden in Australia, making it the 13th most burdensome disease overall (12th in males and 16th in females). Bowel cancer was the second most burdensome cancer in 2011 behind lung cancer, accounting for 11% of the total cancer burden (11% of the fatal cancer burden and 13% of the non-fatal burden).

Changes in burden since 2003

As the NBCSP was introduced in 2006, comparisons of the burden before and after this date are of interest. Burden of disease estimates for 2003 from the previous ABDS (Begg et al. 2007) cannot be compared with estimates from this recent study due to major methodological differences (see AIHW 2016a). Instead, estimates for 2003 have been recalculated using the updated methods from the 2011 study to enable comparisons.

Between 2003 and 2011, the ASR of total burden from bowel cancer dropped from 4.8 to 3.8 DALYs per 1,000 people. This reduction was primarily due to a drop in fatal burden from 4.5 to 3.5 YLL per 1,000 people. This reduction in YLL ASRs was driven by a shift towards people dying from bowel cancer at older ages, with 2011 rates similar to 2003 rates for people who were 5 to 10 years younger (particularly for people aged 60–79) (Figure 2.6).

Figure 2.6: Change in fatal burden—YLL number and age-specific rate (per 1,000 people)—from bowel cancer, 2003 and 2011



Source: AIHW 2016a.

Contribution of risk factors to bowel cancer burden

The ABDS 2011 also calculated the proportion of the bowel cancer burden in 2011 that was attributable to a number of preventable risk factors. Note that, as a person can have more than 1 risk factor and many risk factors are interrelated, the burden attributable to different risk factors cannot be simply added together (AIHW 2016a).

After analysis to adjust for interrelated risk factors, the study estimated that about 51% of bowel cancer burden in 2011 was attributable to 8 risk factors combined: physical inactivity, high body mass, diet low in milk, diet low in fibre, tobacco use, diet high in processed meat, alcohol use and diet high in red meat (AIHW, unpublished data). Of these risk factors, physical inactivity and high body mass contributed the most individually to bowel cancer burden in 2011 (16% and 13% of the bowel cancer burden, respectively; although, as they are likely to be interrelated, their combined burden will be less than the sum of the individual burden estimates). A greater proportion of bowel cancer burden in males was due to high body mass than in females (18% compared with 6%) (Table 2.2).

The estimates for alcohol use, physical inactivity and high body mass presented are based on revised methods and improvements developed as part of extension projects undertaken by the AIHW to analyse the impact of various risk factors on chronic conditions (AIHW 2017b, 2017c, 2018b). These estimates will differ from those presented in earlier publications from the ABDS 2011 (AIHW 2016a).

See *Australian Burden of Disease Study 2011: methods and supplementary material* (AIHW 2016b) for more information on the methods used for other risk factors.

Table 2.2: Bowel cancer burden attributed to selected risk factors (DALYs and proportion), 2011

	Males		Females		Persons	
Risk factor	Attributable DALYs	Proportion of bowel cancer burden (%)	Attributable DALYs	Proportion of bowel cancer burden (%)	Attributable DALYs	Proportion of bowel cancer burden (%)
Physical inactivity[(a)]	8,363	15.8	6,640	16.9	15,003	16.2
High body mass[(a)]	9,307	17.5	2,513	6.4	11,819	12.8
Diet low in milk	5,821	11.0	4,393	11.2	10,214	11.1
Diet low in fibre	5,127	9.7	3,855	9.8	8,982	9.7
Tobacco use	3,466	6.5	3,747	9.5	7,213	7.8
Diet high in processed meat	4,744	8.9	2,380	6.1	7,124	7.7
Alcohol use[(a)]	2,562	4.8	2,448	6.2	5,010	5.4
Diet high in red meat	2,518	4.7	1,081	2.7	3,600	3.9

(a) Estimates for alcohol use, physical inactivity and high body mass are based on revised methods and enhancements developed as part of extension projects undertaken by the AIHW to look into the impact of various risk factors on chronic conditions (AIHW 2017b; AIHW 2017c; AIHW 2018b). These estimates will differ from those presented in earlier publications from the ABDS 2011 (AIHW 2016a).

Note: Attributable burden from multiple risk factors cannot by combined or added together due to the complex pathways and interactions between risk factors.

Sources: AIHW 2016a, 2017b, 2017c, 2018b (alcohol use, physical inactivity and high body mass estimates), AIHW analysis of ABDS 2011 (unpublished data).

3 Performance indicators

3.1 Summary

The Population Based Screening Framework (Standing Committee on Screening 2016) uses 5 incremental stages to describe a population screening pathway. The performance indicator data in this monitoring report have been applied to these stages in Figure 3.1 to show how the indicators relate to the framework. For further information on these indicator outcomes over the life of the NBCSP see Appendix B.

Note that data for diagnostic assessments, adenomas and cancers detected and hospital admissions (PIs 3–9) rely on information being reported back to the Register; this reporting is not mandatory and is known to be incomplete.

Recruitment

Of those invited in the 2-year period for 2016–2017, 41% participated in the NBCSP (Table A3.2). This is consistent with the 41% participation rate in the previous rolling 2-year period (2015–2016) (Table A3.5). The participation rate was higher for people receiving a subsequent screening invitation (44% for those receiving their second, third or later screening invitation) than for those receiving their initial invitation to screen (31%) (Figure 3.2; Table A3.3). For those invitees who had participated in their previous invite round, the re-participation rate was 78%.

Screening and assessment

In 2017, about 69,000 participants returned a positive screening test, giving a 7.9% screening positivity rate (Table A3.6). People who receive a positive screening result are encouraged to visit their PHCP for referral to diagnostic assessment. Of the people who received a positive screening test, 66% had a diagnostic assessment recorded (Table A3.10). Of those who had a diagnostic assessment, the median time between a positive screening result and a diagnostic assessment was 52 days (Table A3.18).

Diagnosis

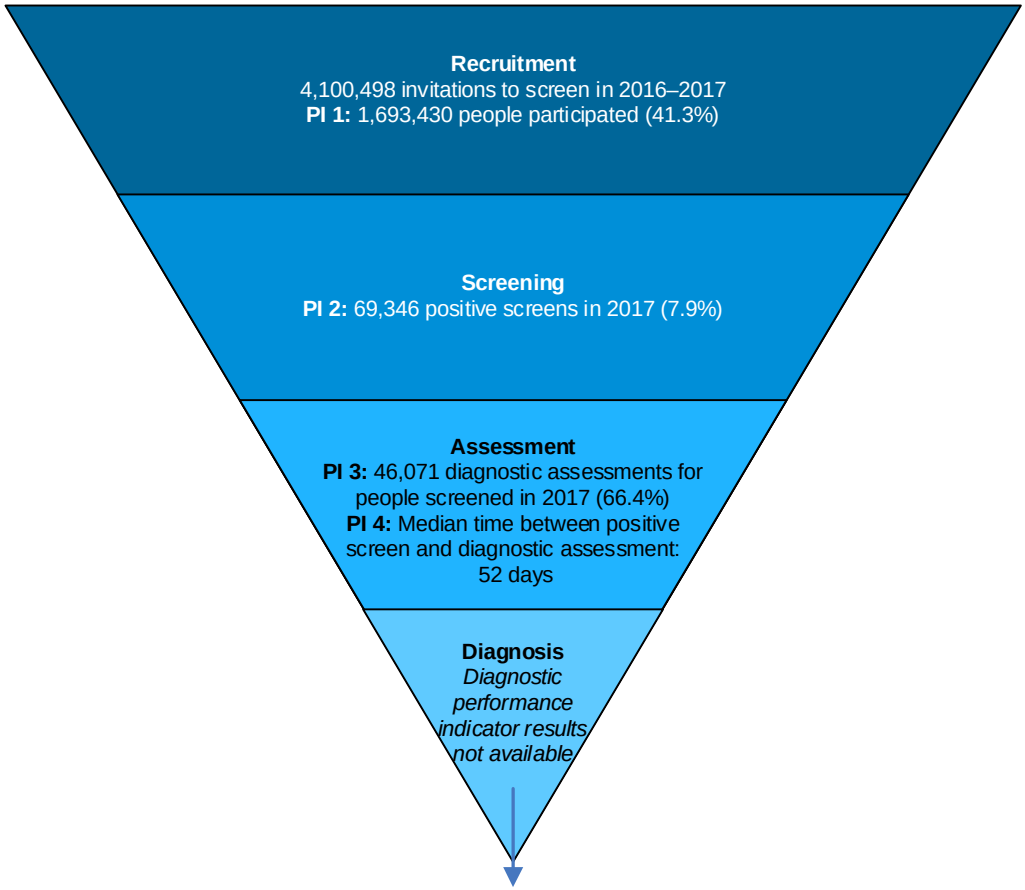
As assessment form return is not mandatory, diagnosis data were not considered to be complete enough to allow formal performance indicator reporting. However, using the available data for those assessed in 2017, 266 confirmed cancers, 1,318 suspected cancers and 5,237 adenomas were detected (Table A4.1). See Chapter 4 for a summary of bowel abnormality detection results, based on available assessment and diagnosis data. Further, see *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program 2018* (AIHW 2018c) for the most recent accurate PPV of diagnostic assessment for detecting bowel (colorectal) cancer.

Outcomes

In 2017, 14 people who underwent a diagnostic assessment were admitted to hospital within 30 days of this procedure, giving a hospital admission rate after assessment of 3 per 10,000 assessments (Table A3.23).

In 2019, it is estimated that 8,036 people aged 50–74 will be diagnosed with bowel cancer (Table A3.24) and that 1,977 people aged 50–74 will die from bowel cancer (Table A3.28).

Figure 3.1: Summary of NBCSP performance indicators for this report, Australia



Assessment details

Those assessed in 2017[(a)]

No issue or other diagnosis	26,920	(58.6%)
Biopsy awaiting histopathology	12,205	(26.6%)
Non-advanced adenomas	2,755	(6.0%)
Advanced adenomas	2,482	(5.4%)
Suspected cancer	1,318	(2.9%)
Confirmed cancer	266	(0.6%)

Outcomes

For morbidity and mortality

PI 9: Adverse events	3 per 10,000	(2017)
PI 10: Incidence	112 per 100,000	(2019)
PI 11: Mortality	28 per 100,000	(2019)

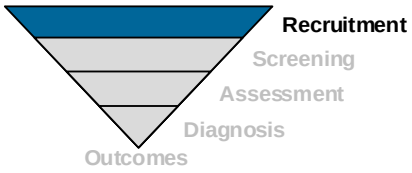
(a) Based on available data. Percentages may not sum to 100% due to rounding. 'No issue or other diagnosis' includes 11,346 assessments with no record of outcome, plus any non-cancer or adenoma diagnoses from colonoscopy or histopathology.

Notes

1. The recruitment indicator is reported against the 2-year calendar period 2016–2017, with follow-up to June 2018. The screening indicator is reported against the year 2017. The assessment and adverse events indicators are reported against the year 2017, with follow-up to June 2018. Incidence and mortality are estimated rates for those 50–74 in 2019.
2. Assessment, diagnosis and outcomes (PIs 3 to 9) rely on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

3.2 Recruitment



PI 1—Participation rate

Definition: The percentage of people invited to screen through the NBCSP between **1 January 2016 and 31 December 2017** who returned a completed screening test within that period or by **30 June 2018** (AIHW 2014b).

Rationale: Participation should be monitored to ensure acceptability, equity and uptake, with the aim that reductions in incidence, morbidity and mortality can be achieved. Without participation, the NBCSP cannot achieve earlier detection.

Data quality: All invitations issued and iFOBT kits returned are recorded in the Register.

Guide to interpretation: The number of individuals who were sent a screening invitation excludes those who deferred or opted out without completing their screening test. Appendix A contains details on the number of invitees who deferred or opted out.

Data on participation by Indigenous status, language spoken at home or disability status are not currently available due to the lack of denominators for these subgroups. See Chapter 5 for estimates of participation for these subgroups.

Participation is measured over 2 years to align with the 2-year recommended screening interval. A consequence of this is that there are 'rolling' participation rates, in which there is an overlap of 1 calendar year between any 2 consecutively reported participation rates.

National participation rate: 41%.

The following figures apply for the 4,100,498 eligible people invited from 1 January 2016 to 31 December 2017:

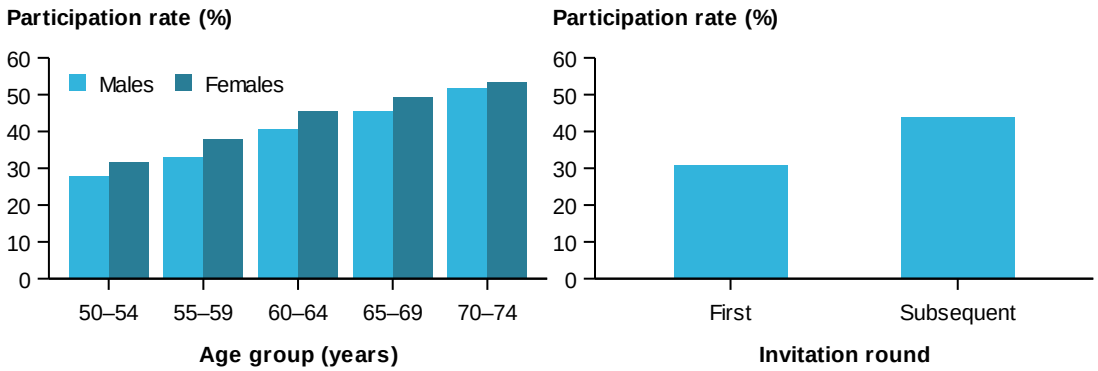
Australia-wide: A total of 1,693,430 people participated in the NBCSP, giving an overall Australia-wide participation rate of 41% (Table A3.2).

Sex: Male (39%) invitees had a lower participation rate than females (43%) (Figure 3.2).

Age: The participation rate increased with each invitation age group, from 30% for people aged 50–54 to 53% for people aged 70–74 (Figure 3.2).

Invitation round: The participation rate was higher for people receiving their second or later (subsequent) screening invitation (44% compared with 31%) (Figure 3.2). The re-participation rate for those who had participated in their previous invite round and were receiving a subsequent invitation was 78%.

Figure 3.2: Participation of people aged 50–74, by sex and age and by invitation round, 2016–2017



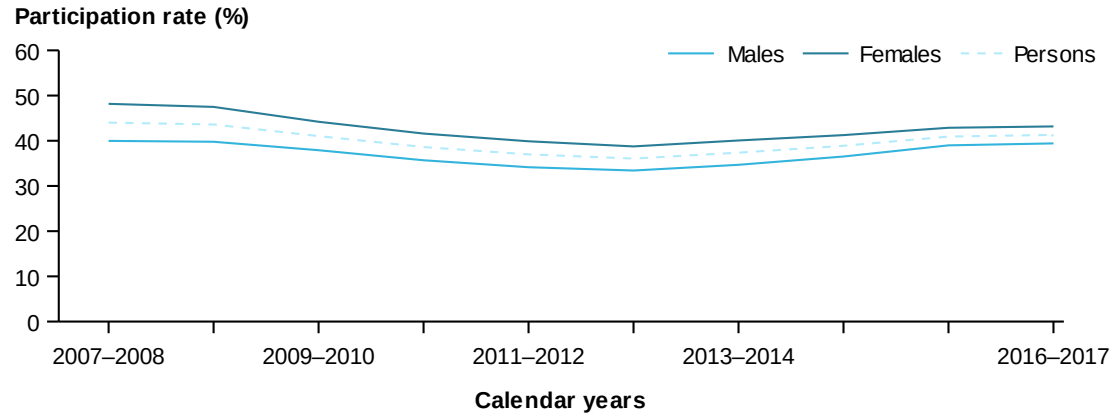
Note: Subsequent invitation round includes second, third and subsequent invitation rounds.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in tables A3.2 and A3.3).

Trend: Monitoring reports before 2016 analysed participation differently from the indicator used in this report. This means that trend comparisons with the rates published in those earlier reports cannot be made. To allow a trend comparison over time, the new participation indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.3; Table A3.5).

Using this indicator across all program data to date, the participation rate decreased from 44% in 2007–2008 to 36% in 2012–2013, then increased to 41% in 2016–2017 (Figure 3.3). While the overall participation rate for the current reporting period and the previous reporting period (2015–2016) was the same (41%), it should be noted that participation across each 5-year age group invited has increased over the two periods. As the proportion of younger invitees has increased in the current period, and younger invitees tend to have a lower participation rate overall, this is likely to impact on the participation rate for all invitees in the current reporting period.

Figure 3.3: Participation of people aged 50–74, by sex, 2007–2008 to 2016–2017



Notes

1. Data presented are for rolling 2-year participation periods.
2. Trend data use the performance indicator specifications retrospectively on previous years' data.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.5).

State and territory: The participation rate was highest for people living in South Australia and Tasmania (both 46%–47%) and lowest for people living in the Northern Territory (28%) (Figure 3.4).

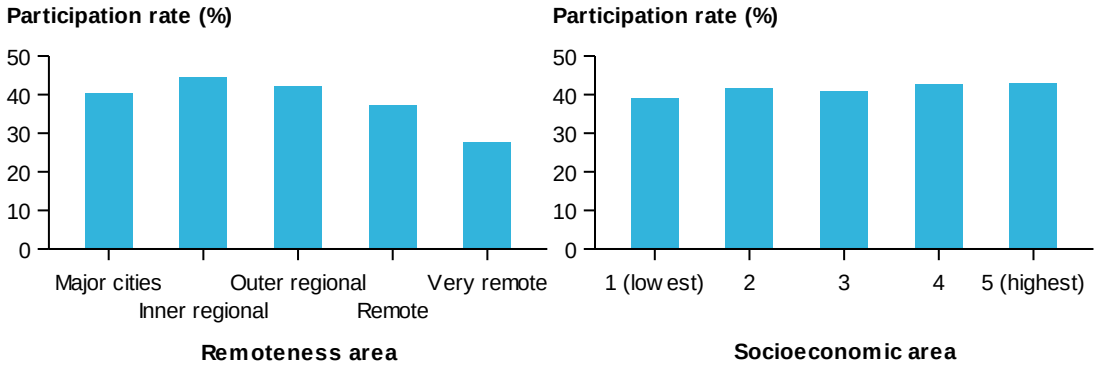
Figure 3.4: Participation of people aged 50–74, by state and territory, 2016–2017

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.4).

Remoteness area: The participation rate was highest for people living in *Inner regional* areas (45%) and lowest for people living in *Very remote* areas (28%) (Figure 3.5).

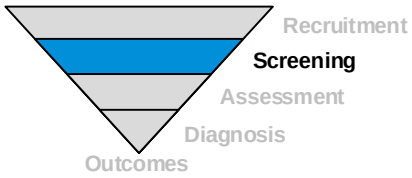
Socioeconomic area: The participation rate was highest for people living in the highest socioeconomic areas (43%) and lowest for people living in the lowest socioeconomic areas (39%) (Figure 3.5).

Figure 3.5: Participation of people aged 50–74, by remoteness area and socioeconomic area, 2016–2017



Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.4).

3.3 Screening



PI 2—Screening positivity rate

Definition: The percentage of people who returned a valid NBCSP screening test and received a positive screening result (warranting further assessment) between **1 January 2017 and 31 December 2017** (AIHW 2014b).

Rationale: The positive screening test rate determines the diagnostic assessment workload and lesion detection rate. It is important that the accepted positivity range is reviewed and revised if necessary. Monitoring this is important for program planning and quality assurance. Further, monitoring the positivity rate by various stratifications may reveal emerging positive or negative trends that need to be investigated, and rectified if necessary.

Data quality: All iFOBT results are recorded in the Register.

Guide to interpretation: This indicator counts all tests analysed in the defined period, not tests analysed from those invited in the defined period; therefore, the cohort monitored is different from that in the participation indicator.

National screening positivity rate: 7.9%.

The following apply for the 876,644 invitees who had a screening test analysed in 2017:

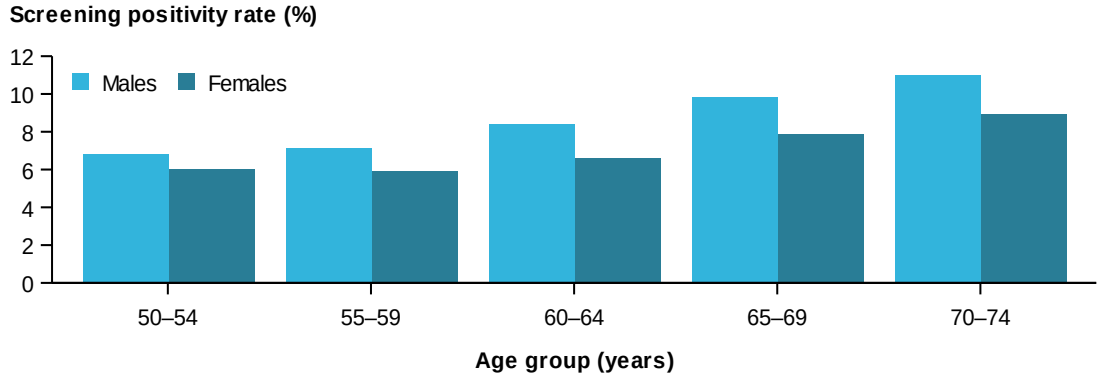
Australia-wide: A total of 69,346 people received a positive screening test result, giving an overall Australia-wide screening positivity rate of 7.9% (Table A3.6).

Sex: Male participants had a higher screening positivity rate than females (8.8% compared with 7.1%) (Figure 3.6).

Age: The screening positivity rate increased with each age group, from 6.4%–6.5% for people aged 50–59 to 9.9% for people aged 70–74 (Figure 3.6).

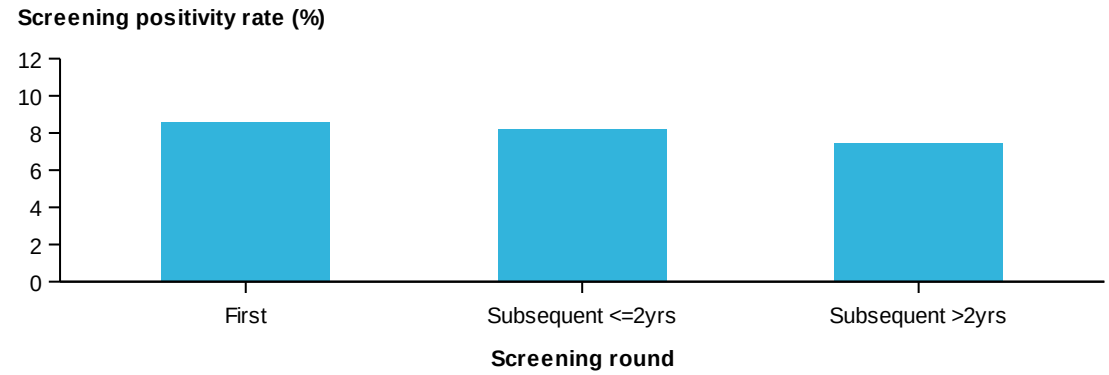
Screening round: The screening positivity rate was highest for people during their first round of screening (8.8% compared with 7.4% for those whose subsequent screen was more than 2 years after their first screen) (Figure 3.7).

Figure 3.6: Screening positivity rate of people aged 50–74, by sex and age, 2017



Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.6).

Figure 3.7: Screening positivity rate of people aged 50–74, by screening round, 2017



Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.7).

State and territory: The screening positivity rate was highest for people living in the Northern Territory (9.3%) and lowest for people living in the Australian Capital Territory (7.0%) (Figure 3.8).

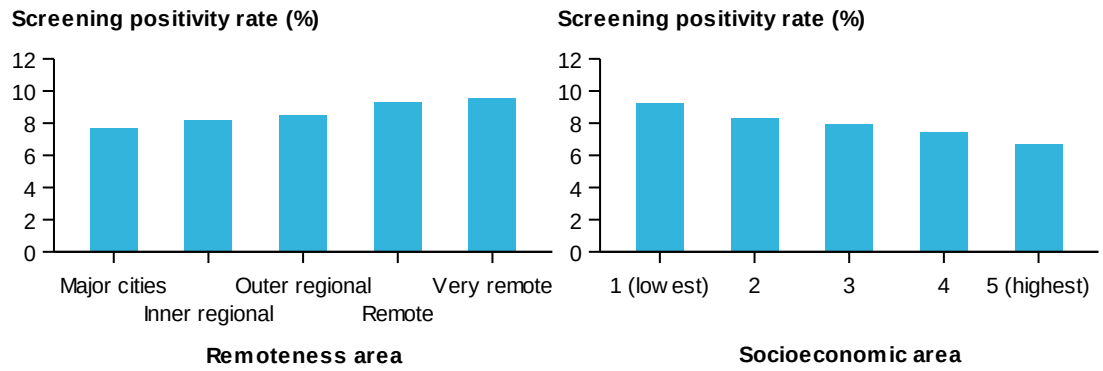
Figure 3.8: Screening positivity rate of people aged 50–74, by state and territory, 2017

Source: NBCSP Register as as at 31 December 2018 (data for this figure are in Table A3.8).

Remoteness area: The screening positivity rate was highest for people living in *Very remote* areas (9.6%) and lowest for people living in *Major cities* (7.7%) (Figure 3.9).

Socioeconomic area: The screening positivity rate was highest for people living in the lowest socioeconomic areas (9.3%) and lowest for people living in the highest socioeconomic areas (6.7%) (Figure 3.9).

Figure 3.9: Screening positivity rate of people aged 50–74, by remoteness area and socioeconomic area, 2017



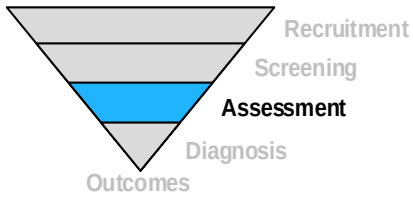
Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.8).

Indigenous status: Indigenous Australians had a higher screening positivity rate than non-Indigenous Australians (11.7% compared with 7.8%) (Table A3.9).

Language spoken at home: Those who spoke a language other than English at home had a similar screening positivity rate to those who spoke English at home (8.3% and 7.8%, respectively) (Table A3.9).

Disability status: Those reporting a severe or profound activity limitation had a higher screening positivity rate than those who did not report such a limitation (12.0% compared with 7.6%) (Table A3.9). Reasons for this difference are not well understood, but may include a lower level of physical activity (Wolin et al. 2011) or comorbidities and medications that increase the likelihood of a positive iFOBT screening result in people with a severe or profound activity limitation.

3.4 Assessment



PI 3—Diagnostic assessment rate

Definition: The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2017 and 31 December 2017** and had follow-up diagnostic assessment within that period or by **31 December 2018** (AIHW 2014b).

Rationale: The appropriate movement of people from participation to diagnostic assessment is a key indicator of the efficiency and the impact of the program in reducing morbidity and mortality from bowel cancer. While not all participants with a positive screen will necessarily have an assessment, according to the Population Based Screening Framework (Standing Committee on Screening 2016), systems should be in place to ensure timely follow-up to diagnostic assessment for individuals with a positive screening test.

Data quality: This indicator relies on information being reported to the Register; however, this reporting is not mandatory, leading to incomplete data. Therefore, there is an unknown level of under-reporting for this indicator, and levels of under-reporting may differ across groups (for example, across jurisdictions, remoteness and socioeconomic areas).

Guide to interpretation: This indicator includes all those with a positive screen in the defined period, not all those invited in the defined period.

National diagnostic assessment rate: 66%.

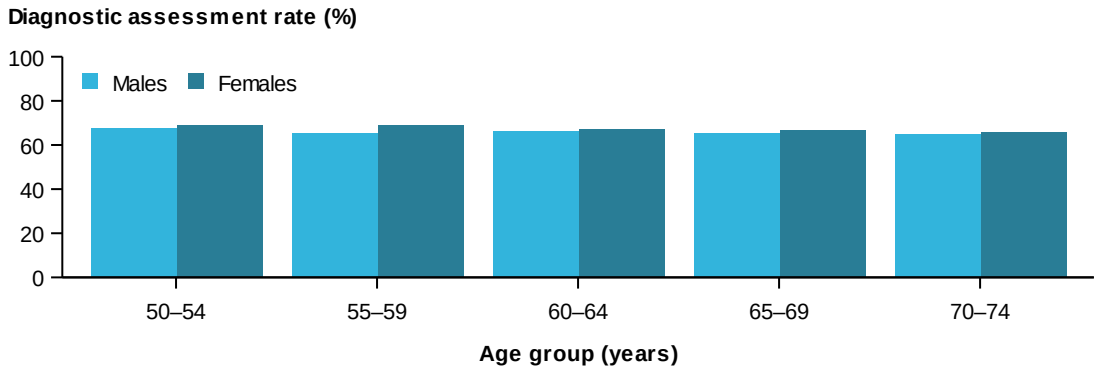
The following applies for the 69,346 participants with a positive screening test in 2017:

Australia-wide: A total of 46,071 people reported a follow-up diagnostic assessment (colonoscopy)—an overall Australia-wide diagnostic assessment rate of 66% (Table A3.10).

Sex and age: Diagnostic assessment rates were slightly higher for females (67%) than for males (66%), but were lower for people aged 70–74 (65%) than for younger target age groups (68% for those aged 50–54) (Figure 3.10).

Health-care provider: Approximately three-quarters (74%; 33,986 assessments) of diagnostic assessments recorded were performed through the private health-care system, with an additional 17% (7,605 assessments) being recorded through the public health-care system (Table A3.11). Approximately 10% of diagnostic assessments did not state through which system (public or private) the follow-up assessment was performed. As this indicator relies on information being reported back to the Register, and that reporting is not mandatory, differences in the performance of diagnostic assessments by public and private providers should be considered with caution.

Figure 3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, 2017



Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, are based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

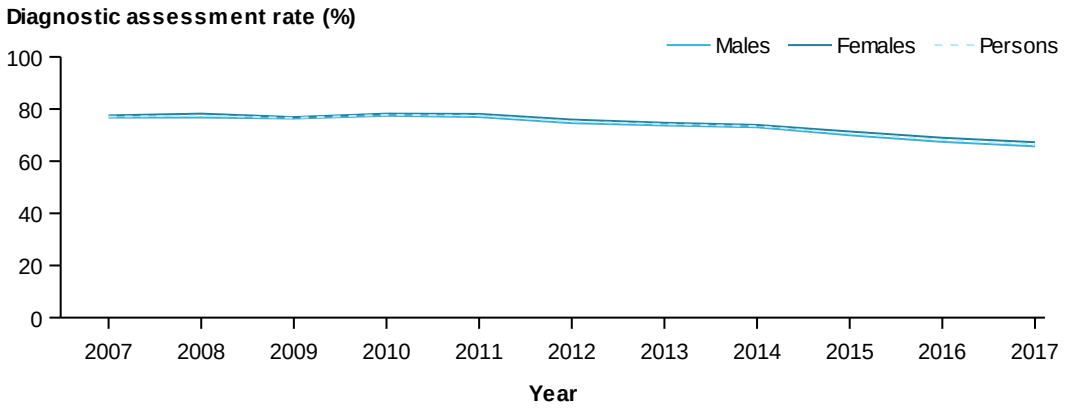
Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.10).

Trend: Monitoring reports before 2016 analysed the diagnostic assessment rate differently from the indicator used in this report. This means that trend comparisons with the rates published in those earlier reports cannot be made. To allow a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.11; Table A3.14).

Using this diagnostic assessment rate indicator across all program data to date, the follow-up diagnostic assessment rate fluctuated between 75% and 78% between 2007 and 2012, and then trended down to 66% in 2017. Differences in form return and varying pathway practices for diagnostic assessment between years may be contributing factors to this outcome.

State and territory: The follow-up diagnostic assessment rate was highest for people living in Queensland (77%) and lowest for people living in the Northern Territory (52%) (Figure 3.12). Note that differences in form return and varying pathway practices for diagnostic assessment may affect the results across jurisdictions.

Figure 3.11: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex, 2007 to 2017

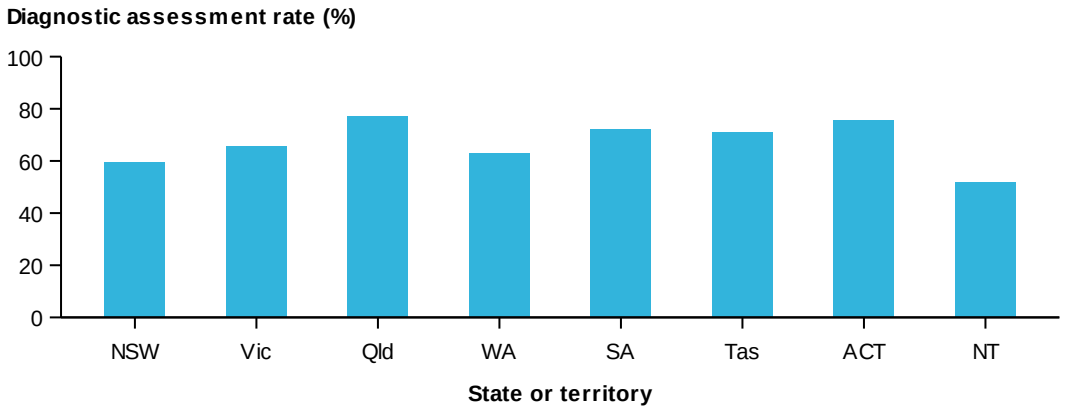


Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
3. Trend data uses the performance indicator specifications retrospectively on previous years' data.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.14).

Figure 3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, 2017



Notes

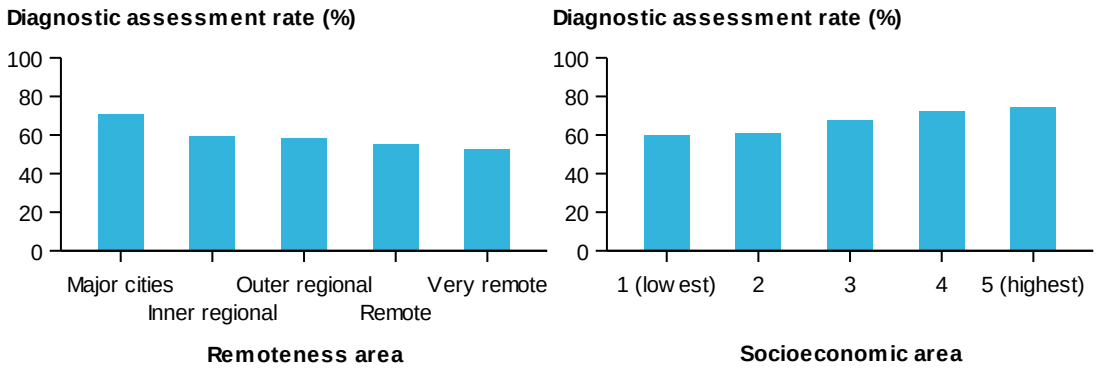
1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
3. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.12).

Remoteness area: The follow-up diagnostic assessment rate was highest for people living in *Major cities* (71%) and lowest for people living in *Very remote* areas (53%) (Figure 3.13).

Socioeconomic area: The follow-up diagnostic assessment rate was highest for people living in the highest socioeconomic areas (75%) and lowest for people living in the lowest socioeconomic areas (60%) (Figure 3.13).

Figure 3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by remoteness area and socioeconomic area, 2017



Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.12).

Indigenous status: Indigenous Australians had a lower follow-up diagnostic assessment rate than non-Indigenous Australians (51% compared with 67%) (Table A3.13).

Language spoken at home: Those who spoke a language other than English at home had a lower follow-up diagnostic assessment rate than those who spoke English at home (63% compared with 67%) (Table A3.13).

Disability status: Those reporting a severe or profound activity limitation had a lower follow-up diagnostic assessment rate than those who did not report such a limitation (54% compared with 68%) (Table A3.13).

PI 4—Time between positive screen and diagnostic assessment

Definition: For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2017 and 31 December 2017**, the median time between the positive screening test and a follow-up diagnostic assessment within that period or by **31 December 2018** (AIHW 2014b).

Rationale: Waiting for a definitive diagnosis following a positive screen can create anxiety. There are various steps, participant decisions and waiting times in the pathway between a positive screen and a diagnostic assessment. Therefore, this indicator should not be considered a hospital wait time indicator. However, after a positive screen, further diagnostic assessment should occur in a timely fashion as there is a defined risk of bowel cancer in those with a positive screening test—and any harms (such as anxiety) from a positive screen should be minimised.

Data quality: This indicator relies on information being reported to the Register; however, this reporting is not mandatory, leading to incomplete data. Therefore, there is an unknown level of under-reporting for this indicator, and levels of under-reporting may differ across groups (for example, across jurisdictions and across remoteness and socioeconomic areas).

Guide to interpretation: This indicator includes all those with a positive screen in the defined period, not all those invited in the defined period.

The number and proportion of participants where time between positive screen and diagnostic assessment was less than or equal to 30, 60, 120, 180 or 360 days, or greater, are also included in tables A3.15–A3.17 in Appendix A to give further detail (together with median time and 90th percentile information in tables A3.18–A3.22).

National median time between positive screen and diagnostic assessment: 52 days.

The following apply for the 46,071 participants who had a positive screening test in 2017 with a diagnostic assessment recorded:

Australia-wide: The median time between positive screen and assessment was 52 days (Table A3.18).

Sex: Males and females had similar median times between a positive screen and assessment (53 days and 51 days, respectively) (Figure 3.14).

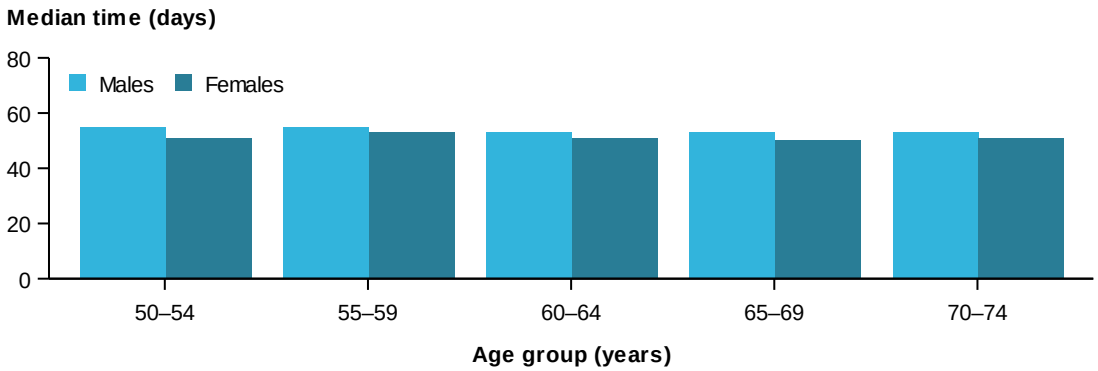
Age: The median time between a positive screen and diagnostic assessment was similar across age groups—53 days for people aged 50–54 compared with 52 days for people aged 70–74 (Figure 3.14).

Health-care provider:

- the median time between a positive screen and diagnostic assessment for those who went through the private health-care system was 47 days (Table A3.19)
- the median time between a positive screen and diagnostic assessment for those who went through the public health-care system was 84 days (Table A3.19).

Approximately 10% of diagnostic assessments did not state through which system (public or private) the follow-up assessment was performed. As this indicator relies on information being reported back to the Register, and that reporting is not mandatory, differences in wait times should be considered with caution.

Figure 3.14: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by sex and age, 2017



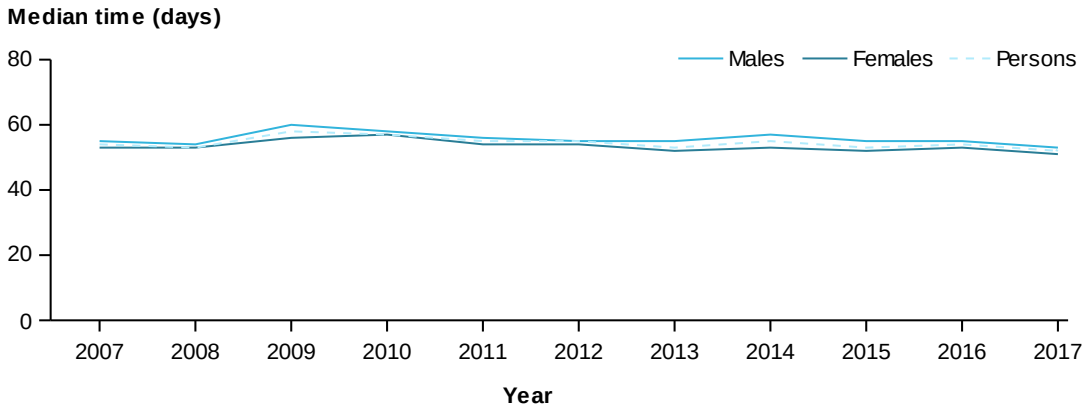
Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.18).

Trend: Monitoring reports before 2016 did not include this analysis. This means trend comparisons with data from those earlier reports cannot be made. To allow a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.15; Table A3.22).

Using this indicator for time between positive screen and diagnostic assessment across all program data to date, the median time between a positive screen and diagnostic assessment fluctuated between 52 and 58 days between 2007 and 2017 (Figure 3.15). Differences in form return and varying pathway practices for diagnostic assessment between years may contribute to this outcome.

Figure 3.15: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, 2007–2017



Notes

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
2. Trend data uses the performance indicator specifications retrospectively on previous years' data.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.22).

State and territory: The median time between a positive screen and diagnostic assessment was highest for people living in the Australian Capital Territory (67 days) and lowest for people living in Victoria (38 days) (Figure 3.16; Table A3.20). Note that differences in form return and varying pathway practices for diagnostic assessment may affect the results across jurisdictions.

Figure 3.16: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by state and territory, 2017

Notes

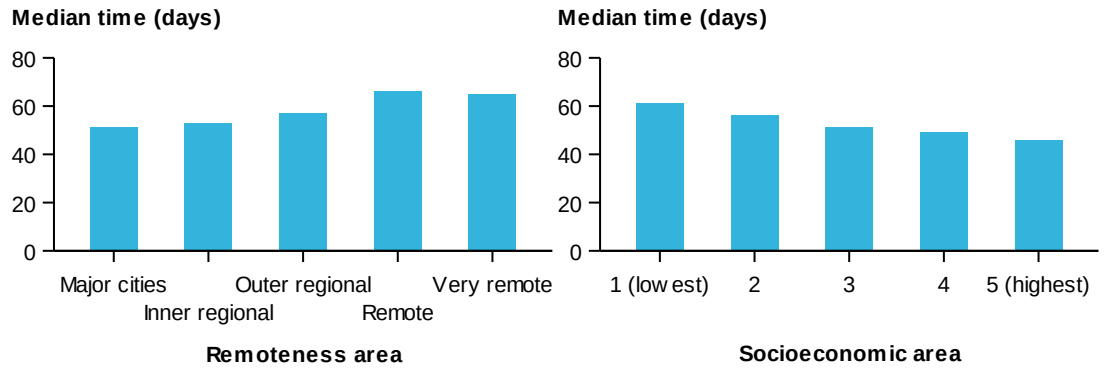
1. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018 (data for this figure are in Table A3.20).

Remoteness area: The median time between a positive screen and assessment was highest for people living in *Remote* areas (66 days) and lowest in *Major cities* (51 days) (Figure 3.17).

Socioeconomic area: The median time between a positive screen and assessment was highest for people living in the lowest socioeconomic areas (61 days) and lowest for people in the highest socioeconomic areas (46 days) (Figure 3.17; Table A3.20).

Figure 3.17: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by remoteness area and socioeconomic area, 2017



Notes

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
2. A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.

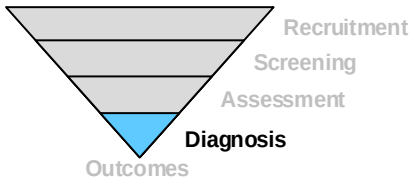
Source: NBCSP Register as at 31 December 3018 (data for this figure are in Table A3.20).

Indigenous status: There was a longer median time between positive screen and assessment for Indigenous Australians (70 days) than for non-Indigenous Australians (52 days) (Table A3.21).

Language spoken at home: There was little difference in the median time between a positive screen and assessment for those who spoke a language other than English at home and those who spoke English at home (55 and 52 days, respectively) (Table A3.21).

Disability status: Participants reporting a severe or profound activity limitation had a longer median time between a positive screen and assessment (64 days) than participants who did not report such a limitation (51 days) (Table A3.21).

3.5 Diagnosis

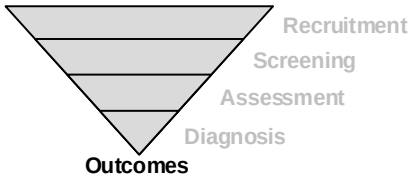


Diagnosis data available were not considered complete enough to allow formal performance indicator reporting for indicators:

- PI 5a—Adenoma detection rate
- PI 5b—Positive predictive value of diagnostic assessment for detecting adenoma
- PI 6a—Colorectal cancer detection rate
- PI 6b—Positive predictive value of diagnostic assessment for detecting colorectal cancer. See *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program* (AIHW 2014a, 2018c) for the most recent accurate PPV of diagnostic assessment for detecting colorectal cancer.

See Chapter 4 for a summary of bowel abnormality detection results using available assessment and diagnosis data.

3.6 Outcomes



PI 9—Adverse events—hospital admission

Definition: The rate at which people who had a diagnostic assessment between **1 January 2017 and 31 December 2017** were admitted to hospital within 30 days of their assessment (AIHW 2014b).

Rationale: As with any invasive procedure, there is the risk of an adverse event occurring with a colonoscopy. Maximising benefit and minimising harm is an important tenet of population screening. Accordingly, it is important to report known harms from screening when monitoring the performance for the program.

Data quality: Complete data for this indicator requires linkage with hospital data, which is not currently performed. However, as the NBCSP Register currently has non-mandatory information on adverse events for participants who had an assessment, this will be used until a more complete data source becomes available. Therefore, there is currently an unknown level of under-reporting for this indicator.

Guide to interpretation: This indicator includes all those who underwent a diagnostic assessment in the defined period, not all those invited in the defined period. As per the adverse event form, unplanned hospital admissions after a colonoscopy are recorded only if they occurred within 30 days of the procedure.

National hospital admission rate: 3 per 10,000 assessments.

The following applies for the 45,946 people who had a diagnostic assessment in 2017:

Australia-wide: A total of 14 people were admitted to hospital within 30 days of assessment, giving an overall Australia-wide hospital admission rate after assessment of 3 per 10,000 assessments (Table A3.23). Reporting of adverse events after a NBCSP colonoscopy is not mandatory so this rate may be an underestimate.

Due to concerns about the level of data completeness, other disaggregations are not presented for this indicator.

PI 10—Incidence of bowel cancer

Definition: The (estimated) incidence rate for bowel cancer per 100,000 estimated resident population aged 50–74 between **1 January 2019 and 31 December 2019** (AIHW 2014b).

Rationale: Incidence data provide contextual information about the number of new cases of bowel cancer in the population, which can inform NBCSP planning.

Data quality: Each Australian state and territory has legislation that makes the reporting of cancer (excluding basal cell and squamous cell carcinomas of the skin) mandatory. The ACD contains data on cancers diagnosed up to and including 2015—although the 2015 incidence counts for New South Wales are estimates because the actual data were not available.

Guide to interpretation: The latest estimated incidence results (for 2019) are given where possible. However, estimated 2019 incidence numbers are not available for analysis by state and territory, by remoteness and socioeconomic areas, or by Indigenous status. Hence, for these stratifications, the latest actual data to 2014 (the latest year of complete data for all states and territories) are used.

National bowel cancer incidence rate: 112 new cases per 100,000 people aged 50–74.

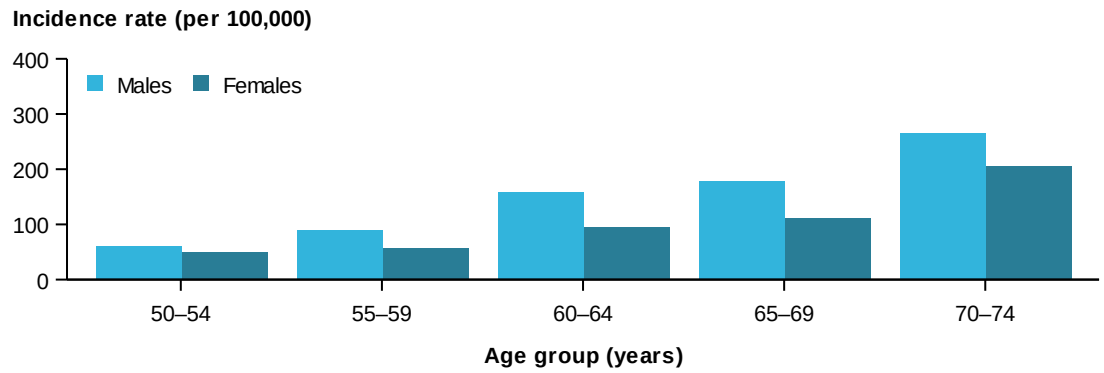
For 2019, the following estimates are made:

Australia-wide: A total of 8,036 people aged 50–74 will be diagnosed with bowel cancer, giving an ASR of 112 new cases per 100,000 people (Table A3.24).

Sex: Of people aged 50–74, males will be more likely to be diagnosed with bowel cancer than females (132 new cases per 100,000 males compared with 92 new cases per 100,000 females) (Table A3.24).

Age: Bowel cancer incidence rates will be higher for older age groups. For people in the target age group, the estimated bowel cancer incidence rate will increase with age, from 55 new cases per 100,000 people aged 50–54 to 235 new cases per 100,000 people aged 70–74 (Figure 3.18; Table A3.24).

Figure 3.18: Incidence rate of bowel cancer for people aged 50–74, by sex and age, 2019



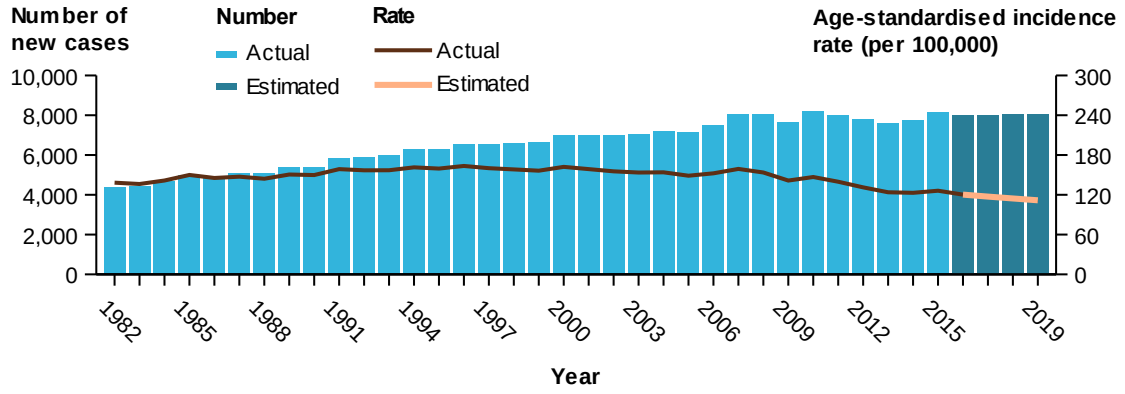
Notes

1. The 2019 estimates are based on 2006–2015 incidence data.
2. Age-specific rates are expressed per 100,000 people.
3. Bowel cancer includes ICD-10 codes C18–C20.

Source: AIHW ACD 2015 (data for this figure are in Table A3.24).

Trend: The number of bowel cancer cases in people aged 50–74 has increased from 4,387 in 1982 to an estimated 8,036 in 2019; the ASR increased from 138 new cases per 100,000 people aged 50–74 in 1982 to a peak of 163 new cases per 100,000 in 1996 where it remained fairly steady until 2007 (Figure 3.19). Since 2007, the ASR for people aged 50–74 has been decreasing and is expected to reach an ASR of 112 new cases in 2019. The overall effect of the ageing population is that, while the age-standardised incidence rate has recently fallen, the actual number of cases has continued to increase. The introduction of the NBCSP in 2006 might have contributed to increases in the bowel cancer incidence count because prevalent cases of cancer are diagnosed earlier in some cases than they might have been without screening.

Figure 3.19: Trend in new cases of bowel cancer, people aged 50–74, Australia, 1982–2019



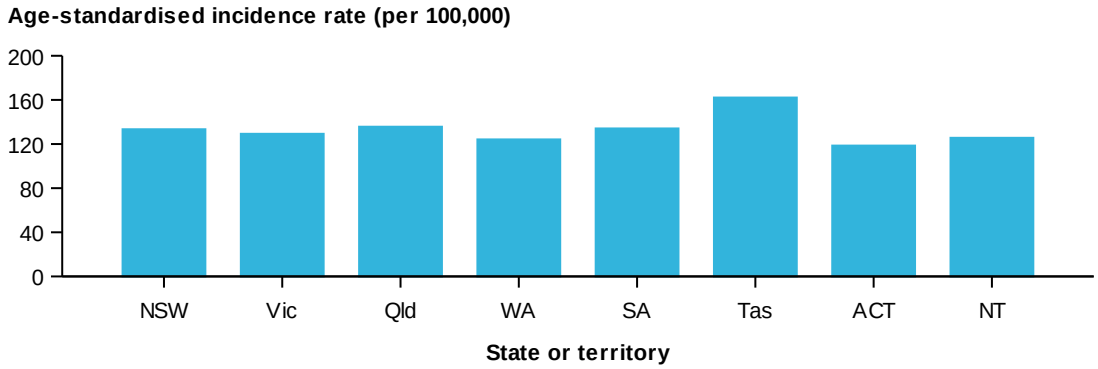
Notes

1. Estimated incidence data for 2016–2019 are based on 2006–2015 incidence data. Actual incidence data for 2016–2019 may differ from these estimated incidence data due to current and ongoing program or practice changes.
2. The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2014 for all states and territories; for 2015, it contains data for all jurisdictions except NSW for which incidence data has been estimated.
3. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
4. Bowel cancer includes ICD-10 codes C18–C20.

Source: AIHW ACD 2015 (data for this figure are in Table A3.27).

State and territory: In 2010 and 2014, the ASR for people aged 50–74 was highest in Tasmania (162 new cases of bowel cancer per 100,000 people) and lowest in the Australian Capital Territory (119 new cases of bowel cancer per 100,000 people) (Figure 3.20).

Figure 3.20: Incidence rate of bowel cancer for people aged 50–74, by state and territory, 2010–2014



Notes

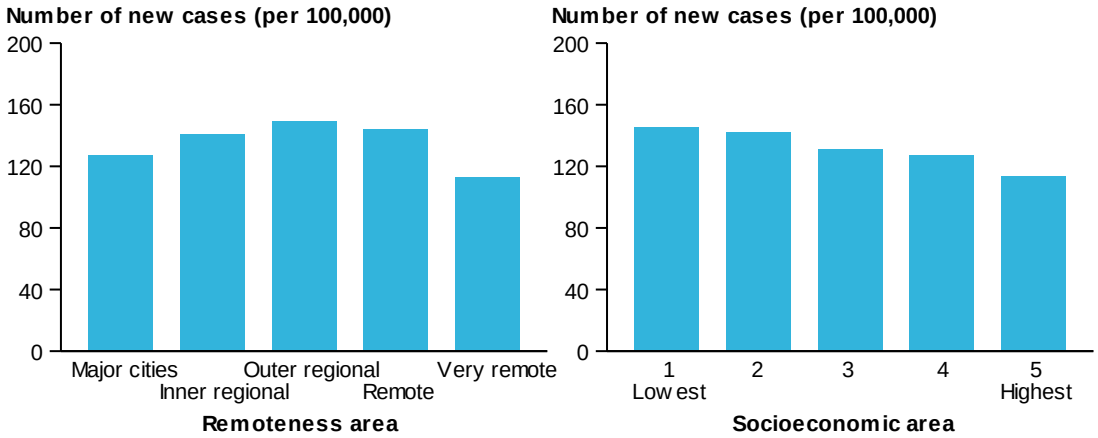
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.
3. Bowel cancer includes ICD-10 codes C18–C20.

Source: AIHW ACD 2015 (data for this figure are in Table A3.25).

Remoteness area: In 2010–2014, the ASR was highest for people aged 50–74 living in *Outer regional* areas (149 new cases of bowel cancer per 100,000 people) and lowest for people living in *Very remote* areas (113 new cases of bowel cancer per 100,000 people) (Figure 3.21).

Socioeconomic area: In 2010–2014, the ASR was highest for people aged 50–74 living in the lowest socioeconomic areas (146 new cases of bowel cancer per 100,000 people) and lowest for people living in the highest socioeconomic areas (112 new cases of bowel cancer per 100,000 people) (Figure 3.21).

Figure 3.21: Incidence rate of bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2010–2014



Notes

1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Remoteness was classified according to the Australian Statistical Geography Standard (ASGS) Remoteness Areas (see Appendix E). Incidence cells may not sum to the total due to non-concordance of some remoteness categories.
3. Socioeconomic areas were classified using the Australian Bureau of Statistics (ABS) Index of Relative Socio-Economic Disadvantage (IRSD) (see Appendix E).
4. Bowel cancer includes ICD-10 codes C18–C20.

Source: AIHW ACD 2015 (data for this figure are in Table A3.25).

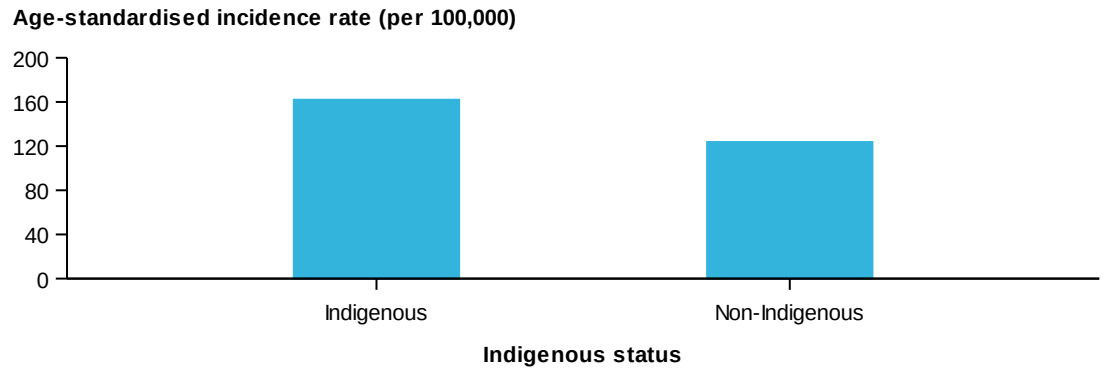
Indigenous Australians: Reliable national data on the diagnosis of cancer for Indigenous Australians are not available. All state and territory cancer registries collect information on Indigenous status; however, in some jurisdictions, the quality of Indigenous status data is insufficient for analysis. 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 2012). For the 5 jurisdictions analysed, 5.9% (3,875 records) of the ACD had records with unknown Indigenous status for bowel cancer diagnoses in 2010–2014.

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. Also, it is likely that some Indigenous Australians are currently misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution.

In these 5 jurisdictions, Indigenous Australians aged 50–74 had a higher ASR than non-Indigenous Australians (162 cases of bowel cancer per 100,000 people compared with 124 cases of bowel cancer per 100,000 people) (Figure 3.22).

Figure 3.22: Incidence rate of bowel cancer, by Indigenous status, 50–74 years, New South Wales, Victoria, Queensland, Western Australia, Northern Territory, 2010–2014



Notes

1. The rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Bowel cancer includes ICD-10 codes C18–C20.

Source: AIHW ACD 2015 (data for this figure are in Table A3.26).

PI 11—Mortality from bowel cancer

Definition: The (estimated) mortality rate for bowel cancer per 100,000 estimated resident population aged 50–74 between **1 January 2019 and 31 December 2019** (AIHW 2014b).

Rationale: Mortality data provide contextual information about trends in the level of bowel cancer mortality in the population, which can inform NBCSP planning.

Data quality: Cause of Death Unit Record File data are provided to the AIHW by the jurisdictional registrars of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include causes
of death coded by the ABS. It is suspected that bowel cancer deaths are under-reported due to issues with death certificate coding (see Appendix D).

National Bowel Cancer Screening Program Monitoring Report 2019 uses C18–C20, and C26.0 when reporting deaths from bowel cancer using the NMD. This is different from previous versions of this report and will result in a greater number of deaths being attributed to bowel cancer (see Box 2.1).

Guide to interpretation: The latest estimated mortality results (for 2019) are given where possible. However, analysis by state and territory, by remoteness and socioeconomic areas and by Indigenous status stratifications use the latest actual mortality data (which were to 2017 at the time this report was prepared).

National bowel cancer mortality rate: 28 deaths per 100,000 people aged 50–74.

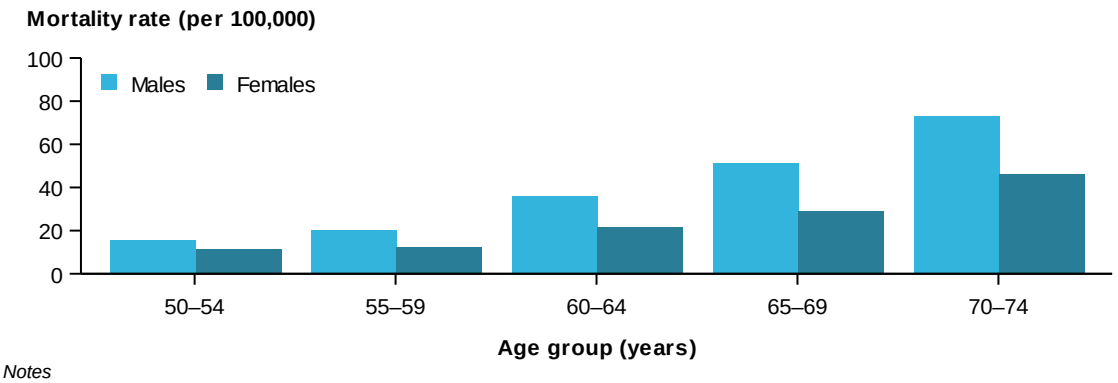
The following estimates are made for 2019:

Australia-wide: A total of 1,977 people aged 50–74 will die from bowel cancer, giving an ASR of 28 deaths per 100,000 people (Table A3.28).

Sex: Males aged 50–74 will be more likely to die from bowel cancer than females (34 deaths per 100,000 males compared with 21 deaths per 100,000 females) (Figure 3.23; Table A3.28).

Age: The bowel cancer mortality rate will continue to be higher for older age groups (Table A3.28). For people in the target age range, the estimated bowel cancer mortality rate will increase from 13 deaths per 100,000 people aged 50–54 to 59 deaths per 100,000 people aged 70–74 (Figure 3.23; Table A3.28).

Figure 3.23: Mortality rate from bowel cancer for people aged 50–74, by sex and age, 2019



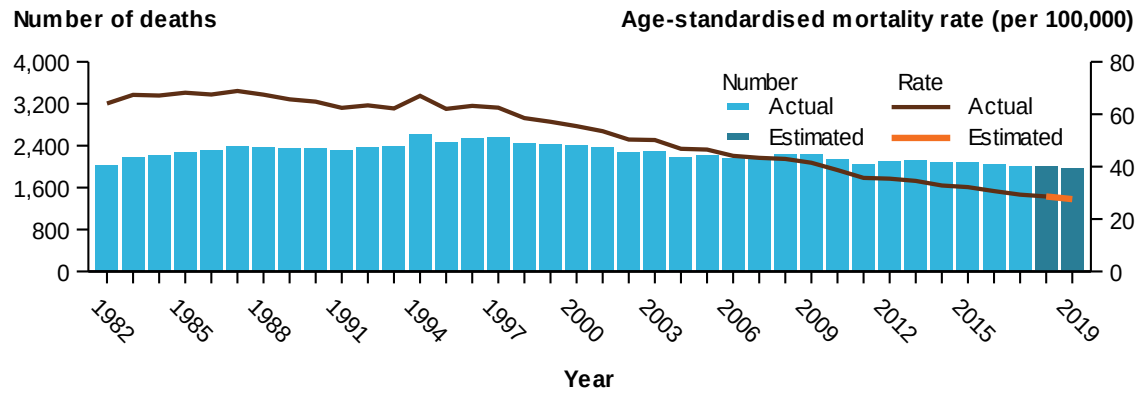
Notes

1. The 2019 estimates are based on 2007–2016 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: AIHW NMD (data for this figure are in Table A3.28).

Trend: Between 1982 and 1987, the age-standardised mortality rate for people aged 50–74 increased from 64 deaths per 100,000 people to 69 deaths per 100,000. Since 1987 the mortality rate from bowel cancer for those aged 50–74 has steadily decreased and is estimated to reach 28 deaths per 100,000 in 2019 (Figure 3.24).

Figure 3.24: Trend in deaths from bowel cancer for people aged 50–74, Australia, 1982–2019



Notes

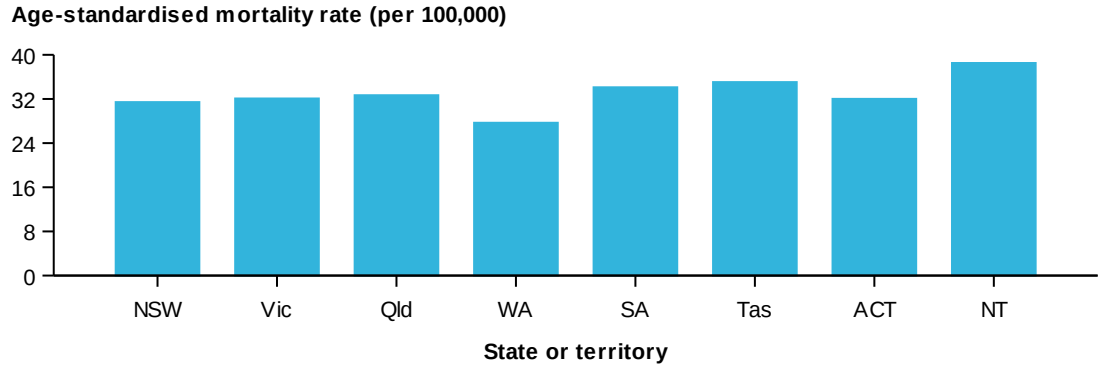
1. Estimated mortality data for 2018–2019 are based on 2007–2016 mortality data. Actual mortality data for 2018–2019 may differ from these estimated mortality data due to current and ongoing program or practice changes. See Appendix D for further information.
2. Deaths from 1982 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

Source: AIHW NMD (data for this figure are in Table A3.31).

The NBCSP started in 2006 and has not yet completed its full rollout to biennially invite those in the 50–74 target age range. This makes it harder to quantify its impact on bowel cancer mortality. However, studies that the AIHW has conducted of people diagnosed with bowel cancer in 2006–2008 showed that NBCSP invitees (particularly those who participated) who had been diagnosed with bowel cancer had less risk of dying from bowel cancer, and were more likely to have less advanced cancers when diagnosed than non-invitees. These findings provide evidence that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a, 2018a, 2018c).

State and territory: In 2013–2017, for people aged 50–74 the ASR was highest in the Northern Territory (39 deaths from bowel cancer per 100,000 people) and lowest in Western Australia (28 deaths from bowel cancer per 100,000 people) (Figure 3.25).

Figure 3.25: Mortality rate from bowel cancer for people aged 50–74, by state and territory, 2013–2017



Notes

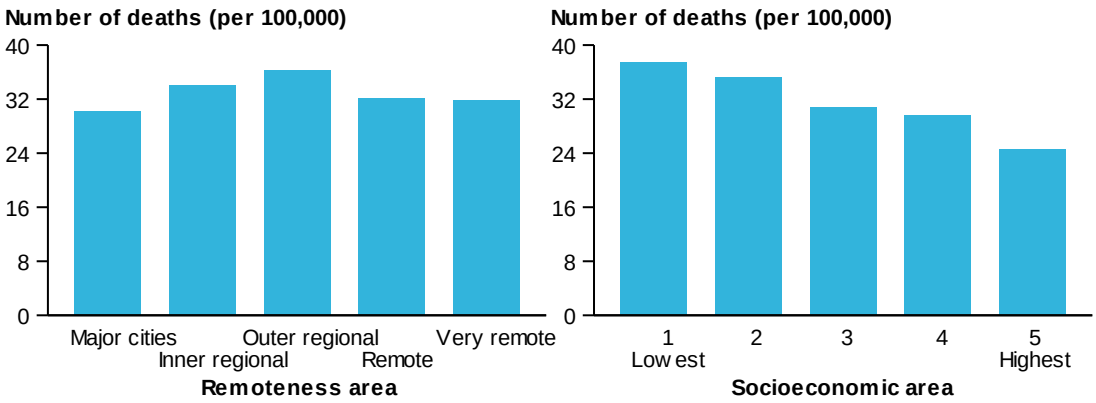
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths from 2013–2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: AIHW NMD (data for this figure are in Table A3.29).

Remoteness area: In 2013–2017, the ASR was highest for people aged 50–74 living in *Outer Regional* areas (36 deaths from bowel cancer per 100,000 people) and lowest for people living in *Major cities* (30 deaths from bowel cancer per 100,000 people) (Figure 3.26).

Socioeconomic area: In 2013–2017, the ASR was highest for people aged 50–74 living in the lowest socioeconomic areas (38 deaths from bowel cancer per 100,000 people) and lowest for people living in the highest socioeconomic areas (25 deaths from bowel cancer per 100,000 people) (Figure 3.26).

Figure 3.26: Mortality rate from bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2013–2017



Notes

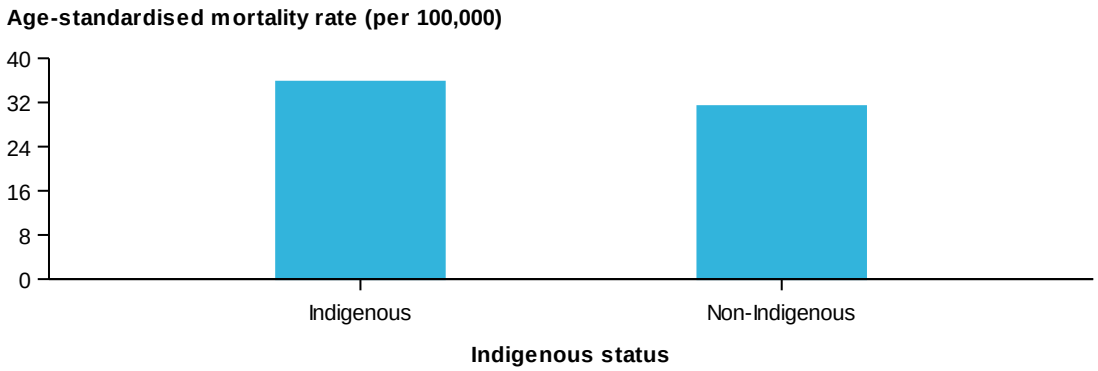
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths from 2013–2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
4. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).

Source: AIHW NMD (data for this figure are in Table A3.29).

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. Note that these jurisdictions differ from those used to calculate incidence for Indigenous and non-Indigenous Australians.

In these jurisdictions for the period 2013–2017, Indigenous Australians aged 50–74 had a higher ASR than non-Indigenous Australians aged 50–74 (36 deaths from bowel cancer per 100,000 people compared with 31 deaths from bowel cancer per 100,000 people, respectively) (Figure 3.27).

Figure 3.27: Mortality rate from bowel cancer, 50–74 years, by Indigenous status, New South Wales, Queensland, Western Australia, South Australia and Northern Territory, 2013–2017



Notes

1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths from 2013–2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: AIHW NMD (data for this figure are in Table A3.30).

4 Bowel abnormality detection results

Diagnosis data were not considered complete enough to allow for formal performance indicator reporting of NBCSP diagnostic outcomes in Chapter 3. Instead, a summary of bowel abnormality detection results for those assessed in 2017 are presented here for information, using the available data.

4.1 Bowel abnormality detection using available assessment and histopathology data

Of the 45,946 participants who had a diagnostic assessment, Australia-wide, in 2017:

- 266 (0.6%) had a bowel cancer detected and confirmed by histopathology
- 1,318 (2.9%) had a suspected bowel cancer that was still awaiting histopathological diagnosis
- 5,237 (11.4%) had an adenoma diagnosed by histopathology
- 26,920 (58.6%) had no adenoma or cancer recorded (includes those with other diagnoses, and those only known to have had a colonoscopy by a Medicare claim, with no results available)
- 12,205 (26.6%) were still awaiting histopathology outcomes for a polyp biopsy sample (that was not suspected of being bowel cancer) (Table A4.1)
- Rates of bowel cancer and adenoma detection differed by state and territory (Table A4.2). Differences across states and territories may be affected by differences in histopathology form return rates and should be interpreted with caution.

5 Spotlight on population groups

The NBCSP is monitored in relation to equity of access of relevant services for different population groups including by geographical location, socioeconomic area, Indigenous status, language spoken at home and disability. Routine monitoring of rates by various stratifications may reveal emerging trends for further investigation. This chapter provides a summary of performance indicators for 5 population subgroups. It should be noted that there is significant overlap of the Indigenous population with 2 of the other population subgroups presented here, due to higher proportions of Indigenous Australian participants living in the lowest socioeconomic areas and in *Very remote* areas.

5.1 Low socioeconomic areas

This section compares performance indicator results between the highest and lowest socioeconomic areas only. However, as noted in Chapter 3, across all performance indicators there is a general gradient of increasingly poorer outcomes across the 5 socioeconomic groupings as socioeconomic disadvantage increases.

Australians living in the lowest socioeconomic areas had a lower participation rate than those living in the highest socioeconomic areas. Further, they experienced higher screening positivity rates than those living in the highest socioeconomic areas, yet had a lower follow-up diagnostic assessment rate and a longer median time between a positive screen and an assessment.

Australians living in the lowest socioeconomic areas had higher age-standardised bowel cancer incidence and mortality rates than those living in the highest socioeconomic areas (Table 5.1).

Table 5.1: Summary of performance indicators for lowest and highest socioeconomic groups

Indicator		Summary of performance indicators for the lowest socioeconomic areas compared to the highest	Lowest socioeconomic areas	Highest socioeconomic areas
PI 1	Participation rate	Lower participation rate	39.1%	42.9%
PI 2	Screening positivity rate	Higher screening positivity rate	9.3%	6.7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	59.6%	74.5%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	61 days	46 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate	Higher age-standardised incidence rate	146 per 100,000	112 per 100,000
PI 11	Bowel cancer mortality rate	Higher age-standardised mortality rate	38 per 100,000	25 per 100,000

Notes

1. The participation indicator (PI 1) is reported against the period 2016–2017 with follow-up to June 2018. The screening indicator (PI 2) is reported against the period 2017. The assessment and adverse events indicators (PI 3, 4 and 9) are reported against the period 2017 with follow-up to December 2018. Incidence is reported for 2010–2014. Mortality is reported for 2013–2017.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

Sources: National Bowel Cancer Screening Program Register as at 31 December 2018; AIHW Australian Cancer Database 2015; AIHW National Mortality Database.

5.2 Very remote

This section compares performance indicator results between *Major cities* and *Very remote* areas only. However, as noted in Chapter 3, both *Remote* and *Very remote* areas had poorer participation and higher positivity rates than all other areas.

Australians living in *Very remote* areas had a lower participation rate than those living in *Major cities*. They also experienced higher screening positivity rates than Australians living in *Major cities*, yet had a lower follow-up diagnostic assessment rate.

Australians living in *Very remote* areas had a lower age-standardised bowel cancer incidence rate and a higher age-standardised mortality rate than those living in *Major cities* (Table 5.2).

Table 5.2: Summary of performance indicators for Very remote and Major city areas

Indicator		Summary of performance indicators for very remote areas compared with major cities	Very remote	Major cities
PI 1	Participation rate	Lower participation rate	27.5%	40.4%
PI 2	Screening positivity rate	Higher screening positivity rate	9.6%	7.7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	52.8%	70.6%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	65 days	51 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate	Lower age-standardised incidence rate	113 per 100,000	127 per 100,000
PI 11	Bowel cancer mortality rate	Higher age-standardised mortality rate	32 per 100,000	30 per 100,000

Notes

1. The participation indicator (PI 1) is reported against the period 2016–2017 with follow-up to June 2018. The screening indicator (PI 2) is reported against the period 2017. The assessment and adverse events indicators (PI 3, 4 and 9) are reported against the period 2017 with follow-up to December 2018. Incidence is reported for 2010–2014. Mortality is reported for 2013–2017.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

Sources: National Bowel Cancer Screening Program Register as at 31 December 2018; AIHW Australian Cancer Database 2015; AIHW National Mortality Database.

5.3 Indigenous Australians

Indigenous Australians had lower participation rates than non-Indigenous Australians. They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate and a longer median time between a positive screen and an assessment. Indigenous Australians had higher age-standardised bowel cancer incidence and mortality rates than non-Indigenous Australians (Table 5.3).

Reasons for differences in screening outcomes between Indigenous and non-Indigenous Australians are not known; however, higher proportions of Indigenous Australians living in *Remote* and *Very remote* locations and lower socioeconomic areas may be factors.

Table 5.3: Summary of performance indicators for Indigenous and non-Indigenous Australians

Indicator		Summary of performance indicators for Indigenous Australians compared with non-Indigenous Australians	Indigenous	Non-Indigenous
PI 1	Participation rate[(a)]	Lower participation rate	21.0%	43.3%
PI 2	Screening positivity rate	Higher screening positivity rate	11.7%	7.8%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	51.4%	66.8%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	70 days	52 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[(b)]	Higher age-standardised incidence rate	162 per 100,000	124 per 100,000
PI 11	Bowel cancer mortality rate[(c)]	Higher age-standardised mortality rate	36 per 100,000	31 per 100,000

(a) Participation rates by Indigenous status were estimated using 2016 Census proportions (see Appendix F for more information).

(b) Includes only New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

(c) Includes only New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

Notes

1. The participation indicator (PI 1) is reported against the period 2016–2017 with follow-up to June 2018. The screening indicator (PI 2) is reported against the period 2017. The assessment and adverse events indicators (PI 3, 4 and 9) are reported against the period 2017 with follow-up to December 2018. Incidence is reported for 2010–2014. Mortality is reported for 2013–2017.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.
4. 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. Also, it is likely that some Indigenous Australians are misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution.

Sources: National Bowel Cancer Screening Program Register as at 31 December 2018; AIHW Australian Cancer Database 2015; AIHW National Mortality Database, 2016 Census data.

5.4 Language spoken at home

Australians who spoke a language other than English at home had a lower participation rate than those who spoke English. They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate (Table 5.4).

Table 5.4: Summary of performance indicators for English speakers and those who spoke a language other than English (LOTE) at home

Indicator		Summary of performance indicators for those who spoke a language other than English at home compared with English speakers	LOTE	English
PI 1	Participation rate[(a)]	Lower participation rate	24.7%–34.1%	42.8%–46.4%
PI 2	Screening positivity rate	Higher screening positivity rate	8.3%	7.8%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	63.0%	67.0%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	55 days	52 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[(b)]	Comparison not published	n.a.	n.a.
PI 11	Bowel cancer mortality rate[(b)]	Comparison not published	n.a.	n.a.

a) Participation rates by language spoken at home were estimated using 2016 Census proportions (see Appendix F for more information).

b) Data for this indicator is not available.

Notes

1. The participation indicator (PI 1) is reported against the period 2016–2017 with follow-up to June 2018. The screening indicator (PI 2) is reported against the period 2017. The assessment and adverse events indicators (PI 3, 4 and 9) are reported against the period 2017 with follow-up to December 2018. Incidence and mortality data is not currently available for reporting by language spoken at home.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

Sources: National Bowel Cancer Screening Program Register as at 31 December 2018; AIHW Australian Cancer Database 2015; AIHW National Mortality Database, 2016 Census data.

5.5 Disability status

Australians with a severe or profound disability participated at a lower rate than those without such a limitation. They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate (Table 5.5).

Table 5.5: Summary of performance indicators for those with a severe or profound activity limitation and those with no severe of profound activity limitation

Indicator		Summary of performance indicators for those with a severe or profound disability compared with those without a severe or profound disability	Severe or profound activity limitation	No severe or profound activity limitation
PI 1	Participation rate[(a)]	Lower participation rate	36.0%	43.2%
PI 2	Screening positivity rate	Higher screening positivity rate	12.0%	7.6%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	54.1%	68.0%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	64 days	51 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[(b)]	Comparison not published	n.a.	n.a.
PI 11	Bowel cancer mortality rate[(b)]	Comparison not published	n.a.	n.a.

(a) Participation rates by disability status were estimated using 2016 Census proportions (see Appendix F for more information).

(b) Data for this indicator is not available.

Notes

1. The participation indicator (PI 1) is reported against the period 2016–2017 with follow-up to June 2018. The screening indicator (PI 2) is reported against the period 2017. The assessment and adverse events indicators (PI 3, 4 and 9) are reported against the period 2017 with follow-up to December 2018. Incidence and mortality data is not currently available for reporting by disability status.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

Sources: National Bowel Cancer Screening Program Register as at 31 December 2018; AIHW Australian Cancer Database 2015; AIHW National Mortality Database, 2016 Census data.

Appendix A: Data tables

Additional table for Chapter 1

Table A1.1: Government funding for cancer screening programs, 2016–17 ($ million)

Screening program	Australian Government	State and territory government	Total expenditure for 2015–16
BreastScreen Australia	18.1[(a)]	293.3	311.4[(b)]
National Cervical Screening Program	52.2[(a)]	37.8	90.1[(c)]
MBS items for cervical screening	*37.4*		
PIP incentive payments for cervical screening	*5.0*		
Funding for the Victorian Cytology Service	*9.8*		
National Bowel Cancer Screening Program	68.4[(d)]	5.9	74.2[(e)]

(a) Includes only direct expenditure on the program by the Australian Government, and not the funding provided to the states and territories through the National Healthcare Agreement.

(b) Excludes mammography for breast cancer screening that occurs outside BreastScreen Australia.

(c) Excludes the proportion of the costs associated with general practitioner (GP), specialist and nurse attendances that would have been for Pap tests—and therefore cannot be compared with expenditure for 2008–09, which included an estimate for these costs).

(d) Includes payments from the Australian Government to the states and territories for the National Bowel Cancer Screening Program.

(e) Excludes Medicare Benefits Schedule (MBS) flow-on costs; excludes GP incentives payments; excludes bowel screening that occurs outside the National Bowel Cancer Screening Program.

Note: These expenditure data include only recurrent expenditure; health infrastructure payments for cancer have been excluded as well as any health workforce expenditure.

Sources: AIHW Health Expenditure database; Medicare Australia Statistics.

Additional tables for Chapter 2

Table A2.1: Five-year relative survival from bowel cancer, by age and sex, Australia, 2011–2015

	Males	Females	Persons
Age group (years)	**5-year relative survival (%)**	**5-year relative survival (%)**	**5-year relative survival (%)**
0–4	n.p.	n.p.	n.p.
5–9	n.p.	n.p.	n.p.
10–14	n.p.	100.0	98.4
15–19	92.5	96.5	95.0
20–24	83.9	90.5	87.7
25–29	77.8	78.4	78.2
30–34	74.2	75.1	74.7
35–39	75.0	78.1	76.6
40–44	73.0	72.6	72.7
45–49	73.5	74.1	73.8
50–54	75.9	77.6	76.7
55–59	75.1	77.1	75.9
60–64	70.6	75.2	72.4
65–69	74.4	76.2	75.1
70–74	69.1	72.7	70.6
75–79	66.9	69.0	67.9
80–84	64.1	63.7	64.0
85+	55.4	55.6	55.6
50–74	*72.4*	*75.3*	*73.6*
All ages	**69.5**	**70.4**	**69.9**

Source: ACD 2015.

Table A2.2: Trend in 5-year relative survival from bowel cancer, 50–74 years, Australia, 1986–1990 to 2011–2015

Year	5-year relative survival (%)
1986–1990	53.0
1991–1995	57.4
1996–2000	61.0
2001–2005	66.4
2006–2010	69.7
2011–2015	73.6

Source: ACD 2015.

Table A2.3: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, 50–74 years, Australia, 2011–2015

	Relative survival	Conditional survival	
Years after diagnosis	Relative survival (%)	Years already survived	5-year conditional relative survival (%)
1	90.8	. .	. .
2	84.2	. .	. .
3	79.5	. .	. .
4	75.9	. .	. .
5	73.6	0	73.6
6	71.8	1	79.1
7	70.3	2	83.5
8	69.1	3	86.9
9	68.0	4	89.5
10	67.2	5	91.2
11	66.7	6	92.9
12	66.2	7	94.2
13	65.7	8	95.1
14	65.3	9	96.1
15	65.0	10	96.7
16	64.6	11	96.8
17	64.3	12	97.1
18	64.1	13	97.6
19	63.8	14	97.7
20	63.7	15	98.0

Source: ACD 2015.

Additional tables for Chapter 3

Recruitment

Table A3.1: Screening invitations including opt-out and deferred status of people aged 50–74, by sex and age, Australia, 2016–2017

Sex	Age	Invitations issued to eligible population (N)	Persons deferred (N)	Persons opted out (N)	Persons deferred and opted out (N)	Persons deferred and opted out (%)	Invitations (minus opted out and deferred (N))
Males	50–54	448,802	1,084	2,522	3,606	0.8	445,196
	55–59	430,061	1,300	2,340	3,640	0.8	426,421
	60–64	490,976	2,496	4,835	7,331	1.5	483,645
	65–69	219,681	1,625	4,002	5,627	2.6	214,054
	70–74	490,742	4,181	10,642	14,823	3.0	475,919
	50–74	*2,080,262*	*10,686*	*24,341*	*35,027*	*1.7*	*2,045,235*
Females	50–54	450,230	1,602	3,264	4,866	1.1	445,364
	55–59	431,506	1,823	3,034	4,857	1.1	426,649
	60–64	498,101	3,418	5,729	9,147	1.8	488,954
	65–69	222,791	2,147	4,830	6,977	3.1	215,814
	70–74	495,791	4,955	12,354	17,309	3.5	478,482
	50–74	*2,098,419*	*13,945*	*29,211*	*43,156*	*2.1*	*2,055,263*
Persons	50–54	899,032	2,686	5,786	8,472	0.9	890,560
	55–59	861,567	3,123	5,374	8,497	1.0	853,070
	60–64	989,077	5,914	10,564	16,478	1.7	972,599
	65–69	442,472	3,772	8,832	12,604	2.8	429,868
	70–74	986,533	9,136	22,996	32,132	3.3	954,401
	50–74	**4,178,681**	**24,631**	**53,552**	**78,183**	**1.9**	**4,100,498**

Source: NBCSP Register as at 31 December 2018.

Table A3.2: Participation of people aged 50–74, by sex and age, Australia, 2016–2017

Sex	Age	Returned completed screening test (N)	Invitations (minus opted out and deferred (N))	Participation (%)
Males	50–54	124,582	445,196	28.0
	55–59	141,197	426,421	33.1
	60–64	196,225	483,645	40.6
	65–69	97,470	214,054	45.5
	70–74	246,670	475,919	51.8
	50–74	*806,144*	*2,045,235*	*39.4*
Females	50–54	141,182	445,364	31.7
	55–59	161,406	426,649	37.8
	60–64	222,929	488,954	45.6
	65–69	106,511	215,814	49.4
	70–74	255,258	478,482	53.3
	50–74	*887,286*	*2,055,263*	*43.2*
Persons	50–54	265,764	890,560	29.8
	55–59	302,603	853,070	35.5
	60–64	419,154	972,599	43.1
	65–69	203,981	429,868	47.5
	70–74	501,928	954,401	52.6
	50–74	**1,693,430**	**4,100,498**	**41.3**

Source: NBCSP Register as at 31 December 2018.

Table A3.3: Participation of people aged 50–74, by invitation round, Australia, 2016–2017

Round	Screened in previous round	Age	Returned completed screening test (N)	Invitations (minus opted out and deferred (N))	Participation (%)
First	n.a.	50–54	175,798	616,542	28.5
		55–59	4,069	14,845	27.4
		60–64	6,917	21,001	32.9
		65–69	46,764	109,365	42.8
		70–74	4,921	13,948	35.3
		50–74	*238,469*	*775,701*	*30.7*
Subsequent	No	50–54	34,271	194,485	17.6
		55–59	100,081	567,662	17.6
		60–64	126,050	580,940	21.7
		65–69	43,519	177,480	24.5
		70–74	115,803	469,044	24.7
		50–74	*419,724*	*1,989,611*	*21.1*
	Yes	50–54	55,695	79,533	70.0
		55–59	198,453	270,563	73.3
		60–64	286,187	370,658	77.2
		65–69	113,698	143,023	79.5
		70–74	381,204	471,409	80.9
		50–74	*1,035,237*	*1,335,186*	*77.5*
	All	50–54	89,966	274,018	32.8
		55–59	298,534	838,225	35.6
		60–64	412,237	951,598	43.3
		65–69	157,217	320,503	49.1
		70–74	497,007	940,453	52.8
		50–74	*1,454,961*	*3,324,797*	*43.8*
All rounds	No[(a)]	50–54	210,069	811,027	25.9
		55–59	104,150	582,507	17.9
		60–64	132,967	601,941	22.1
		65–69	90,283	286,845	31.5
		70–74	120,724	482,992	25.0
		50–74	*658,193*	*2,765,312*	*23.8*
	Yes	50–54	55,695	79,533	70.0
		55–59	198,453	270,563	73.3
		60–64	286,187	370,658	77.2
		65–69	113,698	143,023	79.5
		70–74	381,204	471,409	80.9
		50–74	*1,035,237*	*1,335,186*	*77.5*
	All	50–54	265,764	890,560	29.8
		55–59	302,603	853,070	35.5
		60–64	419,154	972,599	43.1
		65–69	203,981	429,868	47.5
		70–74	501,928	954,401	52.6
		50–74	**1,693,430**	**4,100,498**	**41.3**

(a) Includes all first-round invitations.

Source: NBCSP Register as at 31 December 2018.

Table A3.4: Participation of people aged 50–74, by state and territory, remoteness area, and socioeconomic area, 2016–2017

Area		Returned completed screening test (N)	Invitations (minus opted out and deferred (N)	Participation rate (per cent)
State and territory	NSW	515,309	1,347,464	38.2
	Vic	442,744	1,024,590	43.2
	Qld	326,518	800,852	40.8
	WA	180,889	421,003	43.0
	SA	145,998	314,703	46.4
	Tas	46,478	100,045	46.5
	ACT	27,406	63,041	43.5
	NT	8,088	28,800	28.1
Remoteness area	Major cities	1,120,390	2,772,622	40.4
	Inner regional	373,081	839,189	44.5
	Outer regional	168,411	400,957	42.0
	Remote	18,278	49,031	37.3
	Very remote	5,551	20,160	27.5
Socioeconomic area	1 (lowest)	324,198	829,225	39.1
	2	349,944	844,093	41.5
	3	317,427	777,724	40.8
	4	331,442	779,891	42.5
	5 (highest)	349,837	814,586	42.9

Source: NBCSP Register as at 31 December 2018.

Table A3.5: Participation rate (%) of people aged 50–74, by sex and age, Australia, 2007–2008 to 2016–2017

Sex	Age group (years)	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017
Males	50–54	31.3	34.1	32.2	29.9	28.0	26.9	26.5	26.4	26.2	28.0
	55–59	37.5	38.3	36.8	34.4	32.3	32.6	33.9	34.1	33.0	33.1
	60–64	. .	. .	. .	. .	. .	. .	40.6	40.2	40.1	40.6
	65–69	49.1	50.6	49.4	47.1	45.5	43.5	41.7	41.1	42.0	45.5
	70–74	. .	. .	. .	. .	. .	. .	51.2	51.8	51.8	51.8
	50–74	*40.0*	*39.8*	*37.9*	*35.7*	*34.1*	*33.4*	*34.7*	*36.5*	*39.0*	*39.4*
Females	50–54	38.0	40.8	37.4	34.7	32.6	31.2	30.8	30.6	30.0	31.7
	55–59	47.1	47.6	44.7	41.9	39.4	38.9	39.7	39.4	38.0	37.8
	60–64	. .	. .	. .	. .	. .	. .	47.2	46.2	45.2	45.6
	65–69	56.2	57.7	55.4	52.9	51.4	49.2	46.8	45.8	46.4	49.4
	70–74	. .	. .	. .	. .	. .	. .	43.4	53.1	53.2	53.3
	50–74	*48.2*	*47.5*	*44.2*	*41.6*	*39.9*	*38.8*	*40.1*	*41.3*	*42.9*	*43.2*
Persons	50–54	34.7	37.4	34.8	32.3	30.3	29.0	28.6	28.5	28.1	29.8
	55–59	42.2	42.9	40.7	38.1	35.8	35.8	36.8	36.8	35.5	35.5
	60–64	. .	. .	. .	. .	. .	. .	43.9	43.2	42.7	43.1
	65–69	52.6	54.1	52.3	49.9	48.4	46.3	44.2	43.5	44.2	47.5
	70–74	. .	. .	. .	. .	. .	. .	47.4	52.5	52.5	52.6
	50–74	**44.0**	**43.6**	**41.0**	**38.6**	**37.0**	**36.1**	**37.4**	**38.9**	**40.9**	**41.3**

Note: Data presented are for rolling 2-year participation periods.

Source: NBCSP Register as at 31 December 2018.

Screening

Table A3.6: iFOBT positivity rate of people aged 50–74, by sex and age, 2017

Sex	Age at screen	Positive result (N)	Valid screening test (N)	Screening positivity (%)
Males	50–54	4,945	72,704	6.8
	55–59	5,751	81,062	7.1
	60–64	7,954	94,813	8.4
	65–69	4,519	46,095	9.8
	70–74	13,387	121,854	11.0
	50–74	*36,556*	*416,528*	*8.8*
Females	50–54	4,963	82,801	6.0
	55–59	5,497	93,206	5.9
	60–64	7,135	107,930	6.6
	65–69	3,919	49,726	7.9
	70–74	11,276	126,453	8.9
	50–74	*32,790*	*460,116*	*7.1*
Persons	50–54	9,908	155,505	6.4
	55–59	11,248	174,268	6.5
	60–64	15,089	202,743	7.4
	65–69	8,438	95,821	8.8
	70–74	24,663	248,307	9.9
	50–74	**69,346**	**876,644**	**7.9**

Source: NBCSP Register as at 31 December 2018.

Table A3.7: iFOBT positivity rate of people aged 50–74, by screening round, Australia, 2017

Screen Round	Positive result (N)	Valid screening test (N)	Screening positivity (%)
First	25,466	289,019	8.8
Subsequent (≤2 years)	4,940	59,889	8.2
Subsequent (>2 years)	38,940	527,736	7.4
All rounds	**69,346**	**876,644**	**7.9**

Note: 56,093 (93.7%) of the valid screening tests that were returned from participants in a subsequent screening round (≤2) were aged 70–74. Once the biennial rollout of the NBCSP is complete, the change in the distribution of the target age group may impact on the positivity rates of subsequent screening rounds.

Source: NBCSP Register as at 31 December 2018.

Table A3.8: iFOBT positivity rate of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2017

Area		Positive result (N)	Valid screening test (N)	Screening positivity (%)
State and territory	NSW	20,946	264,297	7.9
	Vic	18,208	229,970	7.9
	Qld	12,863	168,695	7.6
	WA	7,577	95,145	8.0
	SA	6,170	75,123	8.2
	Tas	2,179	24,831	8.8
	ACT	1,004	14,299	7.0
	NT	399	4,284	9.3
Remoteness area	Major cities	44,751	580,863	7.7
	Inner regional	15,693	192,401	8.2
	Outer regional	7,417	87,137	8.5
	Remote	881	9,496	9.3
	Very remote	266	2,781	9.6
Socioeconomic area	1 (lowest)	15,449	166,977	9.3
	2	15,060	180,786	8.3
	3	12,989	164,136	7.9
	4	12,825	172,430	7.4
	5 (highest)	12,160	181,659	6.7
Total		**69,346**	**876,644**	**7.9**

Source: NBCSP Register as at 31 December 2018.

Table A3.9: iFOBT positivity rate of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2017

Population group		Positive result (N)	Valid screening test (N)	Screening positivity (%)
Indigenous status	Indigenous	800	6,852	11.7
	Non-Indigenous	66,522	849,457	7.8
	Not stated	2,024	20,335	10.0
Main language spoken at home	Language other than English	10,217	123,354	8.3
	English	59,129	753,290	7.8
Disability status	Severe or profound activity limitation	5,646	47,118	12.0
	No severe or profound activity limitation	60,715	798,269	7.6
	Not stated	2,985	31,257	9.5
Total		**69,346**	**876,644**	**7.9**

Source: NBCSP Register as at 31 December 2018.

Assessment

Table A3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2017

Sex	Age at first positive screen (years)	Assessments (N)	Positive iFOBT result (N)	Diagnostic assessment rate (%)
Males	50–54	3,342	4,945	67.6
	55–59	3,770	5,751	65.6
	60–64	5,277	7,954	66.3
	65–69	2,957	4,519	65.4
	70–74	8,670	13,387	64.8
	50–74	*24,016*	*36,556*	*65.7*
Females	50–54	3,422	4,963	69.0
	55–59	3,799	5,497	69.1
	60–64	4,806	7,135	67.4
	65–69	2,621	3,919	66.9
	70–74	7,407	11,276	65.7
	50–74	*22,055*	*32,790*	*67.3*
Persons	50–54	6,764	9,908	68.3
	55–59	7,569	11,248	67.3
	60–64	10,083	15,089	66.8
	65–69	5,578	8,438	66.1
	70–74	16,077	24,663	65.2
	50–74	**46,071**	**69,346**	**66.4**

Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may be different across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.11: Diagnostic assessments (colonoscopy) performed for people aged 50–74, by health-care provider, Australia, 2017

Health-care provider	Assessments (N)	Proportion of assessments (%)
Public	7,605	16.5
Private	33,986	73.8
Not stated	4,480	9.7
Total	**46,071**	**100.0**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2017

Area		Assessments (N)	Positive iFOBT result (N)	Screening positivity (%)
State and territory	NSW	12,441	20,946	59.4
	Vic	11,988	18,208	65.8
	Qld	9,909	12,863	77.0
	WA	4,771	7,577	63.0
	SA	4,449	6,170	72.1
	Tas	1,546	2,179	70.9
	ACT	760	1,004	75.7
	NT	207	399	51.9
Remoteness area	Major cities	31,589	44,751	70.6
	Inner regional	9,303	15,693	59.3
	Outer regional	4,343	7,417	58.6
	Remote	487	881	55.2
	Very remote	140	266	52.8
Socioeconomic area	1 (lowest)	9,212	15,449	59.6
	2	9,197	15,060	61.1
	3	8,781	12,989	67.6
	4	9,271	12,825	72.3
	5 (highest)	9,062	12,160	74.5
Total		**46,071**	**69,346**	**66.4**

Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may be different across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2017

Area		Assessments (N)	Positive iFOBT result (N)	Screening positivity (%)
Indigenous status	Indigenous	411	800	51.4
	Non-Indigenous	44,461	66,522	66.8
	Not stated	1,199	2,024	59.2
Main language spoken at home	Language other than English	6,432	10,217	63.0
	English	39,639	59,129	67.0
Disability status	Severe or profound activity limitation	3,055	5,646	54.1
	No severe or profound activity limitation	41,314	60,715	68.0
	Not stated	1,702	2,985	57.0
Total		**46,071**	**69,346**	**66.4**

Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may be different across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.14: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2007–2017

		Diagnostic assessment rate (%)										
Sex	**Age at first positive screen**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Males	50–54	. .	75.5	76.4	76.8	74.7	74.2	71.8	73.4	71.5	69.2	67.6
	55–59	77.7	77.6	75.4	77.4	77.1	74.2	74.0	71.8	70.9	69.0	65.6
	60–64	. .	. .	. .	. .	. .	. .	74.5	72.8	70.5	68.7	66.3
	65–69	75.9	76.5	77.0	77.8	78.3	75.0	74.4	73.8	70.1	68.1	65.4
	70–74	. .	. .	. .	. .	. .	. .	50.0	100.0	68.4	65.5	64.8
	50–74	*76.7*	*76.7*	*76.3*	*77.4*	*76.9*	*74.6*	*73.7*	*73.0*	*69.9*	*67.4*	*65.7*
Females	50–54	. .	77.4	76.2	78.4	78.0	75.4	74.3	73.6	73.5	69.5	69.0
	55–59	78.0	79.2	79.8	77.6	77.5	75.8	74.9	73.2	72.6	70.7	69.1
	60–64	. .	. .	. .	. .	. .	. .	75.9	74.0	72.8	70.3	67.4
	65–69	77.1	77.7	75.2	78.6	78.8	76.4	74.6	74.6	71.5	69.9	66.9
	70–74	. .	. .	. .	. .	. .	. .	66.7	. .	68.6	67.1	65.7
	50–74	*77.5*	*78.2*	*76.9*	*78.2*	*78.1*	*76.0*	*74.7*	*73.9*	*71.4*	*69.0*	*67.3*
Persons	50–54	. .	76.5	76.3	77.6	76.3	74.8	73.1	73.5	72.5	69.4	68.3
	55–59	77.8	78.3	77.6	77.5	77.3	75.0	74.5	72.5	71.7	69.8	67.3
	60–64	. .	. .	. .	. .	. .	. .	75.2	73.4	71.6	69.5	66.8
	65–69	76.4	77.0	76.2	78.2	78.5	75.7	74.5	74.2	70.7	68.9	66.1
	70–74	. .	. .	. .	. .	. .	. .	57.1	75.0	68.5	66.2	65.2
	50–74	**77.1**	**77.4**	**76.6**	**77.8**	**77.5**	**75.3**	**74.2**	**73.4**	**70.6**	**68.1**	**66.4**

Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may be different across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.15: Time between positive screen and diagnostic assessment of people aged 50–74, by sex and age, Australia, 2017

Sex	Age group (years)	No diagnostic assessment		≤30 days		≤60 days		≤120 days		≤180 days		≤360 days		>360 days		All
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Males	50–54	1,603	32.4	732	14.8	1,831	37.0	2,754	55.7	3,082	62.3	3,330	67.3	12	0.2	4,945
	55–59	1,981	34.4	844	14.7	2,052	35.7	3,133	54.5	3,507	61.0	3,746	65.1	24	0.4	5,751
	60–64	2,677	33.7	1,198	15.1	3,019	38.0	4,478	56.3	4,934	62.0	5,253	66.0	24	0.3	7,954
	65–69	1,562	34.6	672	14.9	1,697	37.6	2,486	55.0	2,770	61.3	2,941	65.1	16	0.4	4,519
	70–74	4,717	35.2	1,997	14.9	4,949	37.0	7,374	55.1	8,112	60.6	8,625	64.4	45	0.3	13,387
	50–74	*12,540*	*34.3*	*5,443*	*14.9*	*13,548*	*37.1*	*20,225*	*55.3*	*22,405*	*61.3*	*23,895*	*65.4*	*121*	*0.3*	*36,556*
Females	50–54	1,541	31.0	846	17.0	1,993	40.2	2,898	58.4	3,192	64.3	3,404	68.6	18	0.4	4,963
	55–59	1,698	30.9	925	16.8	2,137	38.9	3,205	58.3	3,559	64.7	3,783	68.8	16	0.3	5,497
	60–64	2,329	32.6	1,182	16.6	2,767	38.8	4,118	57.7	4,539	63.6	4,781	67.0	25	0.4	7,135
	65–69	1,298	33.1	656	16.7	1,563	39.9	2,274	58.0	2,488	63.5	2,616	66.8	5	0.1	3,919
	70–74	3,869	34.3	1,723	15.3	4,348	38.6	6,434	57.1	7,033	62.4	7,385	65.5	22	0.2	11,276
	50–74	*10,735*	*32.7*	*5,332*	*16.3*	*12,808*	*39.1*	*18,929*	*57.7*	*20,811*	*63.5*	*21,969*	*67.0*	*86*	*0.3*	*32,790*
Persons	50–54	3,144	31.7	1,578	15.9	3,824	38.6	5,652	57.0	6,274	63.3	6,734	68.0	30	0.3	9,908
	55–59	3,679	32.7	1,769	15.7	4,189	37.2	6,338	56.3	7,066	62.8	7,529	66.9	40	0.4	11,248
	60–64	5,006	33.2	2,380	15.8	5,786	38.3	8,596	57.0	9,473	62.8	10,034	66.5	49	0.3	15,089
	65–69	2,860	33.9	1,328	15.7	3,260	38.6	4,760	56.4	5,258	62.3	5,557	65.9	21	0.2	8,438
	70–74	8,586	34.8	3,720	15.1	9,297	37.7	13,808	56.0	15,145	61.4	16,010	64.9	67	0.3	24,663
	50–74	**23,275**	**33.6**	**10,775**	**15.5**	**26,356**	**38.0**	**39,154**	**56.5**	**43,216**	**62.3**	**45,864**	**66.1**	**207**	**0.3**	**69,346**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.16: Time between positive screen and diagnostic assessment of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2017

		No diagnostic assessment		≤30 days		≤60 days		≤120 days		≤180 days		≤360 days		>360 days		All
Area		**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
State or territory	NSW	8,505	40.6	2,170	10.4	6,340	30.3	10,326	49.3	11,538	55.1	12,389	59.1	52	0.2	20,946
	Vic	6,220	34.2	4,572	25.1	8,717	47.9	10,948	60.1	11,557	63.5	11,958	65.7	30	0.2	18,208
	Qld	2,954	23.0	1,820	14.1	4,874	37.9	7,966	61.9	9,195	71.5	9,848	76.6	61	0.5	12,863
	WA	2,806	37.0	1,175	15.5	3,027	39.9	4,285	56.6	4,579	60.4	4,749	62.7	22	0.3	7,577
	SA	1,721	27.9	687	11.1	2,141	34.7	3,505	56.8	3,985	64.6	4,420	71.6	29	0.5	6,170
	Tas	633	29.1	229	10.5	812	37.3	1,304	59.8	1,452	66.6	1,537	70.5	9	0.4	2,179
	ACT	244	24.3	94	9.4	340	33.9	639	63.6	715	71.2	757	75.4	3	0.3	1,004
	NT	192	48.1	28	7.0	105	26.3	181	45.4	195	48.9	206	51.6	1	0.3	399
Remoteness area[(a)]	Major cities	13,309	29.4	8,240	18.2	18,483	40.9	27,008	59.7	29,853	66.0	31,771	70.3	144	0.3	45,224
	Inner regional	6,553	41.0	1,858	11.6	5,428	34.0	8,112	50.8	8,902	55.7	9,385	58.7	38	0.2	15,976
	Outer regional	2,927	41.1	622	8.7	2,218	31.2	3,588	50.4	3,948	55.5	4,162	58.5	25	0.4	7,114
	Remote	360	47.3	39	5.1	161	21.2	333	43.8	378	49.7	401	52.7	–	–	761
	Very remote	118	47.0	14	5.6	59	23.5	104	41.4	126	50.2	133	53.0	–	–	251
	Unknown	8	40.0	2	10.0	7	35.0	9	45.0	9	45.0	12	60.0	–	–	20
Socioeconomic area	1 (lowest)	6,237	40.4	1,530	9.9	4,547	29.4	7,430	48.1	8,498	55.0	9,165	59.3	47	0.3	15,449
	2	5,863	38.9	1,806	12.0	5,013	33.3	7,773	51.6	8,568	56.9	9,151	60.8	46	0.3	15,060
	3	4,208	32.4	2,135	16.4	5,100	39.3	7,499	57.7	8,241	63.4	8,742	67.3	39	0.3	12,989
	4	3,554	27.7	2,510	19.6	5,597	43.6	7,988	62.3	8,766	68.4	9,240	72.0	31	0.2	12,825
	5 (highest)	3,098	25.5	2,674	22.0	5,785	47.6	7,996	65.8	8,628	71.0	9,024	74.2	38	0.3	12,160
	Unknown	315	36.5	120	13.9	314	36.4	468	54.2	515	59.7	542	62.8	6	0.7	863
Total		**23,275**	**33.6**	**10,775**	**15.5**	**26,356**	**38.0**	**39,154**	**56.5**	**43,216**	**62.3**	**45,864**	**66.1**	**207**	**0.3**	**69,346**

(a) A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8.

Source: NBCSP Register as at 31 December 2018

Table A3.17: Time between positive screen and diagnostic assessment of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2017

Population group		No diagnostic assessment		≤30 days		≤60 days		≤120 days		≤180 days		≤360 days		>360 days		All
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Indigenous status	Indigenous	389	48.6	53	6.6	174	21.8	307	38.4	369	46.1	408	51.0	3	0.4	800
	Non-Indigenous	22,061	33.2	10,468	15.7	25,559	38.4	37,898	57.0	41,771	62.8	44,269	66.5	192	0.3	66,522
	Not stated	825	40.8	254	12.5	623	30.8	949	46.9	1,076	53.2	1,187	58.6	12	0.6	2,024
Language spoken at home	Language other than English	3,785	37.0	1,627	15.9	3,491	34.2	5,227	51.2	5,876	57.5	6,394	62.6	38	0.4	10,217
	English	19,490	33.0	9,148	15.5	22,865	38.7	33,927	57.4	37,340	63.2	39,470	66.8	169	0.3	59,129
Disability status	Severe or profound activity limitation	2,591	45.9	526	9.3	1,414	25.0	2,367	41.9	2,736	48.5	3,033	53.7	22	0.4	5,646
	No severe or profound activity limitation	19,401	32.0	9,907	16.3	24,086	39.7	35,445	58.4	38,951	64.2	41,152	67.8	162	0.3	60,715
	Not stated	1,283	43.0	342	11.5	856	28.7	1,342	45.0	1,529	51.2	1,679	56.2	23	0.8	2,985
Total		**23,275**	**33.6**	**10,775**	**15.5**	**26,356**	**38.0**	**39,154**	**56.5**	**43,216**	**62.3**	**45,864**	**66.1**	**207**	**0.3**	**69,346**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.18: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by sex and age, Australia, 2017

Sex	Age at first positive screen (years)	Median	90th percentile
Males	50–54	55	159
	55–59	55	156
	60–64	53	153
	65–69	53	147
	70–74	53	146
	50–74	*53*	*152*
Females	50–54	51	149
	55–59	53	149
	60–64	51	143
	65–69	50	138
	70–74	51	138
	50–74	*51*	*142*
Persons	50–54	53	154
	55–59	54	154
	60–64	52	147
	65–69	51	143
	70–74	52	141
	50–74	**52**	**147**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.19: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by health-care provider, Australia, 2017

Health-care provider	Median	90th percentile
Public	84	186
Private	47	131
Not stated	58	157
Total	**52**	**147**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.20: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by state and territory, remoteness and socioeconomic area, Australia, 2017

Area		Median	90th percentile
State and territory	NSW	59	159
	Vic	38	112
	Qld	62	159
	WA	49	122
	SA	63	184
	Tas	57	146
	ACT	67	148
	NT	60	133
Remoteness area[(a)]	Major cities	51	150
	Inner regional	53	140
	Outer regional	57	140
	Remote	66	146
	Very remote	65	162
	Unknown	55	292
Socioeconomic area	1 (lowest)	61	162
	2	56	152
	3	51	146
	4	49	142
	5 (highest)	46	130
	Unknown	55	147
Total		**52**	**147**

(a) A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.21: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by Indigenous status, language spoken at home and disability status, Australia, 2017

Population group		Median	90th percentile
Indigenous status	Indigenous	70	182
	Non-Indigenous	52	146
	Not stated	57	181
Main language spoken at home	Language other than English	55	167
	English	52	144
Disability status	Severe or profound activity limitation	64	184
	No severe or profound activity limitation	51	143
	Not stated	60	181
Total		**52**	**147**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.22: Time between positive screen and diagnostic assessment of people aged 50–74, median (in days), by sex and age, Australia, 2007–2017

		Median days										
Sex	**Age at first positive screen (years)**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Males	50–54	. .	58	63	62	58	58	59	60	57	55	55
	55–59	56	55	58	60	57	57	56	57	56	57	55
	60–64	. .	. .	. .	. .	. .	. .	58	56	55	56	53
	65–69	54	52	59	56	55	52	51	55	53	55	53
	70–74	. .	. .	. .	. .	. .	. .	123.5	78	54	53	53
	50–74	*55*	*54*	*60*	*58*	*56*	*55*	*55*	*56.5*	*55*	*55*	*53*
Females	50–54	. .	53	60	60	59	56	55	55	55	55	51
	55–59	54	55	57	56	54	54	53	56	53	52	53
	60–64	. .	. .	. .	. .	. .	. .	57	51.5	52	53	51
	65–69	52	51	54	54	51	52	48	52	51	53	50
	70–74	. .	. .	. .	. .	. .	. .	50.5	. .	51	53	51
	50–74	*53*	*53*	*56*	*57*	*54*	*54*	*52*	*53*	*52*	*53*	*51*
Persons	50–54	. .	56	61	61	58	57	57	56	56	55	53
	55–59	56	55	57	58	56	56	55	56	55	55	54
	60–64	. .	. .	. .	. .	. .	. .	58	54	53	55	52
	65–69	53	51	56	55	53	52	50	54	52	54	51
	70–74	. .	. .	. .	. .	. .	. .	86	78	53	53	52
	50–74	**54**	**53**	**58**	**57**	**55**	**55**	**53**	**55**	**53**	**54**	**52**

Note: This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Diagnosis

Diagnosis data were not considered complete enough to allow formal performance indicator reporting of NBCSP diagnostic outcomes. Therefore, data for the diagnostic performance indicators are not available.

See Chapter 4 for a summary of bowel abnormality detection results, using available assessment and diagnosis data.

Outcomes

Table A3.23: Hospital admissions within 30 days of assessment of people aged 50–74, by sex and age, Australia, 2017

Sex	Age group at assessment (years)	Hospital admissions (N)	Assessments (N)	Hospital admission rate (per 10,000 assessments)
Males	50–54	2	3,049	6.6
	55–59	–	3,461	–
	60–64	2	5,513	3.6
	65–69	5	3,186	15.7
	70–74	5	8,778	5.7
	50–74	*14*	*23,987*	*5.8*
Females	50–54	–	3,144	–
	55–59	–	3,497	–
	60–64	–	4,961	–
	65–69	–	2,830	–
	70–74	–	7,527	–
	50–74	–	*21,959*	–
Persons	50–54	2	6,193	3.2
	55–59	–	6,958	–
	60–64	2	10,474	1.9
	65–69	5	6,016	8.3
	70–74	5	16,305	3.1
	50–74	**14**	**45,946**	**3.0**

Notes

1. The hospital admission rate is calculated based on the diagnostic assessment date. This is the same as the PPV rate for adenoma and the PPV rate for carcinoma. This is different from the diagnostic assessment rate, which is calculated based on the screening test date. Therefore, assessment counts may be different across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Table A3.24: Incidence of bowel cancer, by sex and age, Australia, 2019

	Male		Female		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	–	–	–	–	–	–
5–9	1	n.p.	1	n.p.	2	n.p.
10–14	12	1.4	21	2.7	32	2.1
15–19	10	1.3	31	4.2	41	2.7
20–24	20	2.3	28	3.4	48	2.8
25–29	66	7.1	76	8.4	142	7.7
30–34	96	10.0	98	10.3	194	10.1
35–39	122	13.2	92	10.1	214	11.7
40–44	190	23.1	144	17.4	334	20.2
45–49	294	34.5	270	31.1	563	32.8
50–54	465	60.1	390	49.4	855	54.7
55–59	686	89.3	453	57.2	1,139	73.0
60–64	1,094	158.3	689	95.9	1,783	126.5
65–69	1,067	177.9	700	111.6	1,767	144.0
70–74	1,376	266.2	1,115	205.9	2,492	235.3
75–79	1,461	412.5	1,081	279.1	2,543	342.8
80–84	1,159	503.3	984	353.4	2,144	421.3
85+	950	483.4	1,155	360.2	2,105	407.0
Ages 50–74 crude rate	*4,689*	*140.0*	*3,347*	*96.5*	*8,036*	*117.9*
Ages 50–74 ASR	**4,689**	**132.5**	**3,347**	**91.7**	**8,036**	**111.7**
All ages ASR	**9,069**	**63.4**	**7,329**	**45.8**	**16,398**	**54.1**

Notes

1. The 2019 estimates are based on 2006–2015 incidence data.
2. Age-specific rates are expressed per 100,000 people. The All ages ASR rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

Source: AIHW ACD 2015.

Table A3.25: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic area, 50–74 years, Australia, 2010–2014

Area		Number	ASR
State or territory	NSW	13,069	133.4
	Vic	9,461	129.3
	Qld	7,987	135.7
	WA	3,692	124.2
	SA	3,176	134.1
	Tas	1,288	162.1
	ACT	501	118.6
	NT	274	125.6
Remoteness area	Major cities	24,913	126.9
	Inner regional	9,166	140.9
	Outer regional	4,566	148.9
	Remote	563	143.9
	Very remote	209	112.7
	Unknown	44	. .
Socioeconomic area	1 (lowest)	9,070	145.6
	2	8,977	142.1
	3	7,894	131.0
	4	6,972	127.1
	5 (highest)	6,491	111.6
	Unknown	44	. .
Total		**39,448**	**132.5**

Notes

1. The rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.
3. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E). Incidence cells may not sum to the total due to non-concordance of some remoteness categories.
4. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).

Source: AIHW ACD 2015.

Table A3.26: Incidence of bowel cancer, by Indigenous status, New South Wales, Victoria, Queensland, Western Australia and the Northern Territory, 50–74 years, 2010–2014

Indigenous status	Number	ASR
Indigenous	533	162.0
Non-Indigenous	31,973	123.7
Not stated	1,977	. .
Total	**34,483**	**131.7**

Note: The rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

Source: AIHW ACD 2015.

Table A3.27: Incidence of bowel cancer, by sex, 50–74 years, Australia, 1982–2019

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
1982	2,396	160.0	1,991	119.6	4,387	138.3
1983	2,473	160.8	1,940	114.8	4,413	136.3
1984	2,609	166.3	2,057	119.2	4,666	141.5
1985	2,811	176.3	2,191	126.5	5,002	149.9
1986	2,776	170.1	2,173	123.4	4,949	145.4
1987	2,873	173.8	2,218	123.5	5,091	147.3
1988	2,917	173.0	2,156	117.8	5,073	144.2
1989	3,109	181.3	2,258	122.8	5,367	150.6
1990	3,102	178.1	2,301	123.6	5,403	149.8
1991	3,426	193.0	2,417	126.9	5,843	158.7
1992	3,338	184.0	2,530	131.8	5,868	156.9
1993	3,475	188.1	2,504	128.3	5,979	157.0
1994	3,644	192.5	2,634	132.4	6,278	161.4
1995	3,725	193.8	2,577	127.3	6,302	159.5
1996	3,922	201.4	2,620	127.8	6,542	163.5
1997	3,933	197.0	2,612	125.2	6,545	160.1
1998	3,885	190.4	2,711	127.8	6,596	158.3
1999	3,926	188.3	2,721	125.8	6,647	156.4
2000	4,221	198.1	2,801	127.5	7,022	162.1
2001	4,174	191.7	2,846	126.9	7,020	158.7
2002	4,213	189.3	2,799	122.5	7,012	155.4
2003	4,189	184.7	2,871	123.4	7,060	153.6
2004	4,334	187.3	2,876	121.4	7,210	153.9
2005	4,294	181.2	2,846	117.2	7,140	148.8
2006	4,437	183.6	3,041	122.2	7,478	152.4
2007	4,768	190.1	3,309	128.8	8,077	159.0
2008	4,806	185.7	3,240	122.5	8,046	153.6
2009	4,540	170.1	3,096	113.6	7,636	141.5
2010	4,917	177.4	3,295	116.9	8,212	146.8
2011	4,727	165.9	3,296	114.0	8,023	139.7
2012	4,609	156.3	3,216	106.7	7,825	131.2
2013	4,458	146.4	3,152	101.8	7,610	123.8
2014	4,601	147.2	3,177	99.5	7,778	123.0
2015	4,791	149.9	3,380	103.1	8,171	126.2
2016	4,689	143.1	3,299	98.2	7,989	120.3
2017	4,687	139.4	3,318	96.0	8,005	117.3
2018	4,711	135.9	3,346	93.8	8,057	114.5
2019	4,689	132.5	3,347	91.7	8,036	111.7

Notes

1. The 2016–2019 estimates are based on 2006–2015 incidence data. The 2015 counts includes estimates for NSW.
2. ASRs are expressed per 100,000 people.

Source: AIHW ACD 2015.

Table A3.28: Mortality from bowel cancer, by sex and age, Australia, 2019

	Males		Females		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	—	—	—	—	—	—
10–14	—	—	—	—	—	—
15–19	1	n.p.	—	n.p.	1	n.p.
20–24	–	n.p.	2	n.p.	3	n.p.
25–29	10	1.1	7	0.7	17	0.9
30–34	25	2.6	25	2.7	50	2.6
35–39	20	2.1	18	1.9	37	2.0
40–44	32	3.9	31	3.7	63	3.8
45–49	79	9.2	61	7.1	140	8.2
50–54	118	15.3	89	11.2	207	13.2
55–59	153	20.0	98	12.4	251	16.1
60–64	249	36.1	153	21.3	402	28.6
65–69	307	51.1	183	29.2	490	39.9
70–74	376	72.8	250	46.1	626	59.1
75–79	502	141.7	366	94.4	868	117.0
80–84	458	198.7	450	161.5	908	178.4
85+	679	345.5	855	266.5	1,534	296.5
Ages 50–74 crude	*1,204*	*36.5*	*773*	*22.4*	*1,977*	*29.3*
Ages 50–74 ASR	**1,204**	**34.3**	**773**	**21.2**	**1,977**	**27.6**
All ages ASR	**3,009**	**21.1**	**2,588**	**15.0**	**5,597**	**17.8**

Notes

1. The 2019 estimates are based on 2007–2016 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people. The 'Ages 50–74 ASR' and 'All ages ASR' were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

Source: AIHW NMD.

Table A3.29: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, 50–74 years, Australia, 2013–2017

Area		Number	ASR
State or territory	NSW	3,330	31.4
	Vic	2,584	32.1
	Qld	2,121	32.7
	WA	896	27.7
	SA	864	34.1
	Tas	305	35.1
	ACT	149	32.0
	NT	87	38.5
Remoteness area	Major cities	6,461	30.2
	Inner regional	2,451	34.1
	Outer regional	1,212	36.2
	Remote	132	32.1
	Very remote	61	31.9
	Unknown	20	. .
Socioeconomic group	1 (lowest)	2,517	37.5
	2	2,432	35.3
	3	2,033	30.8
	4	1,790	29.6
	5 (highest)	1,545	24.6
	Unknown	20	. .
Total		**10,337**	**31.8**

Notes

1. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths from 1982 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: AIHW NMD.

Table A3.30: Mortality from bowel cancer, by Indigenous status, New South Wales, Queensland, Western Australia, South Australia, Northern Territory, 50–74 years, 2013–2017

Indigenous status	Number	ASR
Indigenous	137	35.8
Non-Indigenous	7,121	31.3
Not stated[(a)]	40	. .
Total	**7,298**	**31.6**

(a) Deaths where Indigenous status was not stated were included in the Total count and ASR calculation.

Notes

1. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths from 1982 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: AIHW NMD.

Table A3.31: Mortality from bowel cancer for people aged 50–74, by sex, Australia, 1982–2019

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
1982	1,150	76.9	888	53.0	2,038	64.1
1983	1,256	82.0	928	54.6	2,184	67.4
1984	1,260	80.4	957	55.3	2,217	67.1
1985	1,280	80.2	999	57.5	2,279	68.2
1986	1,317	80.3	1,008	56.3	2,325	67.5
1987	1,361	82.0	1,028	57.1	2,389	68.9
1988	1,380	81.8	995	54.4	2,375	67.5
1989	1,370	79.7	985	53.0	2,355	65.7
1990	1,353	77.1	1,008	53.8	2,361	64.8
1991	1,369	77.1	944	48.9	2,313	62.4
1992	1,415	78.2	960	49.5	2,375	63.4
1993	1,390	74.8	996	50.4	2,386	62.2
1994	1,569	82.8	1,054	52.2	2,623	67.0
1995	1,475	76.6	992	48.6	2,467	62.0
1996	1,570	80.1	979	47.5	2,549	63.2
1997	1,534	76.8	1,029	49.1	2,563	62.5
1998	1,454	71.3	992	46.4	2,446	58.5
1999	1,528	73.4	904	41.7	2,432	57.1
2000	1,483	69.7	921	41.8	2,404	55.4
2001	1,447	66.6	920	41.0	2,367	53.5
2002	1,348	60.7	921	40.3	2,269	50.3
2003	1,418	62.7	883	38.0	2,301	50.2
2004	1,327	57.7	859	36.3	2,186	46.8
2005	1,394	59.4	822	34.1	2,216	46.5
2006	1,350	55.9	805	32.7	2,155	44.1
2007	1,345	54.0	846	33.0	2,191	43.4
2008	1,329	51.8	904	34.3	2,233	42.9
2009	1,362	51.0	871	32.2	2,233	41.5
2010	1,328	48.4	816	29.2	2,144	38.7
2011	1,287	45.0	772	26.6	2,059	35.7
2012	1,288	43.9	813	27.2	2,101	35.4
2013	1,316	43.6	802	25.8	2,118	34.6
2014	1,280	40.9	800	24.9	2,080	32.8
2015	1,266	39.5	822	25.1	2,088	32.2
2016	1,227	37.3	818	24.2	2,045	30.7
2017	1,205	35.8	801	23.1	2,006	29.3
2018	1,224	35.5	784	22.0	2,008	28.6
2019	1,204	34.3	773	21.2	1,977	27.6

Notes

1. The 2018–2019 estimates are based on 2007–2016 mortality data. See Appendix D for further information.
2. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
3. Deaths from 1982 to 2016 were derived by year of death; deaths in 2017 were derived by year of registration of death. Deaths registered in 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version; and deaths registered in 2016 and 2017 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: AIHW NMD.

Additional tables for Chapter 4

Table A4.1: Available assessment outcomes of people aged 50–74, by age and sex, Australia, assessed in 2017

Sex	Age group at assessment		Assessments	Available assessment results							
				No issue noted [a]	Other colonoscopy diagnosis[b]	Biopsy awaiting histopathology[c]	Other histopathology diagnosis[d]	Confirmed non-advanced adenoma[e]	Confirmed advanced adenoma[e]	Suspected cancer[f]	Confirmed cancer[g]
Males	50–54	N	3,049	1,521	173	825	78	173	180	80	19
		%		49.9	5.7	27.1	2.6	5.7	5.9	2.6	0.6
	55–59	N	3,461	1,671	222	944	78	240	210	75	21
		%		48.3	6.4	27.3	2.3	6.9	6.1	2.2	0.6
	60–64	N	5,513	2,435	371	1,672	127	361	335	184	28
		%		44.2	6.7	30.3	2.3	6.5	6.1	3.3	0.5
	65–69	N	3,186	1,424	216	964	68	194	198	108	14
		%		44.7	6.8	30.3	2.1	6.1	6.2	3.4	0.4
	70–74	N	8,778	3,831	545	2,656	142	602	582	348	72
		%		43.6	6.2	30.3	1.6	6.9	6.6	4.0	0.8
	50–74	N	*23,987*	*10,882*	*1,527*	*7,061*	*493*	*1,570*	*1,505*	*795*	*154*
		%		*45.4*	*6.4*	*29.4*	*2.1*	*6.5*	*6.3*	*3.3*	*0.6*
Females	50–54	N	3,144	1,960	169	640	54	127	127	55	12
		%		62.3	5.4	20.4	1.7	4.0	4.0	1.7	0.4
	55–59	N	3,497	1,999	239	760	91	176	141	74	17
		%		57.2	6.8	21.7	2.6	5.0	4.0	2.1	0.5
	60–64	N	4,961	2,688	339	1,182	110	295	222	105	20
		%		54.2	6.8	23.8	2.2	5.9	4.5	2.1	0.4
	65–69	N	2,830	1,476	204	696	65	163	132	78	16
		%		52.2	7.2	24.6	2.3	5.8	4.7	2.8	0.6
	70–74	N	7,527	3,893	600	1,866	131	424	355	211	47
		%		51.7	8.0	24.8	1.7	5.6	4.7	2.8	0.6
	50–74	N	*21,959*	*12,016*	*1,551*	*5,144*	*451*	*1,185*	*977*	*523*	*112*
		%		*54.7*	*7.1*	*23.4*	*2.1*	*5.4*	*4.4*	*2.4*	*0.5*

(continued)

Table A4.1 (continued): Available assessment outcomes of people aged 50–74, by age and sex, Australia, assessed in 2017

Sex	Age group at assessment		Assessments	Available assessment results							
				No issue noted [a]	Other colonoscopy diagnosis[b]	Biopsy awaiting histopathology[c]	Other histopathology diagnosis[d]	Confirmed non-advanced adenoma[e]	Confirmed advanced adenoma[e]	Suspected cancer[f]	Confirmed cancer[g]
Persons	50–54	N	6,193	3,481	342	1,465	132	300	307	135	31
		%		56.2	5.5	23.7	2.1	4.8	5.0	2.2	0.5
	55–59	N	6,958	3,670	461	1,704	169	416	351	149	38
		%		52.7	6.6	24.5	2.4	6.0	5.0	2.1	0.5
	60–64	N	10,474	5,123	710	2,854	237	656	557	289	48
		%		48.9	6.8	27.2	2.3	6.3	5.3	2.8	0.5
	65–69	N	6,016	2,900	420	1,660	133	357	330	186	30
		%		48.2	7.0	27.6	2.2	5.9	5.5	3.1	0.5
	70–74	N	16,305	7,724	1,145	4,522	273	1,026	937	559	119
		%		47.4	7.0	27.7	1.7	6.3	5.7	3.4	0.7
	50–74	**N**	**45,946**	**22,898**	**3,078**	**12,205**	**944**	**2,755**	**2,482**	**1,318**	**266**
		%		**49.8**	**6.7**	**26.6**	**2.1**	**6.0**	**5.4**	**2.9**	**0.6**

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 11,346 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

(b) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy. For example, diverticulitis. Also includes diagnoses of polyps where none were sent to histopathology.

(c) Polyps detected at assessment and sent to histopathology for analysis. No histopathology report form received by Register.

(d) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy. For example, hyperplastic polyps.

(e) Confirmed adenoma figures were based on a combination of the assessment and histopathology report forms for a person received by the Register.

(f) Cancer suspected at assessment but not yet confirmed by histopathology.

(g) Cancer confirmed by histopathology.

Source: NBCSP Register as at 31 December 2018.

Table A4.2: Available assessment outcomes of people aged 50–74, by state, Australia, assessed in 2017

State		Assessments	Available assessment results							
			No issue noted [a]	Other colonoscopy diagnosis [b]	Biopsy awaiting histopathology [c]	Other histopathology diagnosis [d]	Confirmed non-advanced adenoma [e]	Confirmed advanced adenoma [e]	Suspected cancer [f]	Confirmed cancer [g]
NSW	N	12,336	7,321	613	2,363	260	717	693	295	74
	%		59.3	5.0	19.2	2.1	5.8	5.6	2.4	0.6
Vic	N	11,914	6,235	890	2,916	262	716	524	303	68
	%		52.3	7.5	24.5	2.2	6.0	4.4	2.5	0.6
Qld	N	9,849	3,465	831	3,519	223	722	706	319	64
	%		35.2	8.4	35.7	2.3	7.3	7.2	3.2	0.6
WA	N	4,871	2,295	254	1,839	37	112	102	222	10
	%		47.1	5.2	37.8	0.8	2.3	2.1	4.6	0.2
SA	N	4,399	2,363	311	1,005	80	265	255	101	19
	%		53.7	7.1	22.8	1.8	6.0	5.8	2.3	0.4
Tas	N	1,611	853	115	286	43	135	129	35	15
	%		52.9	7.1	17.8	2.7	8.4	8.0	2.2	0.9
ACT	N	755	268	53	214	31	76	68	29	16
	%		35.5	7.0	28.3	4.1	10.1	9.0	3.8	2.1
NT	N	211	98	11	63	8	12	5	14	–
	%		46.4	5.2	29.9	3.8	5.7	2.4	6.6	–
Australia	**N**	**45,946**	**22,898**	**3,078**	**12,205**	**944**	**2,755**	**2,482**	**1,318**	**266**
	%		**49.8**	**6.7**	**26.6**	**2.1**	**6.0**	**5.4**	**2.9**	**0.6**

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 11,346 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

(b) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy. For example, diverticulitis. Also includes diagnoses of polyps where none were sent to histopathology.

(c) Polyps detected at assessment and sent to histopathology for analysis. No histopathology report form received by Register.

(d) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy. For example, hyperplastic polyps.

(e) Confirmed adenoma figures were based on a combination of the assessment and histopathology report forms for a person received by the Register.

(f) Cancer suspected at assessment but not yet confirmed by histopathology.

(g) Cancer confirmed by histopathology.

Note: Differences in form return and varying pathway practices for diagnostic assessment may affect results across jurisdictions.

Source: NBCSP Register as at 31 December 2018.

Additional tables for Chapter 5

Table A5.1: Estimated participation rate for people aged 50–74, by language spoken at home, sex and age group, 2016–2017

		Estimated participation rate ranges (%)		
Sex	**Age group (years)**	**Language other than English**	**English**	**Total participation rate (%)**
Males	50–54	16.2–22.2	29.3–32.0	28.0
	55–59	21.0–29.5	33.8–36.8	33.1
	60–64	25.4–36.4	41.3–44.9	40.6
	65–69	26.9–39.4	46.6–50.6	45.5
	70–74	29.6–44.1	53.1–58.0	51.8
	50–74	*23.3–33.0*	*40.6–44.2*	*39.4*
Females	50–54	20.0–25.7	33.2–35.7	31.7
	55–59	24.8–32.7	39.0–42.0	37.8
	60–64	29.4–39.4	46.9–50.6	45.6
	65–69	29.5–41.4	50.9–55.1	49.4
	70–74	28.9–42.1	55.4–60.3	53.3
	50–74	*26.1–35.1*	*44.9–48.5*	*43.2*
Persons	50–54	18.1–24.0	31.2–33.8	29.8
	55–59	22.9–31.1	36.4–39.4	35.5
	60–64	27.4–38.0	44.1–47.8	43.1
	65–69	28.2–40.4	48.7–52.8	47.5
	70–74	29.3–43.1	54.3–59.2	52.6
	50–74	**24.7–34.1**	**42.8–46.4**	**41.3**

Source: AIHW analysis of the NBCSP Register as at 31 December 2018 using 2016 Census data (see Appendix F for more information).

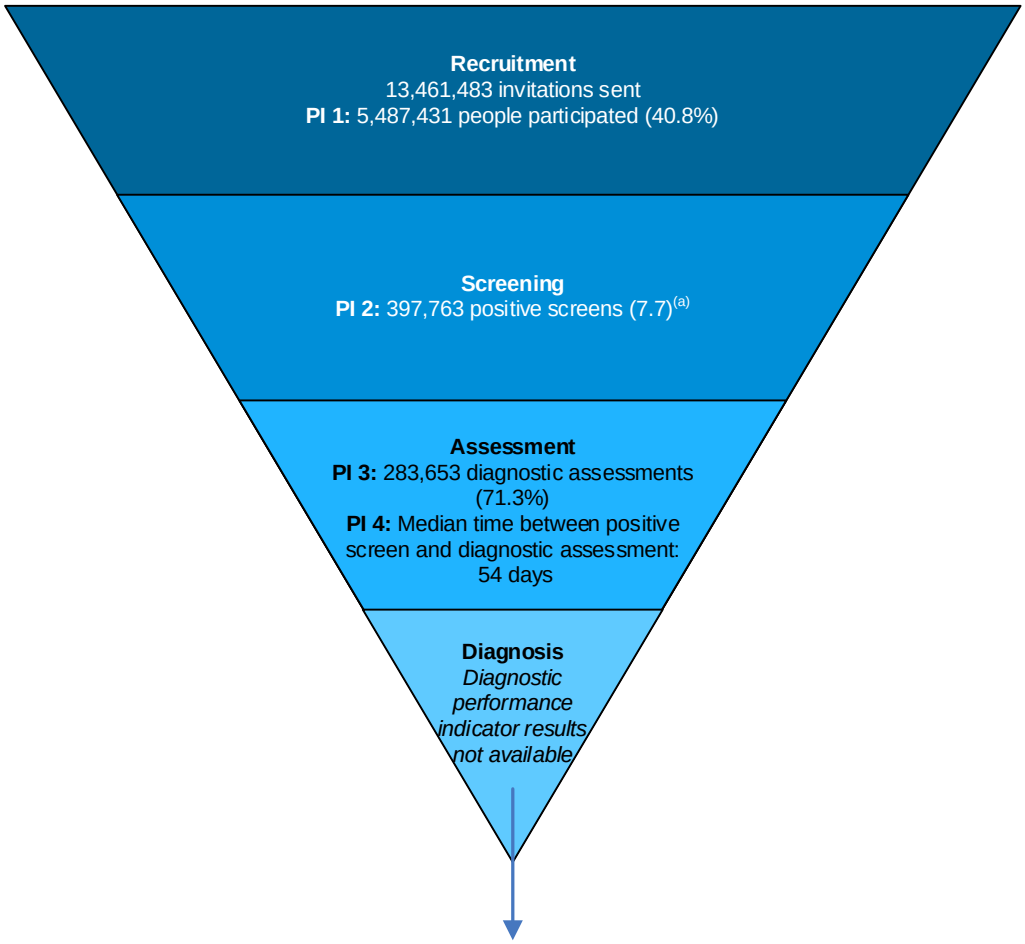
Table A5.2: Estimated participation rate for people aged 50–74, by disability status, sex and age group, 2016–2017

Sex	Age group (years)	Estimated participation rate (%)			Total participation rate (%)
		Severe or profound activity limitation	No severe or profound activity limitation	Not stated	
Males	50–54	26.9	28.3	25.1	28.0
	55–59	28.8	34.6	18.5	33.1
	60–64	32.3	42.8	21.7	40.6
	65–69	32.8	48.2	29.3	45.5
	70–74	35.0	56.5	25.0	51.8
	50–74	*33.9*	*41.2*	*23.4*	*39.4*
Females	50–54	33.9	31.9	27.1	31.7
	55–59	36.2	39.4	18.6	37.8
	60–64	40.9	47.9	20.6	45.6
	65–69	38.4	52.1	28.2	49.4
	70–74	32.6	58.9	22.0	53.3
	50–74	*38.0*	*45.2*	*22.8*	*43.2*
Persons	50–54	30.5	30.1	26.1	29.8
	55–59	32.6	37.0	18.6	35.5
	60–64	36.7	45.4	21.2	43.1
	65–69	35.5	50.2	28.8	47.5
	70–74	33.8	57.7	23.5	52.6
	50–74	**36.0**	**43.2**	**23.2**	**41.3**

Source: AIHW analysis of the NBCSP Register as at 31 December 2018 using 2016 Census data (see Appendix F for more information).

Appendix B: Overall NBCSP outcomes

Figure B1: Summary of NBCSP performance indicators, Australia, August 2006 to June 2018



Assessment details[(b)]

No issue, or other diagnosis	163,094	(57.5%)
Polyp awaiting histopathology	71,878	(25.3%)
Non-advanced adenomas	18,222	(6.4%)
Advanced adenomas	21,065	(7.4%)
Suspected cancer	7,173	(2.5%)
Confirmed cancer	2,221	(0.8%)

(a) Based on the 5,182,240 participants who returned a valid iFOBT.

(b) Based on available data. 'No issue, or other diagnosis' also includes 56,378 assessments with no record of outcome.

Notes

1. Assessment and diagnosis (PIs 3 to 9) rely on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 8 for more details.
2. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (bowel cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting bowel cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 8 for more details.

Source: NBCSP Register as at 31 December 2018.

Appendix C: National Bowel Cancer Screening Program information

Target population

The target population list is compiled from those who were registered as an Australian citizen or migrant in the Medicare enrolment file, or were registered with a Department of Veterans' Affairs gold card.

Currently, the Australian Government is rolling out biennial screening for those in the target age group. Table C1 outlines the starting dates of each phase, and the target age groups.

Table C1: NBCSP phases and target populations

Phase	Start date	End date	Target ages (years)
1	7 August 2006	30 June 2008	55 and 65
2	1 July 2008	30 June 2011[a]	50, 55 and 65
2[b]	1 July 2011	30 June 2013	50, 55 and 65
3	1 July 2013	Ongoing	50, 55, 60 and 65
4	1 January 2015		50, 55, 60, 65, 70 and 74
4	1 January 2016		50, 55, 60, 64, 65, 70, 72 and 74
4	1 January 2017		50, 54, 55, 58, 60, 64, 68, 70, 72 and 74
4	1 January 2018		50, 54, 58, 60, 62, 64, 66, 68, 70, 72 and 74
4	1 January 2019		50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72 and 74

(a) Eligible birth dates, and thus invitations, ended on 31 December 2010.

(b) Ongoing NBCSP funding commenced.

Note: The eligible population for all Phase 2 and 3 start dates incorporates all those turning the target ages from 1 January of that year onwards.

Changes in monitoring the NBCSP

Regular users of annual NBCSP monitoring reports will notice that from the *National Bowel Cancer Screening Program: monitoring report 2016* (AIHW 2016c) onwards, the reports are different from earlier monitoring reports. This section has been provided to explain the major changes.

Development of performance indicators

This report presents data using performance indicators developed by the National Bowel Cancer Screening Program Report and Indicator Working Group and endorsed by relevant multi-jurisdictional information and policy subcommittees of the Australian Health Ministers' Advisory Council. Reports before 2016 presented data against performance measures that the Implementation Advisory Group agreed to in 2006 for phase 1 (2006–2008) of the program. However, these were never formalised. The NBCSP phase 2 review (2011) recommended that key performance indicators be developed to enhance program monitoring and transparency.

Due to the changes in reporting against performance indicators, monitoring reports before 2016 cannot be readily compared with this report. However, trend data, using the

performance indicators with data for earlier reporting periods, are provided in this report. See *Key performance indicators for the National Bowel Cancer Screening Program: technical report* (AIHW 2014b) for more information on the indicators.

Changes to reporting period

The previous and current versions of *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* (ACN 2005; CCACCGWP 2017) recommend a biennial screening interval for colorectal cancer screening in Australia, which is currently being put in place. Therefore, the participation indicator now reports on a 2-year period. As well, to mirror the program invitation schedule, the performance indicators are now reported by calendar year rather than financial year. This is comparable with the current BreastScreen Australia and National Cervical Screening Program reporting periods.

Changes to the cohort monitored

Each indicator uses the latest available data rather than presenting results for the same invitation cohort across all indicators. This means that some indicators report results for different time periods from others and therefore for different cohorts. Where possible, indicator reporting periods in this report include the time frame 1 January 2017 to 31 December 2017.

Changes to the structure

The introductory chapter and the performance indicator sections of the report are shorter and described differently. However, all key information has been retained. Further, a 'spotlight' section has been included (see Chapter 5 in this report), which will focus on a topic of interest in each annual report. Note that, even if some data are not presented in the text, that does not mean they are not important to monitor; all valid data available are analysed, monitored and reported in the tables in Appendix A.

Changes to incidence and mortality numbers

This report includes 2019 estimates for bowel cancer incidence and mortality rather than actual numbers, which are not yet available for 2019. Estimates for 2019 provide data relevant to the timing of this monitoring report. The latest actual (non-estimated) incidence and mortality data are used to produce statistics by state and territory, remoteness and socioeconomic areas, and Indigenous status analyses, as 2019 estimates for these disaggregations are not yet available.

Changes to coding bowel cancer mortality

The AIHW uses the National Mortality Database (NMD) for reporting cancer mortality. The NMD is coded and compiled by the ABS, and ABS advice notes that where 'bowel cancer' is recorded on the death certificate, internationally agreed rules state that the cancer should be coded to a less specific code (C26.0) as the specific site of the cancer is not known. The ABS advises that the use of code C26.0 for 'bowel cancer' deaths leads to undercounting due to cancers of the colon and rectum (C18–C20). For this reason, *National Bowel Cancer Screening Program: monitoring report 2019* uses C18–C20, and C26.0 when reporting deaths from bowel cancer using the NMD. This is different from previous versions of this report and will result in a greater number of deaths being attributed to bowel cancer.

Appendix D: Data sources

To provide a comprehensive picture of national cancer statistics in this report, a range of data sources were used, including AIHW and external data sources. These data sources are described in this appendix.

National Bowel Cancer Screening Program

This report uses NBCSP Register data to present statistics on the progression of eligible participants along the screening pathway, for those invited into the NBCSP. It covers measures of participation, iFOBT results, and follow-up investigations and outcomes. However, data for follow-up investigations rely on non-mandatory form return from clinicians and are incomplete. Analyses are presented by age, sex, state and territory, remoteness and socioeconomic areas, Indigenous status, language spoken at home and disability status.

The Data Quality Statement for the NBCSP can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/699932.

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. This means there is legislation in each jurisdiction that requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry. An agreed subset of the data collected by these cancer registries is supplied annually to the AIHW, where it is compiled into the ACD. The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2015 for all states and territories; for 2015, it contains data for all jurisdictions except NSW.

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 2016–2019 estimates for incidence (plus 2015 estimates for NSW) used a method as described in Appendix A of *Cancer in Australia 2019* (AIHW 2019).

The Data Quality Statement for the 2014 ACD can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/687104.

AIHW Disease Expenditure Database

The AIHW Disease Expenditure Database contains estimates of expenditure by disease category, age group and sex for each of the following areas of expenditure: admitted patient hospital services, out-of-hospital medical services, prescription pharmaceuticals, optometrical and dental services, community mental health services and public health cancer screening.

The Data Quality Statement for the Disease Expenditure Database 2016–17 can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/688305.

AIHW 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 2017. Registration of deaths is the responsibility of each state and territory Registry of Births, Deaths and Marriages. These data are then collated and coded by the ABS and are 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 (namely 2017), 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 2014 and earlier are based on the final version of cause of death data; deaths registered in 2015 are based on a revised version and deaths registered in 2016 and 2017 are based preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

The 2018–2019 estimates for mortality were based on the 2007–2016 NMD and used a method as described in Appendix A of *Cancer in Australia 2019* (AIHW 2019).

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

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

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

Lastly, the ABS has noted that there is a high likelihood that many deaths coded to ‘C26.0 Malignant neoplasms of the intestinal tract, unspecified’ are deaths from colon, sigmoid, rectum and anus cancers (ABS 2016). Therefore, deaths coded as C26.0 have been included in bowel cancer deaths throughout this report.

Australian Burden of Disease Study

The ABDS 2011, conducted by the AIHW, used a range of data sources to produce burden estimates for cancer. Deaths data for fatal burden estimates were sourced from the AIHW NMD. Data for non-fatal burden estimates came from a variety of administrative sources, including the ACD, the National Hospital Morbidity Database and Medicare Benefits Schedule claims data, as well as from a number of epidemiological studies. Data for risk factor attribution estimates largely came from exposure data from the 2011–12 ABS Australian Health Survey.

Other inputs for the ABDS were obtained from the 2010 or 2013 Global Burden of Disease studies. These included the standard life table for fatal burden, health states and disability weights for the non-fatal burden and relative risks, and Theoretical Minimum Risk Exposure Distributions for the risk factor attribution.

Population estimates underpinning all estimates were sourced from the ABS, based on the 2011 Census of Population and Housing.

Full details on the various methods, data sources and standard inputs used in the ABDS 2011 are available in *Australian Burden of Disease Study 2011: methods and supplementary material* (AIHW 2016b).

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.

Population data

Throughout this report, population data were used to derive bowel 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 it 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 www.abs.gov.au.

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

Appendix E: Classifications

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 2011 Australian Statistical Geography Standard Remoteness Areas. Residential postcodes were used where available but non-residential identifiers (such as post office boxes) were 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 69.3% *Very remote*, 15.9% *Remote* and 14.8% *Outer regional*. Participants with postcode 0822 have their counts apportioned accordingly.

Remoteness Area for incidence and mortality

Each unit record in the ACD contains the 2006 Statistical Local Areas and 2011 Statistical Area Level 2 but not the Remoteness Area. To calculate the cancer incidence rates by Remoteness Area, a correspondence was used to map the 2011 Statistical Area Level 2 to the 2011 Remoteness Area. Similarly, the cancer mortality rates by Remoteness Area were calculated by applying a correspondence from the 2011 Statistical Area Level 2 to the 2011 Remoteness Area.

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.

Index of Relative Socio-economic Disadvantage

The 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. The IRSD is not a person-based measure; rather, it is 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.

International Classification of Diseases for Oncology

Cancers were originally classified solely under the International Classification of Diseases and Related Health Problems (ICD) classification system, based on topographic site and behaviour. However, during the creation of the 9th Revision of the ICD in the late 1960s, working parties suggested creating for cancers a separate classification that included improved morphological information. The first edition of the International Classification of Diseases for Oncology (ICD-O) was subsequently released in 1976 and, in this classification, cancers were coded by both morphology (histology type and behaviour) and topography (site).

Since the first edition of the ICD-O, a number of revisions have been made, mainly in the area of lymphomas and leukaemias. The current edition, the 3rd Edition (ICD-O-3), was released in 2000 and is used by most state and territory cancer registries in Australia, as well as by the AIHW in regard to the ACD.

International Statistical Classification of Diseases and Related Health Problems

The 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 response to the recognition of new diseases (for example, Acquired Immunodeficiency Syndrome, or AIDS), increased knowledge of diseases, and changing terminology in the description of 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).

Appendix F: Methodology for calculating participation for population subgroups

Determining participation rates by Indigenous status, language spoken at home, and disability status requires the number of screening invitations that were sent out to members of each of these population groups (the denominator) as well as the number of people in each population group who returned a completed screening kit (the numerator).

Unfortunately, at present, information on these groups is known only for participants who choose to identify when they return a completed details form along with their iFOBT for analysis (the numerator). That is, membership of these population groups is known only for the 41% of people who participated, not for all invitees. As a result, it is not possible to determine accurately participation rates for these population groups.

An alternative method to estimate the number of invitations sent out to people in these population groups involves using the percentages of those aged 50–74 who reported as such at the 2016 Census.

To do so, percentages based on Census counts (tables F1–3) have been applied to the number of overall invitations (by age group and sex) to estimate invitation volumes by population groups. These estimated denominator data can then be used with the known population group numerator data gained from the returned participant details forms of those who participated.

Estimated participation by Indigenous status

There are limitations in the data available to estimate Indigenous Australians' participation in the NBCSP, due to differences in the 'not stated' proportions between the 2016–2017 NBCSP participation data and the 2016 Census data (2.8% and 6.2% 'not stated', respectively). An overall rate for people aged 50–74 has been estimated, but these limitations should be considered in interpreting these data.

Using 2016 Census proportions (Table F1), the 2016–2017 participation rate for Indigenous Australians aged 50–74 was estimated to be 21.0%; this compares with an estimated participation rate for non-Indigenous Australians of 43.3% (giving the overall rate of 41.3% reported for PI 1).

Opportunities to improve the accuracy of calculating Indigenous participation rates will continue to be explored. New information may become available that enables improved estimates to be produced for future reports.

Table F1: Percentage of the population by Indigenous status as identified in the 2016 Census, by sex and age

		Per cent		
Sex	**Age group (years)**	**Indigenous**	**Non-Indigenous**	**Not stated**
Males	50–54	1.98	91.65	6.37
	55–59	1.72	91.85	6.43
	60–64	1.46	92.08	6.46
	65–69	1.12	92.35	6.53
	70–74	0.86	92.44	6.70
	50–74	*1.50*	*92.02*	*6.48*
Females	50–54	2.14	92.28	5.58
	55–59	1.84	92.41	5.75
	60–64	1.54	92.53	5.93
	65–69	1.19	92.59	6.22
	70–74	0.96	92.49	6.55
	50–74	*1.60*	*92.45*	*5.95*
Persons	50–54	2.06	91.97	5.97
	55–59	1.78	92.14	6.08
	60–64	1.50	92.31	6.19
	65–69	1.15	92.47	6.37
	70–74	0.92	92.46	6.62
	50–74	**1.55**	**92.24**	**6.21**

Source: 2016 Australian Census.

Estimated participation by language spoken at home

Census data for population subgroups broken down by the language they spoke at home include a ‘not stated’ percentage for those who did not respond to these questions (Table F2). This is equal to the ‘not stated’ option for those who participate and choose not to provide population group information.

But for language spoken at home, the NBCSP Register assumes all who do not self-identify a language speak English. As a result, there is no ‘not stated’ language spoken at home data for participants (numerator) to match with the ‘not stated’ percentage data from the Census (used for the denominator).

To resolve this issue, a participation range method has been used for language spoken at home. The rate is provided as a range that covers what the percentage would be if the entire ‘not stated’ percentage was added to the ‘English’ column, and what it would be if the entire ‘not stated’ percentage was added to the ‘Language other than English’ column.

Table F2: Percentage of the population by language spoken at home as self-identified in the 2016 Census, by sex and age

		Per cent		
Sex	**Age group (years)**	**English**	**Language other than English**	**Not stated**
Males	50–54	74.71	18.51	6.79
	55–59	76.68	16.60	6.72
	60–64	77.61	15.64	6.75
	65–69	78.64	14.58	6.78
	70–74	78.34	14.53	7.14
	50–74	*76.99*	*16.20*	*6.81*
Females	50–54	74.56	19.79	5.65
	55–59	75.91	18.23	5.86
	60–64	76.38	17.59	6.03
	65–69	77.67	15.93	6.40
	70–74	77.74	15.30	6.97
	50–74	*76.27*	*17.63*	*6.10*
Persons	50–54	74.63	19.16	6.21
	55–59	76.28	17.44	6.28
	60–64	76.98	16.64	6.38
	65–69	78.15	15.27	6.59
	70–74	78.03	14.92	7.05
	50–74	**76.62**	**16.93**	**6.45**

Source: 2016 Australian Census.

Estimated participation by disability status

Census data for population subgroups broken down by disability status include a ‘not stated’ percentage for those who did not respond to these questions (Table F3). This is equal to the ‘not stated’ option for those who participate and choose not to provide population group information.

Using the Census data to estimate denominators, estimated participation rates by disability status were able to be calculated.

Table F3: Percentage of the population by disability status as self-identified in the 2016 Census, by sex and age

		Per cent		
Sex	**Age group (years)**	**Has need for assistance with core activities**	**Does not have need for assistance with core activities**	**Not stated**
Males	50–54	3.77	88.68	7.55
	55–59	4.69	87.86	7.44
	60–64	6.41	86.17	7.42
	65–69	8.24	84.32	7.44
	70–74	10.51	81.75	7.75
	50–74	*6.29*	*86.21*	*7.50*
Females	50–54	4.14	89.28	6.57
	55–59	5.16	88.13	6.70
	60–64	6.50	86.65	6.85
	65–69	7.46	85.39	7.15
	70–74	10.47	82.04	7.49
	50–74	*6.37*	*86.74*	*6.90*
Persons	50–54	3.96	88.99	7.05
	55–59	4.93	88.00	7.06
	60–64	6.45	86.42	7.13
	65–69	7.84	84.87	7.29
	70–74	10.49	81.90	7.62
	50–74	**6.33**	**86.48**	**7.19**

Source: 2016 Australian Census.

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Abbreviations

ABDS	Australian Burden of Disease Study
ABS	Australian Bureau of Statistics
ACD	Australian Cancer Database
ACT	Australian Capital Territory
ASGS	Australian Statistical Geography Standard
AIHW	Australian Institute of Health and Welfare
ASR	age-standardised rate
DALY	disability-adjusted life year
GP	general practitioner
ICD	International Classification of Diseases and Related Health Problems
iFOBT	immunochemical faecal occult blood test
IRSD	Index of Relative Socio-economic Disadvantage
MBS	Medicare Benefits Schedule
NBCSP	National Bowel Cancer Screening Program
NMD	National Mortality Database
NSW	New South Wales
NT	Northern Territory
PHCP	primary health-care practitioner (general practitioner or other primary health-care provider)
PPV	positive predictive value
Qld	Queensland
SA	South Australia
Tas	Tasmania
TNM	Tumour, Nodes and Metastasis
Vic	Victoria
WA	Western Australia
YLD	years lived with disability
YLL	years of life lost

Symbols

—	nil or rounded to zero
. .	not applicable
<	less-than
≤	less-than or equal to
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
N	number

Glossary

adenocarcinoma: A **cancer** that began in a glandular epithelial cell.

adenoma (adenomatous polyp): A **benign** tumour that arises from epithelial cells. All adenomas have **malignant** potential. Adenomas in the rectum or colon have a higher chance of developing into **cancer** (adenocarcinoma) than adenomas in most other organs. An adenoma can be classified from highest risk (advanced) to lowest risk (diminutive).

age-specific rate: The number of cases occurring in each specified age group by the corresponding population in the same age group, expressed as 'per 100,000 people'.

age standardisation: A method of removing the influence of age when comparing populations with different age structures. This is usually necessary as the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure; then the disease rates that would have occurred with that structure are calculated and compared.

asymptomatic: Without symptoms.

benign: Describes non-cancerous tumours that may grow larger but do not spread to other parts of the body. Not **malignant**.

bowel (colorectal) cancer: Comprises **cancer** of the colon and cancer of the rectum.

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 whose common feature is that some of the body's cells become defective, begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

colonoscopy: A diagnostic assessment procedure to examine the bowel using a special scope (colonoscope), usually carried out in a hospital or day clinic.

crude rate: The number of events over a specified period of time (for example, a year) divided by the total population. The crude rate (for participation, attendance and follow-up) is the proportion of people who have proceeded to a key point on the screening pathway (at the date of the data extraction) out of those eligible to proceed to that point.

The crude proportions will generally underestimate the true proportions of the population that participated in the National Bowel Cancer Screening Program. This is because, at any point in time, there are members of the population who are eligible to proceed to the next point on the screening pathway but who have not yet had time to do so. Similarly, there is a time lag between when a person with a positive **iFOBT** result is referred for a colonoscopy and when they can actually have the colonoscopy.

defer: Describes the action of an invitee who would like to participate in the National Bowel Screening Program but is unable to do so at this time. Such invitees will be contacted once the nominated deferral period has elapsed.

epithelium: The tissue lining the outer layer of the body, the digestive tract and other hollow organs and structures.

false negative: A screening test result that incorrectly indicates a person does not have a marker for the condition being tested when they do have the condition. Not all screening tests are completely accurate, so false negative results cannot be discounted. Further, with an **iFOBT** test for bowel cancer, if a **polyp**, **adenoma** or **cancer** is not bleeding at the time of the test, it may be missed by the screening test.

false positive: A screening test result that incorrectly indicates that a person has the marker being tested when they do not have the condition. As iFOBT tests detect blood in stool (which may be caused by a number of conditions), a false positive finding for bowel cancer may still detect other non-bowel cancer conditions, or precancerous **polyps** or **adenomas**.

Immunochemical Faecal Occult Blood Test (iFOBT): A screening test used to detect tiny traces of blood in a person's faeces that may be a sign of bowel cancer. The iFOBT is a central part of Australia's National Bowel Cancer Screening Program. Pathologists categorise completed NBCSP iFOBTs into 1 of 3 groups:

1. correctly completed
2. incorrectly completed. Participants are given specific instructions on how to complete the iFOBT. Any tests not completed according to these instructions are classified as incorrectly completed
3. unsatisfactory. Unsatisfactory tests refer to those tests that could not be processed due to a problem with the kit (for example, an expired kit, or a completed kit that has taken more than 2 weeks in transit to arrive for testing).

Participants with iFOBTs that are not correctly completed are requested to complete another iFOBT. Correctly completed kits are analysed.

iFOBT result: Results from correctly completed iFOBTs are further classified by pathologists into 1 of 3 groups:

1. positive (blood is detected in at least 1 of 2 samples)
2. negative (blood is not detected)
3. inconclusive (the participant is asked to complete another kit).

histopathology: The microscopic study of the structure and composition of tissues and associated disease.

incidence: The number of new cases (of an illness or event, and so on) occurring during a given period.

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

International Statistical Classification of Diseases and Related Health Problems: The World Health Organization's internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use.

invitee: A person who has been invited to participate in the National Bowel Cancer Screening Program.

lymph node: A mass of lymphatic tissue, often bean-shaped, that produces adaptive immune system cells and through which lymph filters. These nodes are located throughout the body.

malignant: A tumour with the capacity to spread to surrounding tissue or to other sites in the body.

metastasis: The process by which cancerous cells are transferred (or spread) from one part of the body to another; for example, via the lymphatic system or the bloodstream.

morbidity: Ill health in an individual, or the level of ill health in a population or group.

opt out: Describes what invitees do who advise that they do not wish to participate in the National Bowel Cancer Screening Program, now or in the future. Invitees who opt out will not be contacted again. Invitees may elect to opt back in at a later date.

participant: A person who has agreed to participate in the National Bowel Cancer Screening Program by returning a completed **iFOBT** kit and participant details form.

polyp: A small growth of colon tissue that protrudes into the colonic or rectal lumen. Polyps are usually asymptomatic, but sometimes cause visible rectal bleeding and, rarely, other symptoms. Polyps have the potential to become **adenomas** and, later, **cancers**.

polypectomy: The removal of a **polyp**.

positive predictive value: Proportion of people with a positive iFOBT screen who have adenomas or cancer detected at **colonoscopy** and confirmed by **histopathology**.

prevalence: The number or proportion (of cases, instances, and so forth) in a population at a given time.

primary health-care practitioner (PHCP): A general practitioner or other primary health-care provider. This may include remote health clinics or specialists providing general practitioner services.

prognosis: The likely outcome of an illness.

radiation therapy: The treatment of disease with any type of radiation, most commonly with ionising radiation, such as X-rays, beta rays and gamma rays.

screening: Repeated testing, at regular intervals, of apparently well people to detect a medical condition at an earlier stage than would otherwise be the case. Screening tests are not diagnostic (for example, see **false positive**, **false negative** and **positive predictive value**); therefore, people who receive a positive screening result require further assessment and diagnosis to determine whether or not they have the disease or risk marker being screened for.

target population: A population that comprises Australians aged 50–74 who were registered as Australian citizens or migrants in the Medicare enrolment file, or are registered with a Department of Veterans' Affairs gold card. The Australian Government is rolling out biennial screening for those in the target age group.

underlying cause of death: The disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury.

valid results: iFOBT results that are classified as either positive or negative. Inconclusive results are excluded.

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Related publications

The following AIHW publications relating to bowel cancer and cancer screening more generally might also be of interest:

- AIHW 2019. Cancer in Australia 2017. Cancer series no. 119. Cat. no. CAN 123. Canberra: AIHW.
- AIHW 2018. BreastScreen Australia monitoring report 2018. Cat. no. CAN 116. Canberra: AIHW.
- AIHW 2018. Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia. Cat. no. CAN 115. Canberra: AIHW.
- AIHW 2018. Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program: 2018. Cat. no. CAN 113. Canberra: AIHW.
- AIHW 2018. National Bowel Cancer Screening Program: monitoring report 2018. Cat. no. CAN 112. Canberra: AIHW.
- AIHW 2018. Cervical screening in Australia 2018. Cat. no. CAN 111. Canberra: AIHW.
- AIHW 2014. Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program. Cat. no. CAN 87. Canberra: AIHW.
- AIHW 2014. Key performance indicators for the National Bowel Cancer Screening Program: technical report. Cancer series no. 87. Cat. no. CAN 84. Canberra: AIHW.

This report presents statistics on the National Bowel Cancer Screening Program (NBCSP) using key performance indicators. Of those who were invited to participate in the NBCSP between 1 January 2016 and 31 December 2017, 41% undertook screening. For those screened in 2017, 8% had a positive result warranting further assessment. One in 29 participants who underwent a follow-up diagnostic assessment was diagnosed with a confirmed or suspected cancer.

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