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National Bowel Cancer Screening Program

Monitoring report 2021

AIHW

National Bowel Cancer Screening Program

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Contents

Summary ..... **v**
Data at a glance ..... **vi**
1 Introduction **1**
1.1 Purpose of this report 1
1.2 Bowel cancer facts 1
1.3 Bowel cancer screening 3
2 Picture of bowel cancer in Australia **6**
2.1 Number of new cases 6
2.2 Number of deaths 7
2.3 Survival 8
2.4 Burden of bowel cancer 10
3 Performance indicators **13**
3.1 Summary 13
3.2 Recruitment 16
3.3 Screening 19
3.4 Assessment 22
3.5 Diagnosis 30
3.6 Outcomes 31
4 Bowel abnormality detection results **43**
4.1 Bowel abnormality detection using available assessment and histopathology data 43
5 Spotlight on population groups **44**
5.1 Low socioeconomic areas 44
5.2 Very remote 46
5.3 Indigenous Australians 47
5.4 Language spoken at home 48
5.5 Disability status 49
Appendix A: Data tables **50**
Additional tables for Chapter 2 50
Additional tables for Chapter 3 53
Additional tables for Chapter 4 80
Additional tables for Chapter 5 83
Appendix B: Overall NBCSP outcomes **84**

Appendix C: National Bowel Cancer Screening Program information 85
Target population 85
Changes in monitoring the NBCSP 85
Appendix D: Data sources 88
Australian Burden of Disease Study 88
Australian Cancer Database 88
National Bowel Cancer Screening Program 89
National Death Index 89
National Mortality Database 89
Population data 90
Appendix E: Classifications 91
International Classification of Diseases for Oncology 91
Index of Relative Socio-economic Disadvantage 91
International Statistical Classification of Diseases and Related Health Problems 92
International Statistical Classification of Diseases and Related Health Problems, Australian Modification 92
Remoteness Areas 92
Appendix F: Methodology for calculating participation for population subgroups 94
Acknowledgments 98
Abbreviations 99
Symbols 100
Glossary 101
References 105
List of tables 107
List of figures 110
Related material 111

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 sixth to examine the NBCSP using the current key performance indicators.

In 2021, it is estimated that about 7,365 people aged 50–74 will be diagnosed with bowel cancer (around 47% of all bowel cancers diagnosed) and 1,908 people in this age group will die from the disease (around 36% of all bowel cancer deaths).

Participation

Of the 5.7 million people invited between January 2018 and December 2019, 43.5% participated in the program. The national participation rate was similar to that for the previous rolling 2-year period (2017–2018) (42.4%). The re-participation rate for those who took part in their previous invitation round and were receiving a subsequent screening invitation was 80.7%. For those who had ever previously participated, the re-participation rate was 75.7%.

Screening results

In 2019, 89,817 Australians returned a positive screening test, giving a 7% screening positivity rate. Of those who received a positive screening test, 62% reported a follow-up diagnostic assessment. The median time from positive screening test result to diagnostic assessment was 49 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 2019, 1 in 41 were diagnosed with a confirmed or suspected cancer (204 and 1,172, respectively) and adenomas were diagnosed in a further 5,163 (1 in 11 participants assessed). Adenomas are benign growths with potential to become cancerous; their removal lowers the risk of future bowel cancers developing.

Population groups

Participants who identified as being of Aboriginal or Torres Strait Islander origin, as well as those who lived in *Very remote* areas and those who lived in low socioeconomic areas all had higher rates of positive screens (warranting further assessment), but 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 7.9 million NBCSP screening tests have been completed, with almost 4 million people participating at least once. 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, 2018b).

Data at a glance

Table 1: Summary of NBCSP performance indicators[(a)], Australia

Performance indicator (PI)		Definition	Value
PI 1*	Participation rate	The percentage of people invited to screen through the NBCSP between **1 January 2018 and 31 December 2019** who returned a completed screening test within that period or by **30 June 2020**.	43.5%
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 2019 and 31 December 2019**.	7%
PI 3	Diagnostic assessment rate	The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2019 and 31 December 2019** and had follow-up diagnostic assessment within that period or by **31 December 2020**.	62%
PI 4	Time between positive screen and diagnostic assessment	For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2019 and 31 December 2019**, the median time between the positive screen and a follow-up diagnostic assessment within that period, or by **31 December 2020**.	49 days
PI 5a	Adenoma detection rate	The proportion of people who returned a valid NBCSP screening test between **1 January 2019 and 31 December 2019** who were diagnosed with an adenoma within that period or by **31 December 2020**.	n.a.
PI 5b	Positive predictive value of diagnostic assessment for detecting adenoma	The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2019 and 31 December 2019** that underwent a diagnostic assessment and were diagnosed with an adenoma by **31 December 2020**.	n.a.
PI 6a	Colorectal cancer detection rate	The proportion of people who returned a valid NBCSP screening test between **1 January 2019 and 31 December 2019** and were diagnosed with a screen-detected colorectal cancer by **31 December 2020**.	n.a.
PI 6b	Positive predictive value of diagnostic assessment for detecting colorectal cancer	The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2019 and 31 December 2019** that underwent a diagnostic assessment and were diagnosed with cancer by **31 December 2020**.	n.a.
PI 7	Interval cancer rate	The proportion of people who returned a NBCSP screening test between **1 January 2019 and 31 December 2019** who were diagnosed with colorectal cancer (not involving a positive NBCSP screen and positive assessment) in the following 24-month period, or before their next screen, whichever comes first.	n.a.
PI 8	Cancer clinico-pathological stage distribution	The percentage of people who had received a NBCSP invite and were later diagnosed with colorectal cancer between **1 January 2019 and 31 December 2019**, by clinico-pathological stage (either Stage I, Stage II, Stage III, Stage IV, Stage unknown or Inadequately staged).	n.a.
PI 9	Adverse events—hospital admission	The rate at which people who had a diagnostic assessment between **1 January 2019 and 31 December 2019** were admitted to hospital within 30 days of their assessment.	0.5 per 10,000 assessments

(continued)

Table 1 (continued): Summary of NBCSP performance indicators[a], Australia

Performance indicator (PI)		Definition	Value
PI 10	Incidence of bowel cancer	The (estimated) incidence of bowel cancer per 100,000 estimated resident population aged 50–74 in **2021**[b].	99 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 **2021**[b].	26 deaths per 100,000 people

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

(a) NBCSP performance indicators presented here differ from the performance measures reported in monitoring reports before 2016. See 'Changes in monitoring the NBCSP' in Appendix C for further details.

(b) Rates for 2021 are estimated based on 2008–2017 data for incidence and 2010–2019 data for mortality. See Appendix D for further details.

Notes

1. PIs 3–9 rely on information being reported to the NCSR. As the return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. PI 5a (adenoma detection rate), PI 5b (positive predictive value, or 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 4 for more details.

Box 1: Data source transition

In November 2019, the NBCSP Register data were transitioned from the NBCSP Register, maintained by Services Australia (formerly the Department of Human Services, or the DHS), to the National Cancer Screening Register (NCSR), maintained by Telstra Health. This is the first NBCSP monitoring report to use data extracted from the NCSR. The NCSR is a live database which is updated over time and later reports using these data may have a greater level of completeness.This report uses NCSR data as at 31 December 2020 (NCSR RDE 23/2/2021).

Preliminary NBCSP participation data for 2018–2019 were published in December 2020. These preliminary data have been updated in this release. This has resulted in a small change in some results. For improved accuracy, we have reported participation rates to one decimal place in this release.

As the reference periods for the performance indicators in this report include 1 January 2018 to 31 December 2020, this report uses data collected for the NCSR (November 2019 to December 2020) and data originally collected for the NBCSP Register (January 2018 to November 2019). This report also summarises trends from 2007 to 2020 in program participation (PI 1), diagnostic assessment rate (PI 3), and time between positive screen and diagnostic assessment (PI 4). Data for these trends use data collected for the NBCSP Register as well as data collected for the NCSR.

1 Introduction

1.1 Purpose of this report

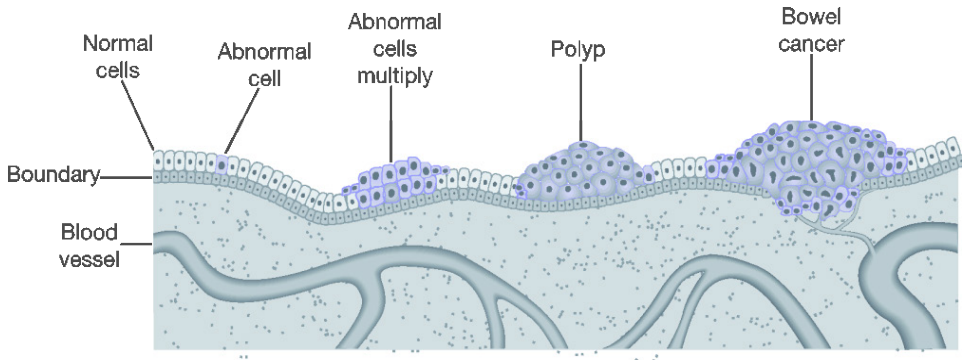
This report is the sixth to monitor data for the National Bowel Cancer Screening Program (NBCSP), based on the current NBCSP key performance indicators (AIHW 2014b). To ensure that the most recent data are used for each indicator, the time frame in which each is analysed can vary. However, where possible, analysis for indicators includes the period from 1 January 2019 to 31 December 2020.

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, a polyp may mutate further 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



Cancer stage

Bowel cancer stage describes the extent or spread of cancer in the body at 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 (Brierley et al. 2016). Cancer Australia, in consultation with state and territory cancer registries and the Australian Institute of Health and Welfare (AIHW), developed cancer staging rules for high-incidence cancers (including bowel cancer). These 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 1.1).

Table 1.1: Registry-defined Australian stages of bowel cancer, 2011

Registry-defined Australian stage	Description	5-year relative survival estimates
I	Stage I – equivalent to TNM stage I: Early stage Cancer has invaded several layers of the bowel, but has not spread outside the bowel wall	99% 5-year survival rate
II	Stage II – equivalent to TNM stage II: Early stage Cancer has grown through the muscle layer of the bowel or rectum and invaded nearby tissues, but has not spread to the lymph nodes	89% 5-year survival rate
III	Stage III – equivalent to TNM stage III: Locally advanced Cancer has spread to nearby lymph nodes, but not to other parts of the body	71% 5-year survival rate
IV	Stage IV – Equivalent to TNM stage IV: Metastatic The cancer has spread from where it started in the colon or rectum to other organs, often the liver and lungs, and/or non-regional lymph nodes	13% 5-year survival rate

Note: Descriptions and 5-year relative survival estimates were sourced from 2011 Australian stage data (AIHW 2019a).

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 it—see Box 1.1 (AIHW 2021a; Bouvard et al. 2015; Dekker et al. 2019; IARC 2014; Song et al. 2015; WCRF & AICR 2007).

Box 1.1: Risk factors for bowel cancer

Behavioural and biomedical factors

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

- overweight or obesity
- high blood plasma glucose
- physical inactivity
- high intake of red meat, processed meat, and sugar sweetened beverages
- low intake of fibre-rich foods (such as wholegrains, vegetables and fruits) and milk
- alcohol consumption
- tobacco smoking
- occupational hazards and exposures.

Family history and genetic susceptibility

Some gene mutations increase the risk of bowel cancers, and these can also be passed from parent to child. Between 12% and 35% of bowel cancers can be attributed to a hereditary component (Dekker et al. 2019).

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 the type of cells involved, the size of the tumour and the bowel cancer stage—some patients may receive palliative care. Treatment of bowel cancer commonly involves surgery to remove the cancer, with or without chemotherapy or radiation therapy.

Early diagnosis of bowel cancer can improve treatment outcomes and survival. Further, removal of non-benign polyps and adenomas (polypectomy) 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 and mortality (Dekker et al. 2019).

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 occur in the pre-cancerous stages (Figure 1.1) for some time. The relatively slow development of bowel cancer means that pre-cancerous polyps and adenomas, 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).

An immunochemical faecal occult blood test (iFOBT) is a common method of bowel cancer screening (Schreuders et al. 2015). An iFOBT is a non-invasive test that can detect microscopic amounts of blood in a sample from 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 has been available through the NBCSP since its inception in 2006. The NBCSP is managed by the Department of Health in partnership with state and territory governments, the Department of Human Services (2006 to November 2019), and the National Cancer Screening Register (NCSR, November 2019 to present). 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 AIHW conducted a study of people diagnosed with bowel cancer between 2006 and 2008. The study showed that NBCSP invitees (particularly those participating) who had been diagnosed with bowel cancer had a lower risk of dying from the disease 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 have further supported these findings (AIHW 2018a, 2018b).

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 (CCACCGWP 2017). These guidelines continue to recommend that biennial iFOBT bowel cancer screening for the asymptomatic Australian population begin at age 50 and continue to age 74. A staged roll-out of the NBCSP was used to help ensure that health services, such as diagnostic assessment and treatment options, were able to meet an increased demand as more people were invited to screen.

The roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed in 2020. Eligible Australians will now 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 NCSR. 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, a colonoscopy.

For more information on the NBCSP, see Appendix C and www.cancerscreening.gov.au.

Monitoring the NBCSP

NBCSP participant data come from a variety of sources along the screening pathway. Data are collected electronically, as well as from forms that participants, PHCPs, colonoscopists and pathologists and other medical staff complete and return to the NCSR. However, as form return is not mandatory, these data may be incomplete.

This report is the sixth to present national data for the NBCSP, using the current key performance indicators developed by the National Bowel Cancer Screening Program Report and Indicator Working Group (Table 1). These indicators were 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. They 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 health practitioners is not mandatory and therefore data—and results—for PIs 3 to 9 are not complete.

Other limitations of the NBCSP data include the lack of reliable population subgroup identification at the time of invitation. Participants self-identify as being an Aboriginal and/or Torres Strait Islander, having disability or speaking a language other than English at home by completing and returning a participant details form, along with their iFOBT for analysis. Membership of these subgroups is reliably known only for those who participate; hence, 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 reduce these limitations are constantly being investigated; Chapter 5 in this report gives estimates of participation for these subgroups using proportions from the latest Census.

Seven performance indicators are aspirational, in that there is either a lack of national data or incomplete data. In this report, PI 5a (adenoma detection rate), PI 5b (positive predictive value, or 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 incomplete data. 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 NCSR currently has (incomplete) information on adverse events, and this will be used until a more complete adverse event data source becomes available. This is the first NBCSP monitoring report to use data extracted from the NCSR. The NCSR is a live database which is updated over time and later reports using these data may have a greater level of completeness.

2 Picture of bowel cancer in Australia

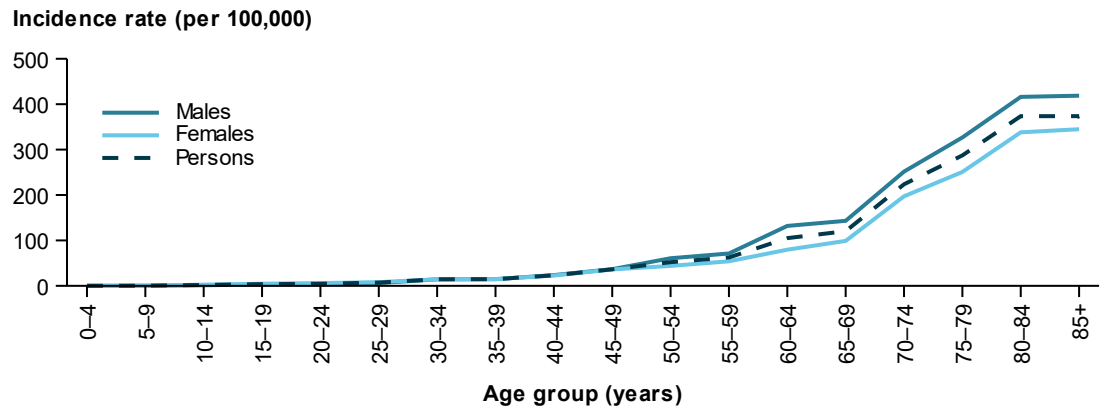
2.1 Number of new cases

In 2021, it is estimated that 7,365 people aged 50–74 will be diagnosed with bowel cancer (around 47% of all bowel cancer diagnoses)—an age-standardised rate (ASR) of 99 new cases diagnosed per 100,000 people aged 50–74. It is estimated that, in 2021, bowel cancer will be the fourth most commonly diagnosed cancer in Australians of all ages (after breast and prostate cancer, and melanoma) (AIHW 2020).

Target age group (50–74 years)	All ages
7,365 new cases estimated for 2021 99 new cases per 100,000 target-age people	15,541 new cases estimated for 2021 50 new cases per 100,000 people

Bowel cancer risk increases with age. In 2021, 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, 2021



Notes

1. The 2021 estimates are based on 2008–2017 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: 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 26 in 1,000 (about 1 in 38). This risk is higher than for those aged 0–49 (5 in 1,000) and lower than for those aged 75 and over (53 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

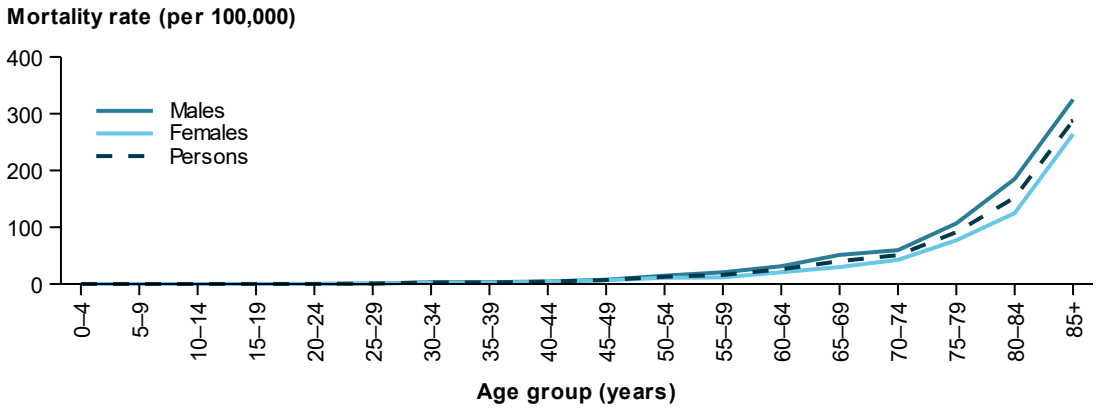
The AIHW uses the National Mortality Database (NMD) to report cancer mortality, a database coded and compiled by the Australian Bureau of Statistics (ABS). ABS advice notes that where 'bowel cancer' is recorded on the death certificate, internationally agreed rules state that the cancer should be coded to a less specific code (C26.0) as the specific site of the cancer is not known (ABS 2016). The ABS advises further 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, monitoring reports for the NBCSP from 2019 onwards use C18–C20, and now also include C26.0 when reporting deaths from bowel cancer using the NMD. This approach differs from that used in previous versions of this report and will result in a greater number of deaths being attributed to bowel cancer. Hence, caution should be considered when comparing trends in bowel cancer mortality here with those in NBCSP monitoring reports issued before 2019.

In 2021, it is estimated that there will be 1,908 bowel cancer deaths in people aged 50–74 (around 36% of all bowel cancer deaths), which is equivalent to 26 deaths for every 100,000 people aged 50–74. It is estimated that bowel cancer will remain the second leading cause of cancer death in Australians of all ages (after lung cancer) (AIHW 2020).

Target age group (50–74 years)	All ages
1,908 deaths estimated in 2021 26 deaths per 100,000 target-age people	5,296 deaths estimated in 2021 16 deaths per 100,000 people

It is estimated that, in 2021, the mortality rate will be higher for people aged 50 and over than for younger people and will continue to rise for each subsequent age group, for both men and women (Figure 2.2).

Figure 2.2: Age-specific mortality rates of bowel cancer, by sex, Australia, 2021



Notes

1. The 2021 estimates are based on 2010–2019 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: Table A3.28.

The risk of dying from bowel cancer increases with age, estimated as being:

- 1 in 1,000 before age 50
- 7 in 1,000 for ages 50 and 74
- 14 in 1,000 for ages 75 and over.

Biennial screening for those aged 50–74 was fully rolled out from 2020. It is expected that, once it 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

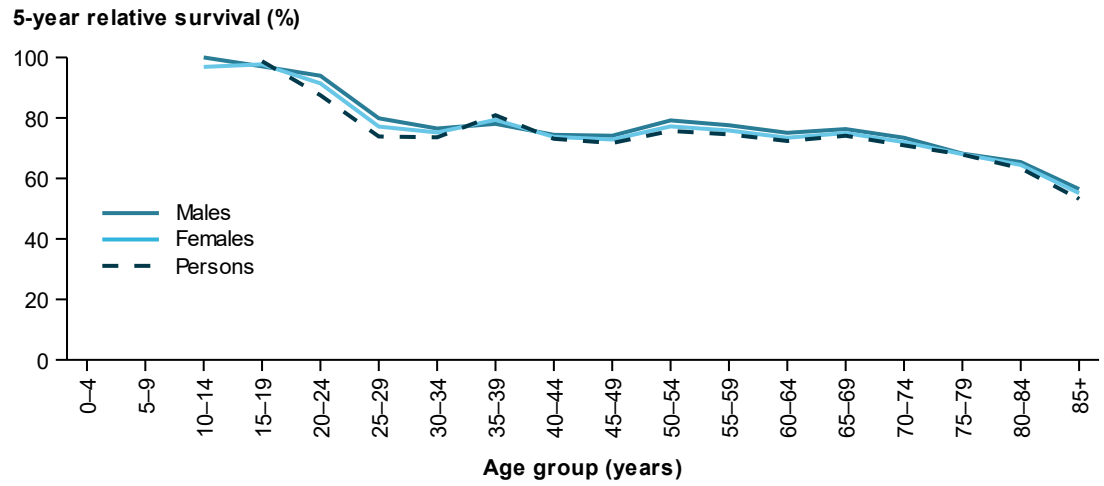
Information on survival indicates cancer prognosis and the effectiveness of treatment available. Survival of less than 100% suggests that those with bowel cancer have a lower chance of surviving for at least 5 years after diagnosis than the general population.

Between 2013 and 2017, Australians aged 50–74 who were diagnosed with bowel cancer 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 (2013–2017)	70% 5-year relative survival (2013–2017)

Between 2013 and 2017, 5-year relative survival was lower for people over the age of 70 than for younger people (Figure 2.3).

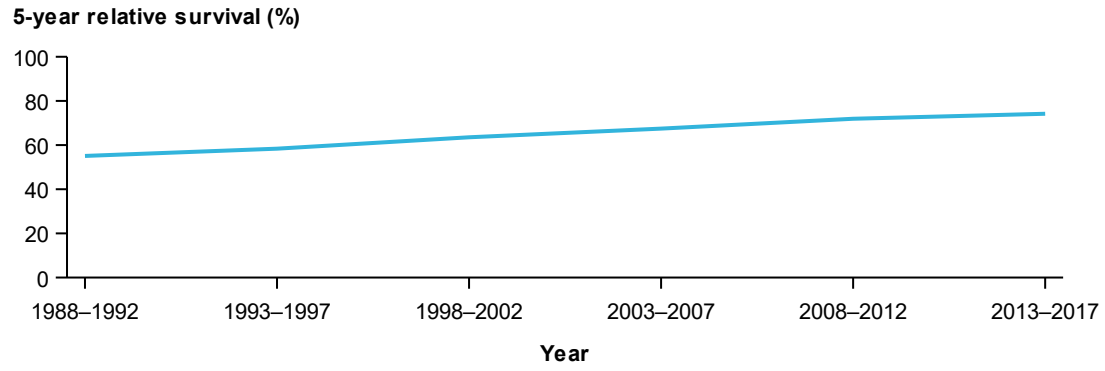
Figure 2.3: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2013–2017



Source: Table A2.1.

Between 1988–1992 and 2013–2017, the 5-year relative survival rate from bowel cancer for people aged 50–74 at diagnosis rose from 55% to 74% (Figure 2.4).

Figure 2.4: Trend in 5-year relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 1988–1992 to 2013–2017

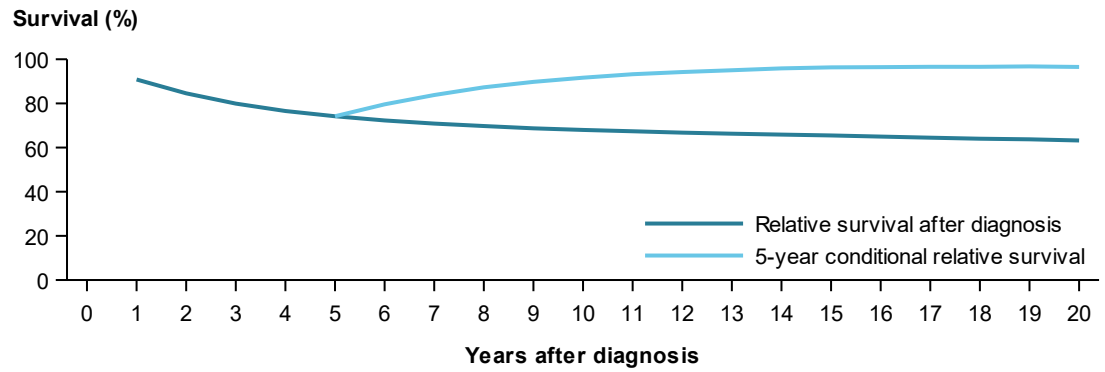


Source: Table A2.2.

Relative survival shows the probability of survival at diagnosis. Conditional relative survival estimates show the probability of surviving a given number of years, provided that an individual has already survived a specified amount of time after diagnosis.

When first diagnosed with bowel cancer, people aged 50–74 had a lower (74%) chance of surviving for at least 5 years after diagnosis than the general population; however, 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 92% (Figure 2.5).

Figure 2.5: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 2013–2017



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: 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 2020). It 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 2020).

Prevalence is the number of people alive (surviving) after a diagnosis of cancer. At the end of 2016, there were 54,911 Australians alive who had been diagnosed with bowel cancer in the previous 5 years and 91,903 who had been diagnosed in the previous 10 years (Table 2.1). When limited to people aged 50–74 at the end of 2016, there were 28,710 alive after being diagnosed with bowel cancer in the previous 5 years and 46,847 after being diagnosed in the previous 10 years (Table 2.1).

Table 2.1: Prevalence of bowel cancer, by age group and sex, Australia, end of 2016

Age group (years)	Sex	5-year prevalence		10-year prevalence	
		Number	Rate per 100,000	Number	Rate per 100,000
50–74	Males	16,655	524.5	26,993	850.1
	Females	12,055	365.8	19,854	602.5
	Persons	*28,710*	*443.7*	*46,847*	*724.0*
All ages	Males	29,945	247.5	49,863	412.2
	Females	24,966	203.1	42,040	342.0
	Persons	54,911	225.1	91,903	376.8

Source: AIHW ACD 2017.

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 following:

(a) 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)

(b) the number of years of life lost through dying prematurely from an illness or injury (the fatal burden, years of life lost, or YLL)

(c) the number of disability-adjusted life years (DALY), which combines the non-fatal and fatal burden (or the combined impact of dying early and living with illness).

Burden of disease estimates capture both the quantity and quality of life, and reflect the magnitude, severity and impact of disease and injury within a population. Burden of disease studies can also estimate the contribution of specific risk factors to disease burden (known as the attributable burden) (AIHW 2021a).

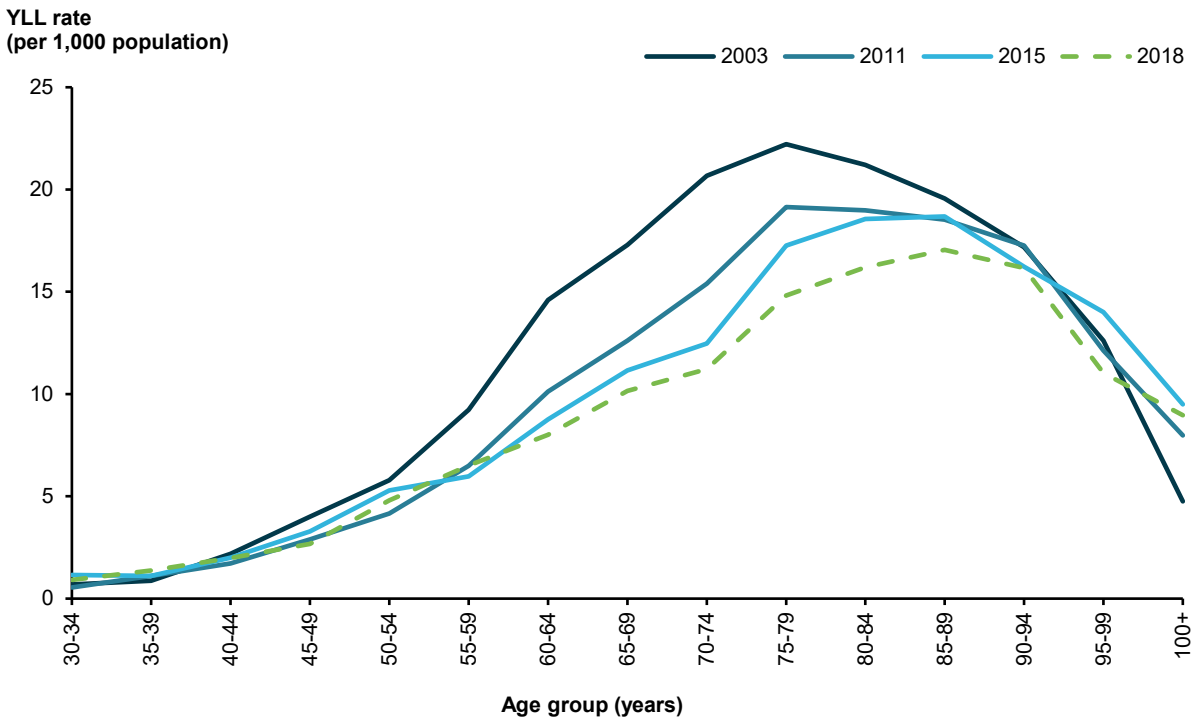
The AIHW report *Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018* (hereafter referred to as the ABDS 2018) found that 97,600 years of healthy life were lost (from fatal and non-fatal outcomes) due to bowel cancer in 2018 (AIHW 2021a). This meant bowel cancer accounted for 2.0% of the total disease burden in Australia, making it the 15th most burdensome disease overall (13th in males and 15th in females). Bowel cancer (97,603 DALY) was the second most burdensome cancer in 2018 behind lung cancer (159,723 DALY); Australians lost many more years of life due to dying from bowel cancer (93.3% of total bowel cancer burden) than healthy years lost from living with the impacts of the disease (6.7% of total bowel cancer burden) (AIHW 2021a).

Changes in burden since 2003

The NBCSP was introduced in 2006; hence, comparisons of the burden before and after this date, as well as during the full program roll-out, are of interest. The ABDS 2018 provides burden of disease estimates best matched to the Australian public health context for the Australian population for 2018. Due to improvements in data sources and methodological changes, published estimates from previous Australian studies are not directly comparable with those for the ABDS 2018. However, estimates for 2015, 2011 and 2003, revised using the same methods as for 2018, were calculated to enable direct comparisons over time (Figure 2.6).

Between 2003 and 2018, the ASR of total burden from bowel cancer fell 30%, from 4.8 to 3.4 DALY per 1,000 people. This reduction was primarily due to a drop in fatal burden from 4.6 to 3.2 YLL per 1,000 people (AIHW 2021a). The change in YLL ASRs was driven by a shift towards people dying from bowel cancer at older ages, and a lower peak of 17.1 YLL per 1,000 people aged 85–89 in 2018 than the peak in 2003 of 22.2 YLL per 1,000 people aged 75–79.

Figure 2.6: Change in fatal burden—YLL from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011, 2015 and 2018



Sources: AIHW Australian Burden of Disease Database; Table A2.4.

Contribution of risk factors to bowel cancer burden

The ABDS 2018 calculated the proportion of the bowel cancer burden attributable to a number of behavioural, environmental and metabolic risk factors. For the majority of this analysis, the risk factors were analysed independently, meaning that the estimates cannot be added together without further analysis to take into account that many risk factors are inter-related (AIHW 2021b).

After analysis to adjust for interrelated risk factors, the study estimated that almost 50% of bowel cancer burden in 2018 was attributable to the combined impact of associated risk factors (AIHW 2021a). All dietary risk factors combined were responsible for 26% of bowel cancer burden.

When looking at the individual contribution of each risk factor, a low consumption of wholegrains and high fibre cereals and overweight and obesity contributed the most individually to bowel cancer burden in 2018 (16% and 13%, respectively). A greater proportion of bowel cancer burden in males was due to overweight and obesity than in females (19% compared with 6%) (Table 2.2). Physical inactivity was responsible for around 12% of bowel cancer burden in 2018.

See *Australian Burden of Disease Study: methods and supplementary material 2018* (AIHW 2021b) for more information on the methods used to quantify the impact of specific risk factors.

Table 2.2: Bowel cancer burden attributed to selected risk factors (DALY and proportion), 2018

	Males		Females		Persons	
Risk factor	**Attributable DALY**	**Proportion of bowel cancer burden (%)**	**Attributable DALY**	**Proportion of bowel cancer burden (%)**	**Attributable DALY**	**Proportion of bowel cancer burden (%)**
Alcohol use	2,797	5.1	2,900	6.8	5,697	5.8
All dietary risks	14,468	26.3	11,167	26.2	25,635	26.3
Diet high in processed meat	1,222	2.2	954	2.2	2,176	2.2
Diet high in red meat	3,224	5.9	2,477	5.8	5,701	5.8
Diet low in milk	2,607	4.7	2,010	4.7	4,618	4.7
Diet low in whole grains and high fibre cereals	8,777	16.0	6,774	15.9	15,551	15.9
High blood plasma glucose	3,872	7.0	2,127	5.0	5,999	6.1
Occupational exposures & hazards	1,305	2.4	488	1.1	1,793	1.8
Overweight & obesity	10,406	18.9	2,764	6.5	13,169	13.5
Physical inactivity	6,048	11.0	5,448	12.8	11,497	11.8
Tobacco use	2,878	5.2	3,741	8.8	6,619	6.8
Joint effect	**28,351**	**51.5**	**19,739**	**46.3**	**48,090**	**49.3**

Notes

1. Attributable burden from multiple risk factors cannot be combined or added together due to the complex pathways and interactions between risk factors.
2. The percentages for the individual risk factors in the table do not add up to the joint effect as the risk factors were analysed independently.

Source: AIHW Australian Burden of Disease Database.

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 (2006 to 2020), 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 NCSR; this reporting is not mandatory and is known to be incomplete.

Recruitment

Of those invited in the 2-year period for 2018–2019, 43.5% participated in the NBCSP (Table A3.2). This is consistent with the 42.4% participation rate in the previous rolling 2-year period (2017–2018) (Table A3.5).

The participation rate was higher for people receiving their second, third or later screening invitation (44.9%) than for those receiving their initial invitation to screen (32.8%) (Table A3.3).

For those who had participated in their previous invite round, the re-participation rate was 80.7%. For those who had ever previously participated, the re-participation rate was 75.7% (Table A3.3).

Screening and assessment

In 2019, 89,817 participants returned a positive screening test, giving a 7% 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, 62% 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 49 days (Table A3.18).

Diagnosis

As return of the assessment form 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 2019, 204 confirmed cancers, 1,172 suspected cancers and 5,163 adenomas were reported (Table A4.1).

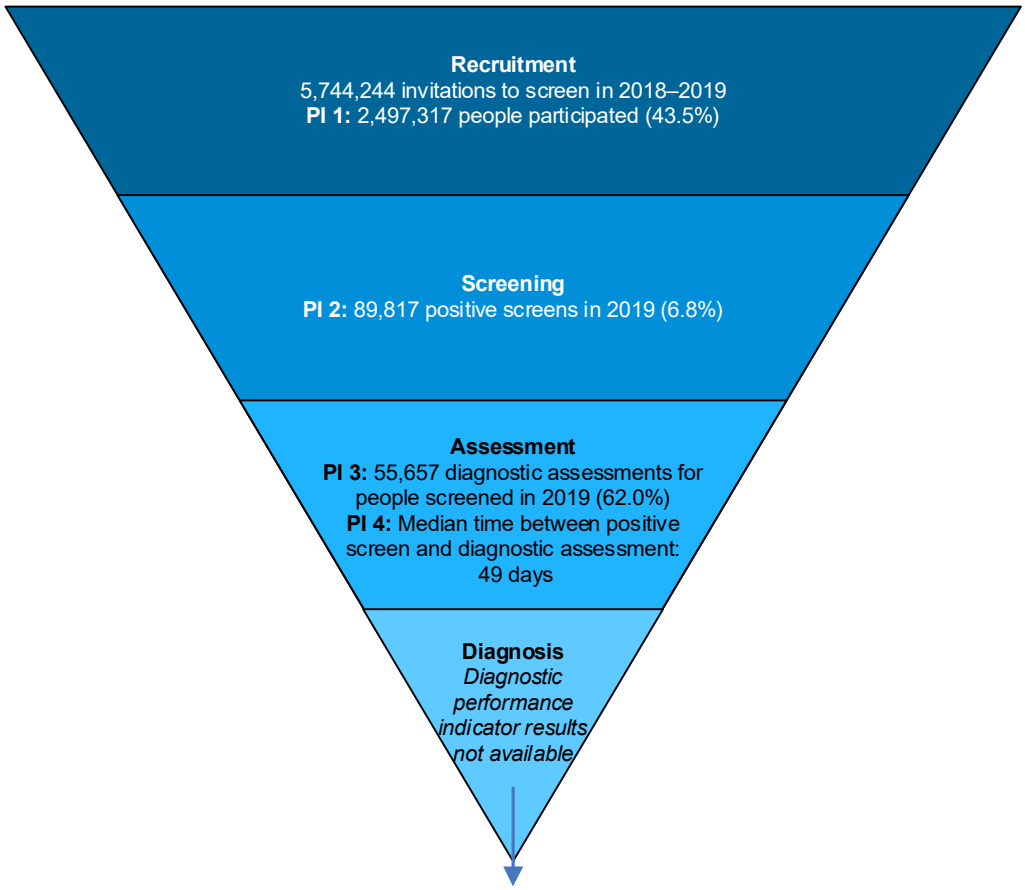
See Chapter 4 for a summary of bowel abnormality detection results, based on available assessment and diagnosis data. Also see *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program 2018* (AIHW 2018b) for the most recent accurate PPV of diagnostic assessment for detecting bowel (colorectal) cancer.

Outcomes

In 2019, 3 people who underwent a diagnostic assessment were recorded as being admitted to hospital within 30 days of this procedure, giving a hospital admission rate after assessment of 0.5 per 10,000 assessments (Table A3.23).

In 2021, it is estimated that 7,365 people aged 50–74 will be diagnosed with bowel cancer (Table A3.24) and that 1,908 people aged 50–74 will die from the disease (Table A3.28).

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



Assessment details
Those assessed in 2019[(a)]

No issue or other diagnosis	38,554	(67.6%)
Biopsy awaiting histopathology	11,937	(20.9%)
Non-advanced adenomas	2,678	(4.7%)
Advanced adenomas	2,486	(4.4%)
Suspected cancer	1,171	(2.1%)
Confirmed cancer	204	(0.4%)

Outcomes
For morbidity and mortality

PI 9:	Adverse events	0.5 per 10,000	(2019)
PI 10:	Incidence	99 per 100,000	(2021)
PI 11:	Mortality	26 per 100,000	(2021)

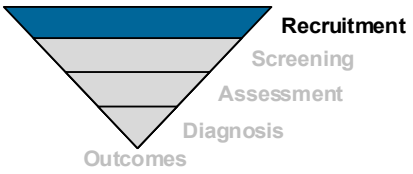
(a) Based on available data. Percentages may not sum to 100% due to rounding. 'No issue or other diagnosis' includes 25,538 assessments with no record of outcome, plus any non-cancer or adenoma diagnoses from colonoscopy or histopathology.

Notes

1. The recruitment indicator PI 1 is reported against the 2-year calendar period 2018–2019, with follow-up to June 2020. The screening indicator PI 2 is reported against the year 2019. The assessment and adverse events indicators are reported against the year 2019, with follow-up to December 2020 for assessments and to June 2020 for adverse events. Incidence and mortality are estimated rates for those aged 50–74 in 2021.
2. Assessment, diagnosis and outcomes (PIs 3–9) rely on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 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 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

3.2 Recruitment



PI 1—Participation rate

Definition: The percentage of people invited to screen through the NBCSP between **1 January 2018 and 31 December 2019** who returned a completed screening test within that period or by **30 June 2020** (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 NCSR.

Guide to interpretation: The number of individuals 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 (Table A3.1).

Data on participation by Indigenous Australians, by language spoken at home and by 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: 43.5%.

The following figures apply for the 5,744,244 eligible people invited from 1 January 2018 to 31 December 2019:

Australia-wide: A total of 2,497,317 people participated in the NBCSP, giving an overall Australia-wide participation rate of 43.5% (Table A3.2).

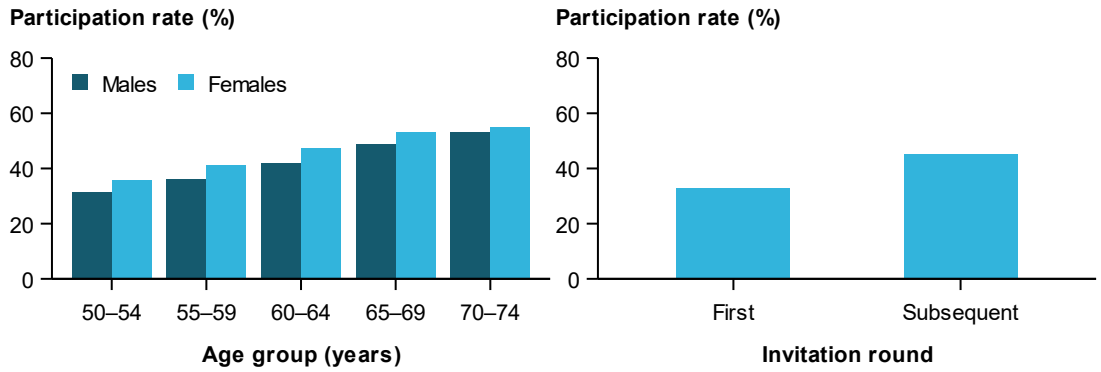
Sex: Female (45.6%) invitees had a higher participation rate than males (41.3%) (Table A3.2).

Age: The participation rate increased with each invitation age group, from 33.5% for people aged 50–54 to 54.0% for people aged 70–74 (Figure 3.2).

Invitation round: The participation rate was higher for people who had previously been invited to the program (receiving their second or later screening invitation, 44.9%) compared with people receiving their first invitation (32.8%) (Figure 3.2). The lowest participation rate was observed for people who had been previously invited to the program and had never previously participated (17.4%).

The re-participation rate was higher for those who had participated in their previous invite round and were receiving a subsequent invitation (80.7%) compared with those who had ever previously participated (75.7%) (Table A3.3).

Figure 3.2: Participation of people aged 50–74, by sex and age and by invitation round, 2018–2019



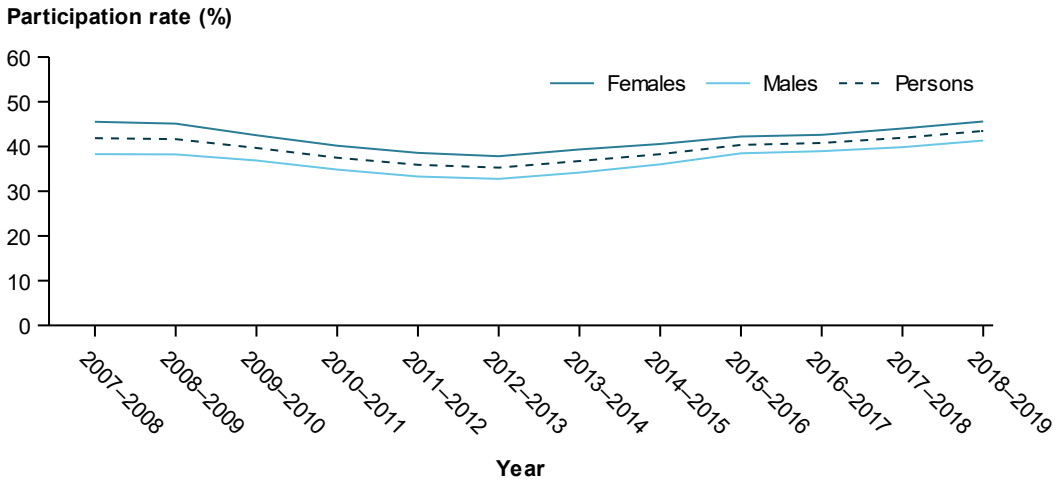
Note: Subsequent invitation round includes second, third and later invitation rounds.

Sources: 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 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).

Using this indicator across all program data to date, the participation rate fell from 44.0% in 2007–2008 to 36.1% in 2012–2013, then gradually rose to 43.5% in 2018–2019 (Figure 3.3). While the overall participation rate for the current (43.5%) and previous reporting period (2017–2018: 42.4%) was similar, it should be noted that participation across each 5-year age group invited increased over the 2 periods.

Figure 3.3: Participation of people aged 50–74, by sex, 2007–2008 to 2018–2019



Notes

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

Source: Table A3.5.

State and territory: The participation rate was highest for people living in Tasmania and South Australia (48.9%) and lowest for people living in the Northern Territory (30.6%) (Figure 3.4).

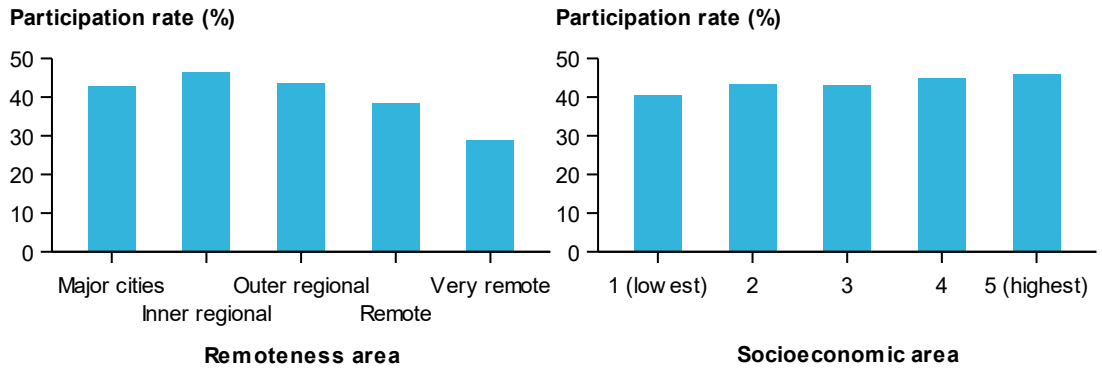
Figure 3.4: Participation of people aged 50–74, by state and territory, 2018–2019

Source: Table A3.4.

Remoteness area: The participation rate was highest for people living in *Inner regional* areas (46.3%) and lowest for people living in *Very remote* areas (28.8%) (Figure 3.5).

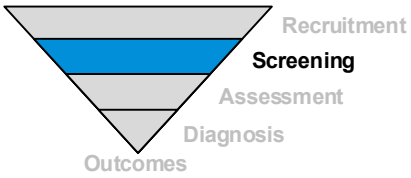
Socioeconomic area: The participation rate was highest for people living in the highest socioeconomic areas (45.9%) and lowest for those living in the lowest socioeconomic areas (40.5%) (Figure 3.5).

Figure 3.5: Participation of people aged 50–74, by remoteness area and socioeconomic area, 2018–2019



Source: 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 2019 and 31 December 2019** (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 (to improve lesion detection rates while limiting 'false' positive results) 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.

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

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 the cohort monitored in the participation indicator.

National screening positivity rate: 7%.

The following apply for the 1,314,053 invitees who had a screening test analysed in 2019:

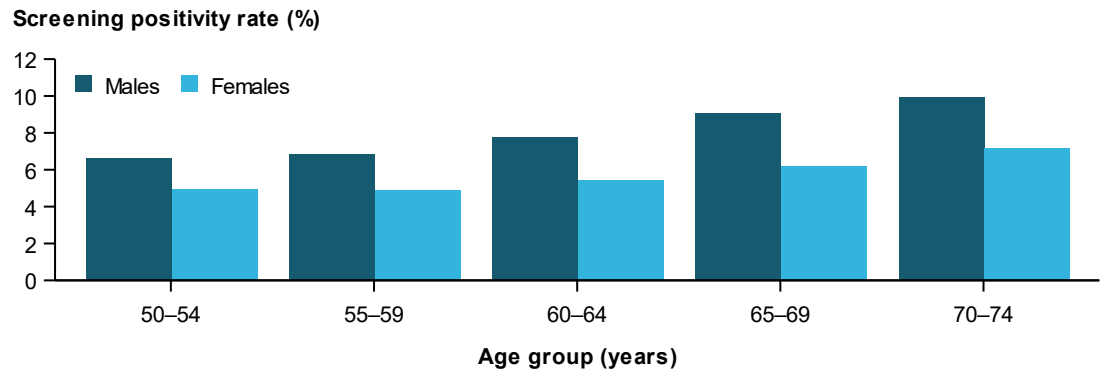
Australia-wide: A total of 89,817 people received a positive screening test result, giving an overall Australia-wide screening positivity rate of 7% (Table A3.6).

Sex: Male participants had a higher screening positivity rate than females (8% compared with 6%), across all age groups (Figure 3.6).

Age: The screening positivity rate increased with each age group, from 6% for people aged 50–59 to 9% for those aged 70–74 (Figure 3.6).

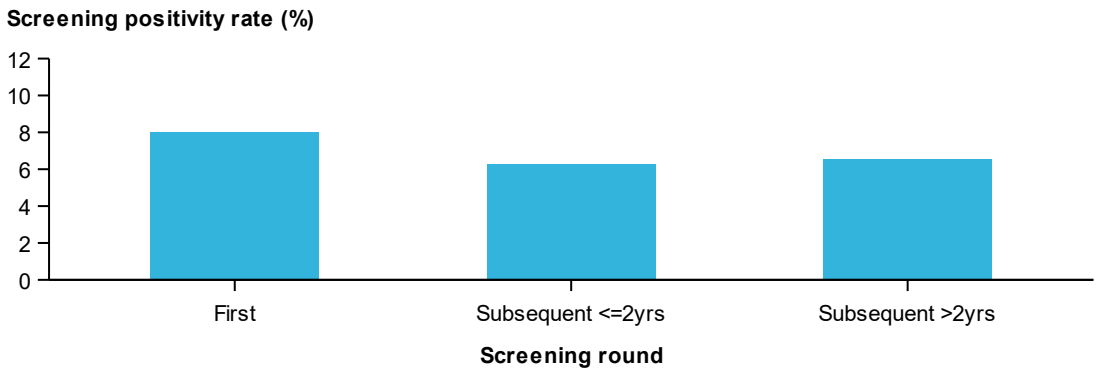
Screening round: The screening positivity rate was highest for people during their first round of screening (8% compared with 7% for those whose subsequent screen was more than 2 years after their first screen) (Figure 3.7).

Figure 3.6: Screening positivity rate of people aged 50–74, by sex and age, 2019



Source: Table A3.6.

Figure 3.7: Screening positivity rate of people aged 50–74, by screening round, 2019



Source: Table A3.7.

State and territory: The screening positivity rate was consistently between 6% and 8% across jurisdictions. It was highest in the Northern Territory (8%) and lowest in the Australian Capital Territory (6%) (Figure 3.8).

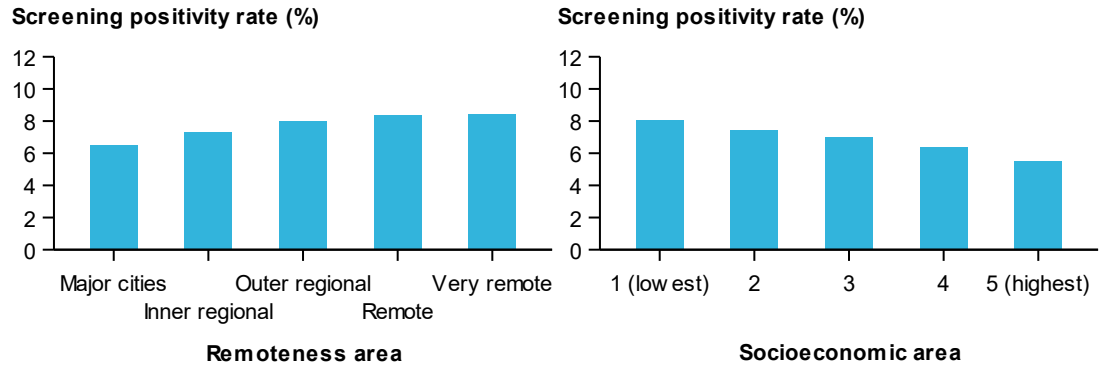
Figure 3.8: Screening positivity rate of people aged 50–74, by state and territory, 2019

Source: Table A3.8.

Remoteness area: The screening positivity rate was highest for people living in *Very remote* areas (8%) and lowest for those living in *Major cities* (7%) (Figure 3.9).

Socioeconomic area: The screening positivity rate was highest for people living in the lowest socioeconomic areas (8%) and lowest for those living in the highest socioeconomic areas (6%) (Figure 3.9).

Figure 3.9: Screening positivity rate of people aged 50–74, by remoteness area and socioeconomic area, 2019



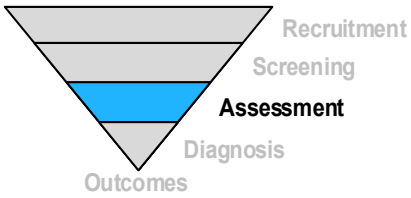
Source: Table A3.8.

Indigenous status: Indigenous Australians had a higher screening positivity rate than non-Indigenous Australians (10% compared with 7%) (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 (6% and 7%) (Table A3.9).

Disability status: Those reporting severe or profound activity limitation had a higher screening positivity rate than other participants (including those who reported no limitation and those who did not respond) (13% compared with 7%) (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 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 2019 and 31 December 2019** and had follow-up diagnostic assessment within that period or by **31 December 2020** (AIHW 2014b).

Rationale: The appropriate movement of people from participation to diagnostic assessment is a key indicator of the efficiency of the program and its impact 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 returned to the NCSR; 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 people with a positive screen in the defined period, not all those invited in the defined period.

National diagnostic assessment rate: 62%.

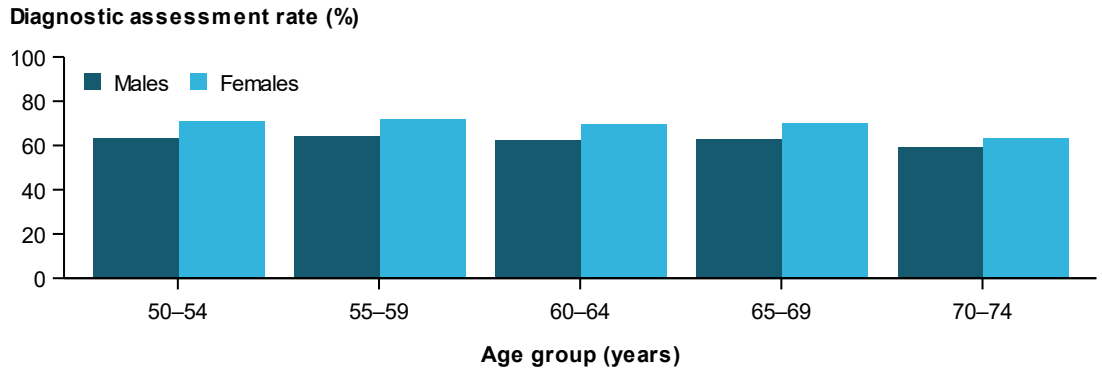
The following applies for the 89,817 participants with a positive screening test in 2019:

Australia-wide: A total of 55,657 people had a follow-up diagnostic assessment (colonoscopy) recorded—an overall Australia-wide diagnostic assessment rate of 62% (Table A3.10).

Sex and age: Diagnostic assessment rates were higher for females (67%) than males (58%), and were slightly lower for people aged 70–74 (60%) than for younger target age groups—63% for age groups 50–54 to 65–69 (Figure 3.10).

Health-care provider: Most diagnostic assessments (69%; 38,592) recorded were performed through the private health-care system, with an additional 14% (7,695 assessments) recorded through the public health-care system (Table A3.11). Around 1 in 6 (17%; 9,370) 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 NCSR, and because 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 group, 2019



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 NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

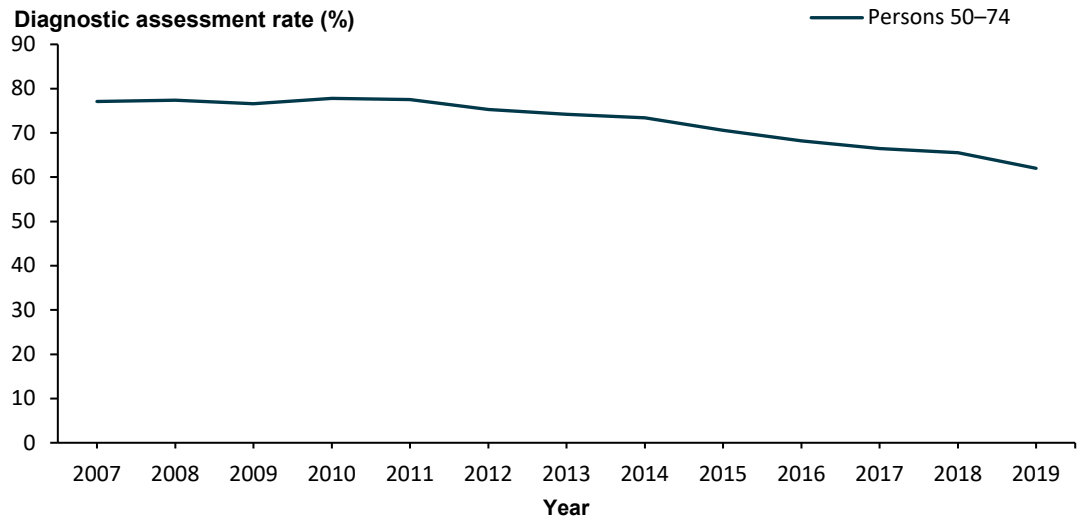
Source: Table A3.10.

Trend: Monitoring reports before 2016 used a different methodology to analyse the diagnostic assessment rate. So, trend comparisons with rates published in earlier reports cannot be made. To allow trends to be compared over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.11).

Using this diagnostic assessment rate indicator across all program data to date, the follow-up diagnostic assessment rate was stable at between 77% and 78% between 2007 and 2011, and then gradually fell from 75% in 2012 to 62% in 2019. Differences in form return and varying pathway practices for diagnostic assessment between years may contribute to this outcome.

State and territory: The follow-up diagnostic assessment rate was highest for people living in the Australian Capital Territory (76%) and lowest for those living in the Northern Territory (35%) (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, 2007–2019



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 NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. Trend data used the performance indicator specifications retrospectively on previous years' data.

Source: Table A3.14.

Figure 3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, 2019

Notes

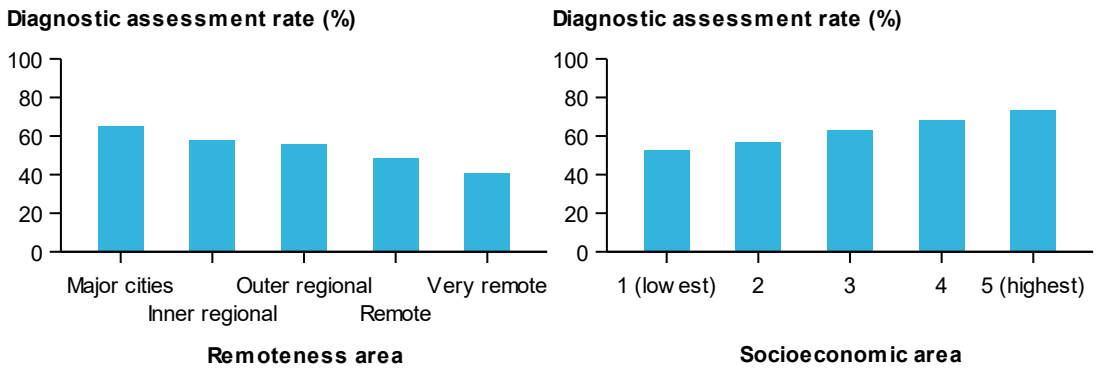
1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.

Source: Table A3.12.

Remoteness area: The follow-up diagnostic assessment rate was highest for people living in *Major cities* (65%) and lowest for people living in *Very remote* areas (41%) (Figure 3.13).

Socioeconomic area: The follow-up diagnostic assessment rate was highest for people living in the highest socioeconomic areas (73%) and lowest for those living in the lowest socioeconomic areas (53%) (Figure 3.13).

Figure 3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by remoteness area and socioeconomic area, 2019



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 NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: Table A3.12.

Indigenous status: Indigenous Australians had a lower follow-up diagnostic assessment rate than non-Indigenous Australians (44% compared with 62%) (Table A3.13).

Language spoken at home: People who spoke a language other than English at home had a lower follow-up diagnostic assessment rate than those who spoke English at home (54% compared with 63%) (Table A3.13).

Disability status: People reporting severe or profound activity limitation had a lower follow-up diagnostic assessment rate than other participants (including those who reported no limitation and those who did not respond) (42% compared with 63%) (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 2019 and 31 December 2019**, the median time between the positive screen and a follow-up diagnostic assessment within that period or by **31 December 2020** (AIHW 2014b).

Rationale: Waiting for a definitive diagnosis after a positive screen can create anxiety. There are various steps, participant decisions and waiting times that occur along 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 NCSR; however, this reporting is not mandatory, leading to incomplete data. Therefore, there is an unknown level of under-reporting for it, 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 people with a positive screen in the defined period, not all those invited in the defined period.

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

National median time between positive screen and diagnostic assessment: 49 days.

The following apply for the 89,817 participants who had a positive screening test in 2019 with a diagnostic assessment recorded:

Australia-wide: The median time between positive screen and assessment was 49 days (Table A3.18).

Sex: Males and females had similar median times between a positive screen and assessment (49 days and 50 days, respectively) (Figure 3.14).

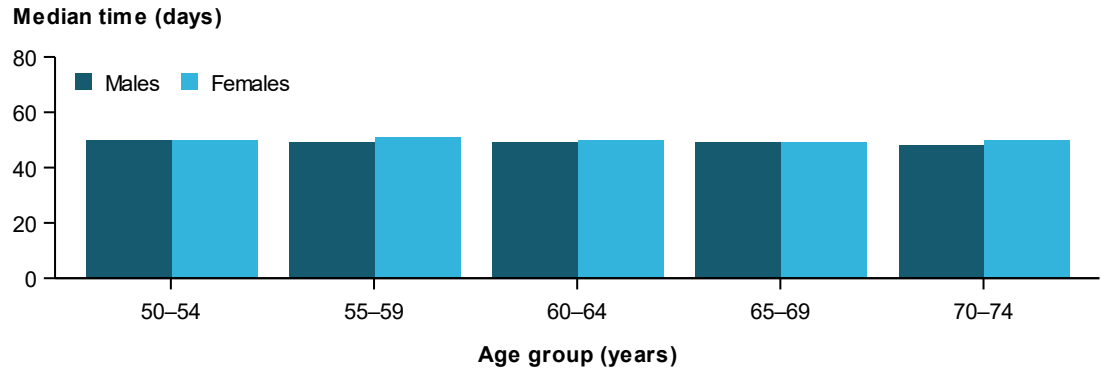
Age: The median time between a positive screen and diagnostic assessment was similar across age groups—50 days for people aged 50–54 and 49 days for those aged 70–74 (Figure 3.14).

Health-care provider:

- The median time between a positive screen and diagnostic assessment for people who went through the private health-care system was 45 days (Table A3.19).
- The median time between a positive screen and diagnostic assessment for people who went through the public health-care system was 69 days (Table A3.19).

Around 16% 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 NCSR, and since 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, 2019



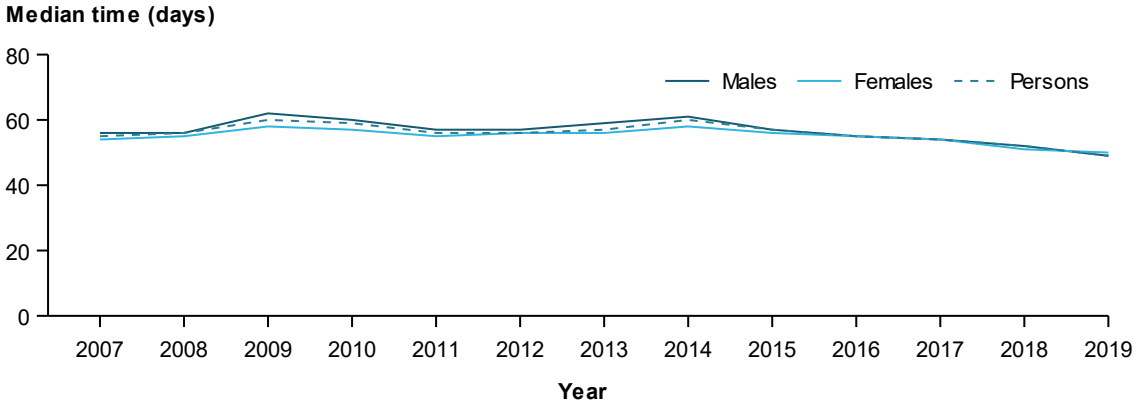
Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: Table A3.18.

Trend: Monitoring reports before 2016 did not include this analysis, so trend comparisons with data from these earlier reports cannot be made. To allow trends to be compared 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).

Examining the median time between positive screen and diagnostic assessment across all program data to date shows a duration of 54 days in 2007 compared with 49 days in 2019 (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, by sex, 2007–2019



Notes

1. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. Trend data used the performance indicator specifications retrospectively on previous years' data.

Source: 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 those living in Victoria (40 days) (Figure 3.16). Note that differences in form return and varied 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, 2019

Notes

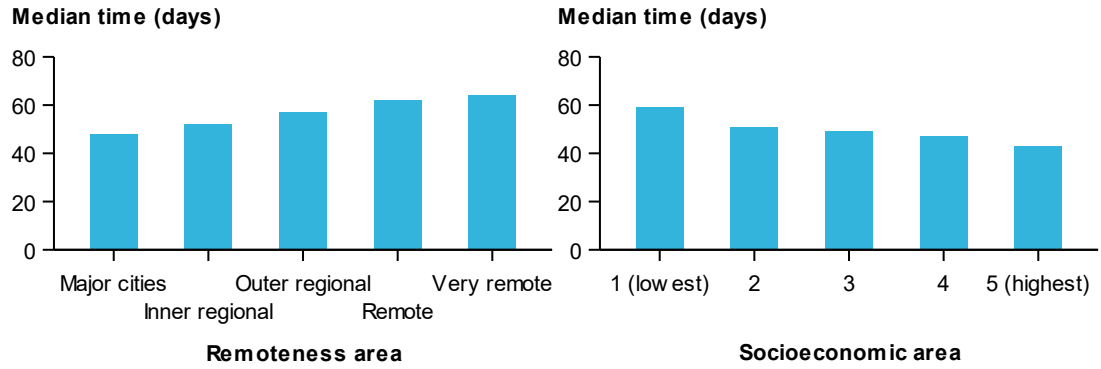
1. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: Table A3.20.

Remoteness area: The median time between a positive screen and assessment was highest for people living in *Very remote* areas (64 days) and lowest for those in *Major cities* (48 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 (59 days) and lowest for those in the highest socioeconomic areas (43 days) (Figure 3.17).

Figure 3.17: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by remoteness area and socioeconomic area, 2019



Notes

1. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 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.

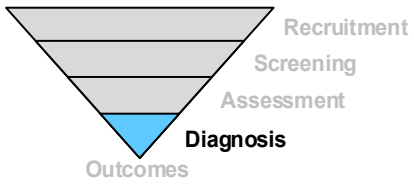
Source: Table A3.20.

Indigenous status: There was a longer median time between a positive screen and assessment for Indigenous Australians (62 days) than for non-Indigenous Australians (49 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 (51 and 49 days, respectively) (Table A3.21).

Disability status: Participants reporting severe or profound activity limitation had a longer median time between a positive screen and assessment (63 days) than other participants (including those who reported no limitation and those who did not respond) (49 days) (Table A3.21).

3.5 Diagnosis

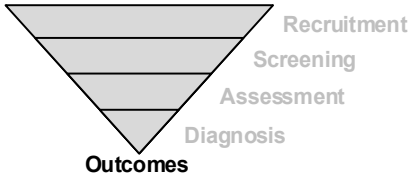


The diagnosis data available were not considered complete enough to allow formal reporting for the following performance indicators:

- 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, 2018b) 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 2019 and 31 December 2019** 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 program's performance.

Data quality: Complete data for this indicator require linkage with hospital data, which is not currently performed. However, the NCSR currently has non-mandatory information on adverse events for participants who had an assessment which 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 people 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: 0.5 per 10,000 assessments.

The following applies for the 56,890 people who had a diagnostic assessment in 2019:

Australia-wide: A total of 3 people were admitted to hospital within 30 days of assessment, giving an overall Australia-wide hospital admission rate after assessment of 0.5 per 10,000 assessments (Table A3.23). Reporting of adverse events after a NBCSP colonoscopy is not mandatory so this rate may be underestimated.

Due to concerns about the level of data completeness, no other disaggregations are 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 2021 and 31 December 2021** (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 requiring mandatory reporting of cancer (excluding basal cell and squamous cell carcinomas of the skin). The Australian Cancer Database (ACD) contains data on cancers diagnosed up to and including the year 2017—although the 2017 incidence counts for the Northern Territory are estimates as the actual data were not available.

Guide to interpretation: The latest estimated incidence results (for 2021) are given where possible. However, estimated 2021 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 2016 (the latest year of complete data for all states and territories) are used.

National bowel cancer incidence rate: 99 new cases per 100,000 people aged 50–74.

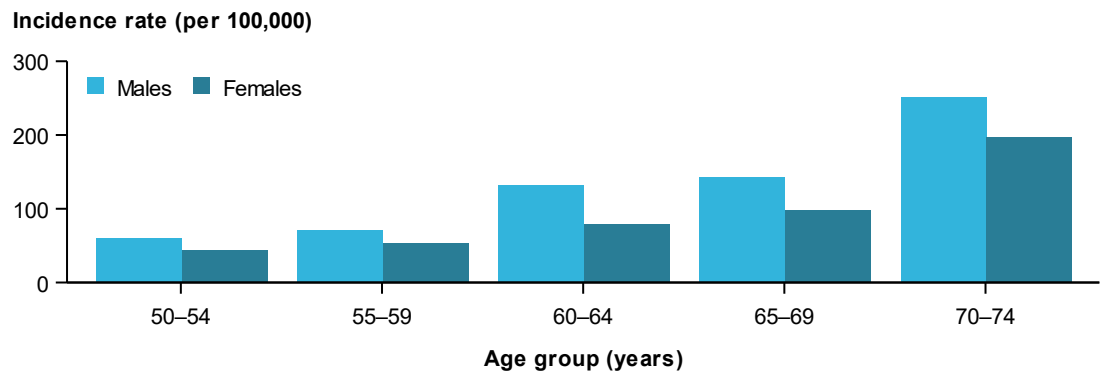
For 2021, the following estimates are made:

Australia-wide: A total of 7,365 people aged 50–74 will be diagnosed with bowel cancer, giving an ASR of 99 new cases per 100,000 people (Table A3.24).

Sex: Of people aged 50–74, men will be more likely to be diagnosed with bowel cancer than women (ASR of 116 new cases per 100,000 males compared with 83 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 52 new cases per 100,000 people aged 50–54 to 224 new cases per 100,000 people aged 70–74 (Figure 3.18).

Figure 3.18: Incidence rate of bowel cancer for people aged 50–74, by sex and age group, 2021



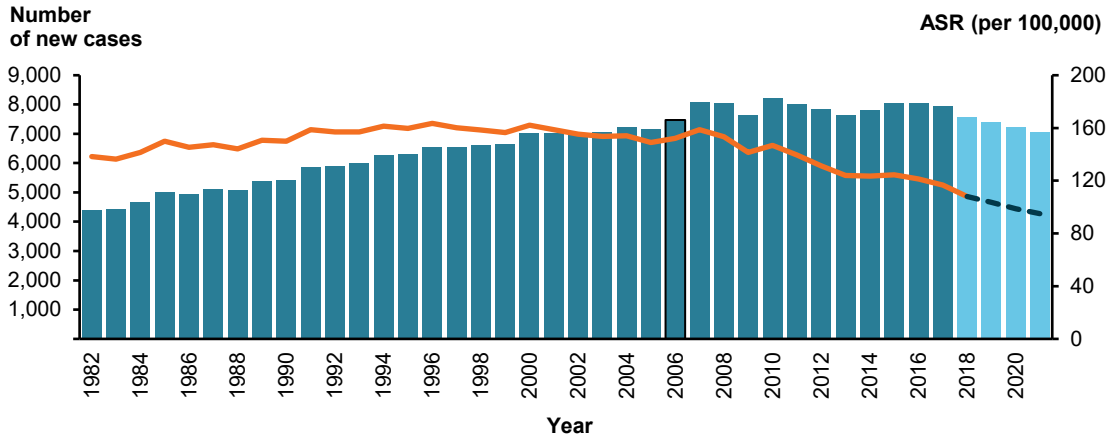
Notes

1. The 2021 estimates are based on 2008–2017 incidence data.
2. Age-specific rates are expressed per 100,000 people.
3. Bowel cancer includes ICD-10 codes C18–C20.

Source: Table A3.24.

Trend: Among people aged 50–74, the number of bowel cancer cases rose from 4,386 in 1982 to a peak of 8,211 in 2010. The number of cases has gradually declined since then, and is expected to decrease to an estimated 7,365 in 2021. The ASR for new cases (per 100,000) rose from 138 in 1982 to a peak of 164 in 1996, where it remained fairly steady until 2007 (Figure 3.19). Since 2007, the ASR for people aged 50–74 has fallen and is expected to reach an ASR of 99 (per 100,000) new cases in 2021. While the Australian population has increased and aged over time, the number of new bowel cancer cases and ASR of new cases are expected to continue to decline.

Figure 3.19: Trend in new cases of bowel cancer, people aged 50–74, Australia, 1982–2021



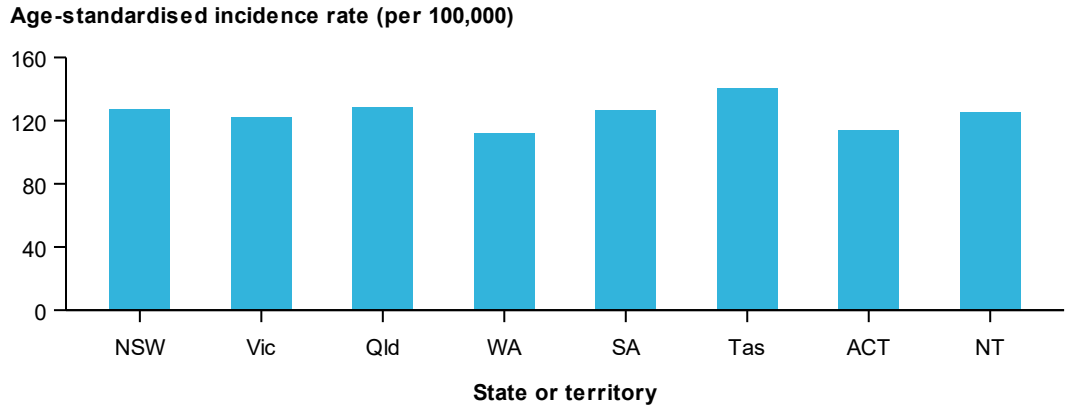
Notes

1. Estimated incidence data for 2018–2021 are based on 2008–2017 incidence data. Actual incidence data for 2018–2021 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 2016 for all states and territories; for 2017, it contains data for all jurisdictions except the Northern Territory for which incidence data have 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: Table A3.27.

State and territory: Between 2012 and 2016, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest in Tasmania (140 new cases of bowel cancer per 100,000 people) and lowest in Western Australia (112 new cases per 100,000 people) (Figure 3.20).

Figure 3.20: Incidence rate of bowel cancer for people aged 50–74, by state and territory, 2012–2016



Notes

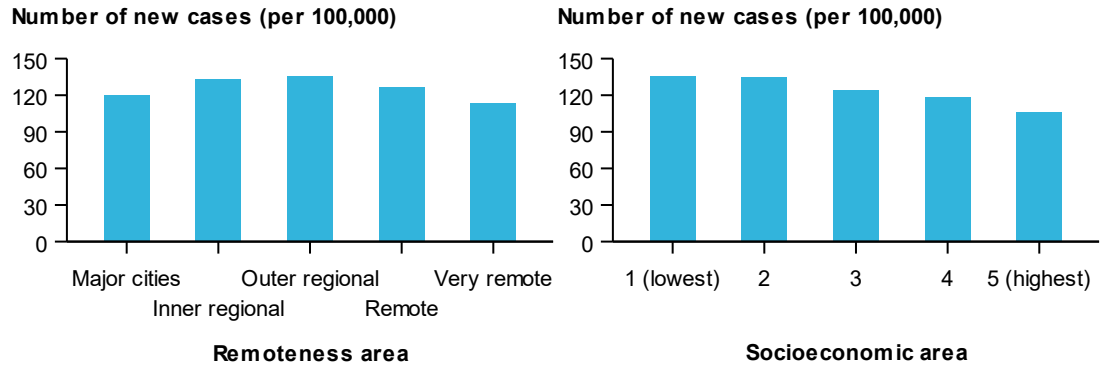
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.
3. Bowel cancer includes ICD-10 codes C18–C20.

Source: Table A3.25.

Remoteness area: In 2012–2016, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest for those living in *Outer regional* areas (136 new cases of bowel cancer per 100,000 people) and lowest for people living in *Very remote* areas (114 new cases per 100,000 people) (Figure 3.21).

Socioeconomic area: In 2012–2016, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest for those living in the lowest socioeconomic areas (136 new cases of bowel cancer per 100,000 people) and lowest for people living in the highest socioeconomic areas (106 new cases 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, 2012–2016



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).
3. Socioeconomic areas were classified using the ABS Index of Relative Socio-Economic Disadvantage (IRSD) (see Appendix E).
4. The number of people in different remoteness or socioeconomic areas may not sum to the total due to rounding.
5. Bowel cancer includes ICD-10 codes C18–C20.

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

While the majority (90%) of Australian Indigenous people live in these 5 jurisdictions, the degree to which data for these jurisdictions are representative of data for all Indigenous people is unknown (ABS 2017). For the 5 jurisdictions analysed, 4% (1,458 records) of the relevant ACD records had unknown Indigenous status for bowel cancer diagnoses in 2012–2016 for people aged 50–74 (Table A3.26).

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

Box 3.1: Indigenous Australians—incidence and mortality: populations and rates

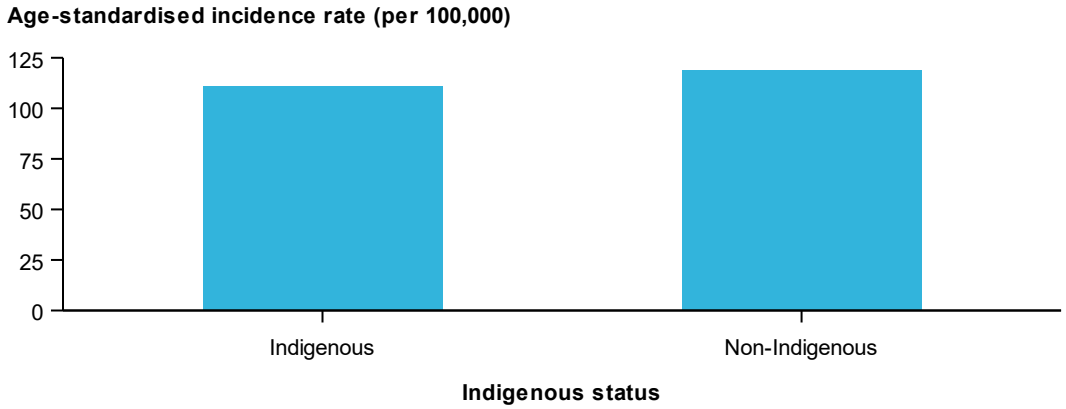
To derive bowel cancer incidence and mortality rates for Indigenous Australians, this report used Indigenous population estimates and projections based on the 2016 Census, which were the most recent estimates available when this report was prepared.

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

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

In the 5 jurisdictions analysed, Indigenous Australians aged 50–74 had a lower ASR for incidence of bowel cancer than non-Indigenous Australians in 2012–2016 (111 and 119 cases, respectively, per 100,000 people) (Figure 3.22).

Figure 3.22: Incidence rate of bowel cancer, by Indigenous status, 50–74 years, NSW, Vic, Qld, WA and NT, 2012–2016



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.
3. See Box 3.1 for information on rates calculated using the 2016 Census.

Source: 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 2021 and 31 December 2021** (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).

Monitoring Reports for the NBCSP from 2019 onwards use C18–C20, and C26.0 when reporting deaths from bowel cancer using the NMD. This approach differs from that used for versions of the report before 2019 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 2021) 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 2019 at the time this report was prepared).

National bowel cancer mortality rate: 26 deaths per 100,000 people aged 50–74.

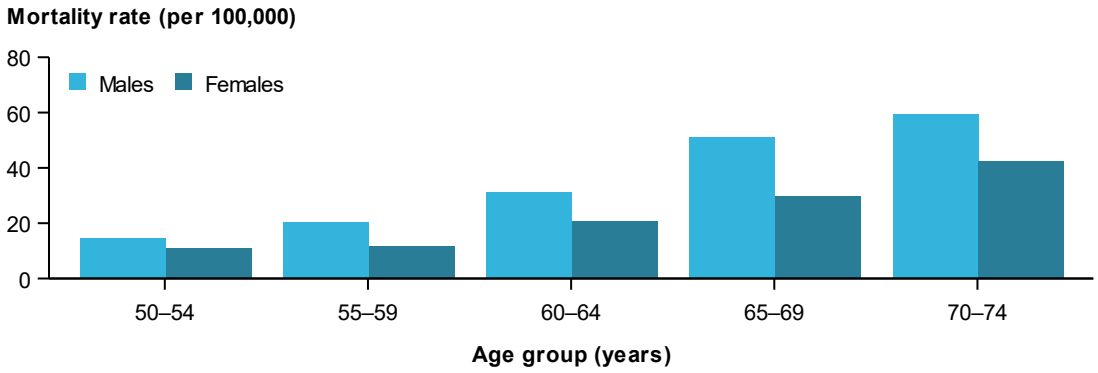
The following estimates are made for 2021:

Australia-wide: A total of 1,908 people aged 50–74 will die from bowel cancer, giving an ASR of 26 deaths per 100,000 people (Table A3.28).

Sex: Males aged 50–74 will be more likely to die from bowel cancer than females (ASR of 31 deaths per 100,000 males compared with 20 deaths per 100,000 females) (Figure 3.23).

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 per 100,000 people will rise from 13 deaths for those aged 50–54 to 51 deaths for those aged 70–74 (Figure 3.23).

Figure 3.23: Mortality rate from bowel cancer for people aged 50–74, by sex and age, 2021



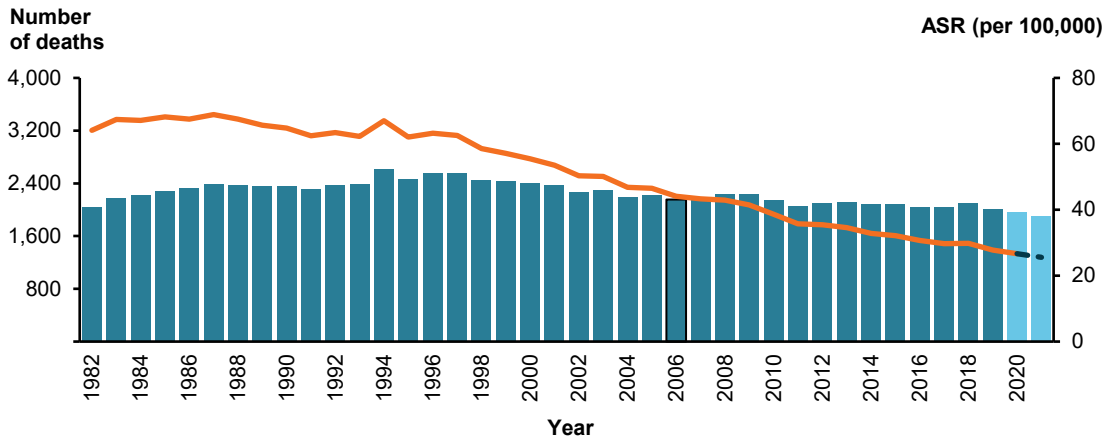
Notes

1. The 2021 estimates are based on 2010–2019 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: Table A3.28.

Trend: Between 1982 and 1987, the age-standardised mortality rate per 100,000 people aged 50–74 rose from 64 deaths to 69. Since 1987, the mortality rate from bowel cancer for those aged 50–74 has steadily fallen and is estimated to reach 26 deaths per 100,000 in 2021 (Figure 3.24). The number of deaths from bowel cancer peaked at 2,623 cases in 1994 and is expected to decrease to 1,908 in 2021. The overall effect of the increasing and ageing Australian population is that, while the age-standardised mortality rate has steadily fallen over time, the actual number of deaths has remained stable or slowly declined.

Figure 3.24: Trend in deaths from bowel cancer, people aged 50–74, Australia, 1982–2021



Notes

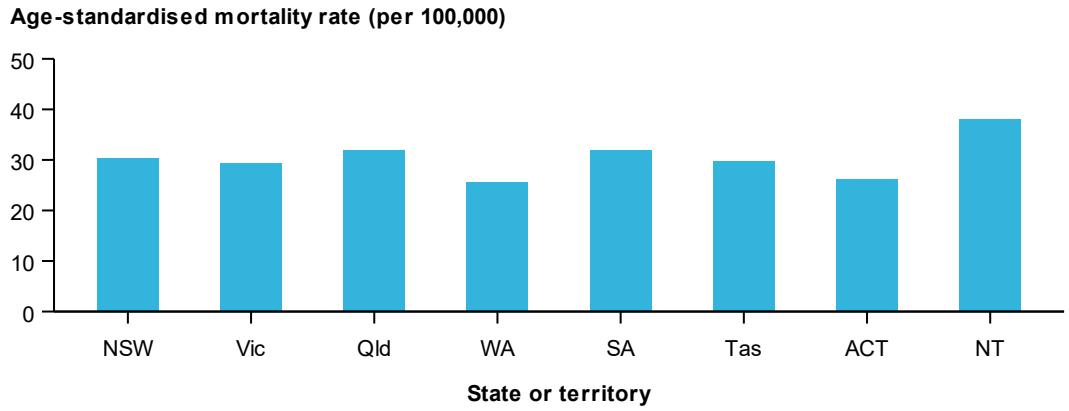
1. Estimated mortality data for 2020–2021 are based on 2010–2019 mortality data. Actual mortality data for 2020–2021 may differ from these estimated mortality data due to current and ongoing program or practice changes. See Appendix D for further information.
2. Deaths registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 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: Table A3.31.

The NBCSP started in 2006 and, from 2020, roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed. Once the program has been in place for a number of years, and actual mortality data are available for 2019 onwards, it will be easier to quantify the program's impact on bowel cancer mortality. However, studies conducted by the AIHW of people diagnosed with bowel cancer in 2006–2008 showed that NBCSP invitees (particularly those who participated) diagnosed with bowel cancer had less risk of dying from the disease 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, 2018b).

State and territory: In 2015–2019, the ASR per 100,000 people aged 50–74 was highest in the Northern Territory (38 deaths from bowel cancer) and lowest in Western Australia (26 deaths) (Figure 3.25).

Figure 3.25: Mortality rate from bowel cancer for people aged 50–74, by state and territory, 2015–2019



Notes

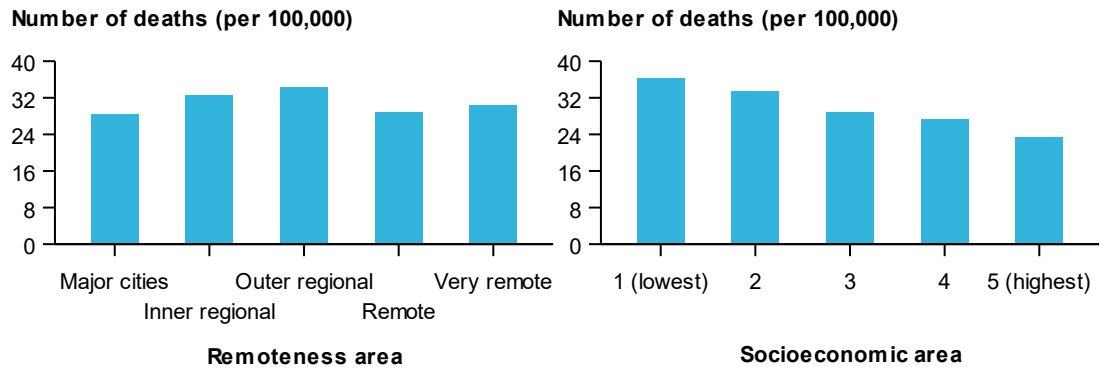
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

Source: Table A3.29.

Remoteness area: In 2015–2019, the ASR per 100,000 people aged 50–74 was highest for those living in *Outer Regional* areas (34 deaths from bowel cancer) and lowest for those living in *Major cities* (28 deaths) (Figure 3.26).

Socioeconomic area: In 2014–2018, the ASR per 100,000 people aged 50–74 was highest for those living in the lowest socioeconomic areas (36 deaths from bowel cancer) and lowest for those living in the highest socioeconomic areas (23 deaths) (Figure 3.26).

Figure 3.26: Mortality rate from bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2015–2019



Notes

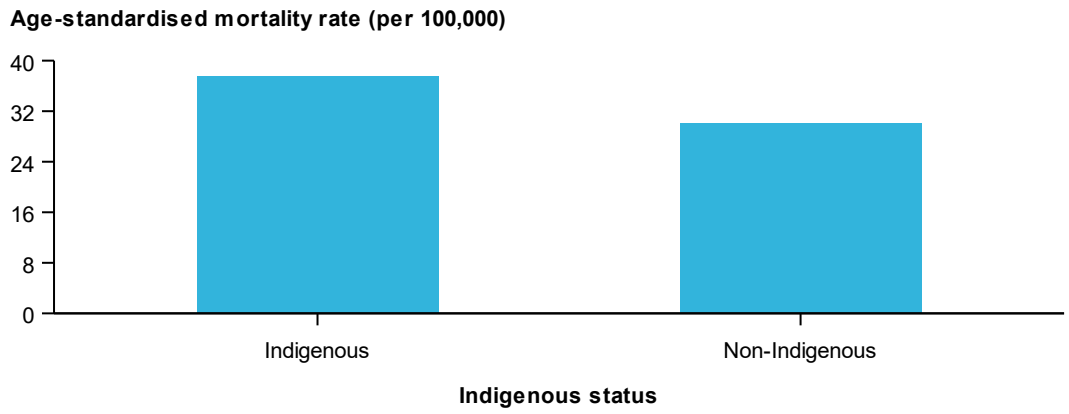
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 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: Table A3.29.

Indigenous Australians: Age-standardised mortality rates should be used to compare the mortality rate from bowel cancer between Indigenous and non-Indigenous Australians to account for the different age-structures between the two populations. Only mortality data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered adequate for reporting by Indigenous status. Other jurisdictions have a small number of Indigenous deaths, and identification of these in their death registration systems is relatively poor, making the data less reliable. Note that these jurisdictions differ from those used to calculate incidence for Indigenous and non-Indigenous Australians. See Box 3.1 for information on Indigenous rates calculated using Indigenous population estimates from the 2016 Census.

In these jurisdictions for the period 2015–2019, Indigenous Australians aged 50–74 had a higher ASR per 100,000 people than non-Indigenous Australians aged 50–74 (38 and 30 deaths, respectively, from bowel cancer) (Figure 3.27).

Figure 3.27: Mortality rate from bowel cancer, 50–74 years, by Indigenous status, NSW, Qld, WA, SA and NT, 2015–2019



Notes

1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. See Box 3.1 for information on rates calculated using the 2016 Census.

Source: 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 2019 are presented here for information, using the available data.

4.1 Bowel abnormality detection using available assessment and histopathology data

Of the 56,890 participants who had a diagnostic assessment, Australia-wide, in 2019:

- 204 (0.4%) had a bowel cancer detected and confirmed by histopathology
- 1,172 (2%) had a suspected bowel cancer still awaiting histopathological diagnosis
- 5,163 (9%) had an adenoma diagnosed by histopathology
- 38,429 (68%) had no adenoma or cancer recorded (includes those with no issue noted, other diagnoses, and those known to have had a colonoscopy only by a Medicare claim, with no outcome results available)
- 11,922 (21%) were still awaiting histopathology outcomes for a polyp biopsy sample (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 return rates of histopathology forms 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 large 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, those that screened 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 with the highest	Lowest socioeconomic areas	Highest socioeconomic areas
PI 1	Participation rate	Lower participation rate	40.5%	45.9%
PI 2	Screening positivity rate	Higher screening positivity rate	8%	6%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	53%	73%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	59 days	43 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	136 per 100,000	106 per 100,000
PI 11	Bowel cancer mortality rate	Higher age-standardised mortality rate	36 per 100,000	23 per 100,000

Notes

1. The participation indicator PI 1 is reported against the period 2018–2019 with follow-up to June 2020. The screening indicator PI 2 is reported against the period 2019. The assessment indicators PIs 3 and 4 are reported against the period 2019 with follow-up to 31 December 2020. Incidence (PI 10) is reported for 2012–2016. Mortality (PI 11) is reported for 2015–2019.
2. Indicators PI 3–9 rely on information being reported back to the NCSR. 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 (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.

Sources: AIHW ACD 2016; AIHW NMD; AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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 and a longer median time between a positive screen and an assessment.

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). The highest incidence and mortality rates were observed for Australians living in *Outer regional* areas.

Table 5.2: Summary of performance indicators for *Very remote* and *Major cities* 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	28.8%	42.9%
PI 2	Screening positivity rate	Higher screening positivity rate	8%	7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	41%	65%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	64 days	48 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	114 per 100,000	120 per 100,000
PI 11	Bowel cancer mortality rate	Higher age-standardised mortality rate	30 per 100,000	28 per 100,000

Notes

1. The participation indicator PI 1 is reported against the period 2018–2019 with follow-up to June 2020. The screening indicator PI 2 is reported against the period 2019. The assessment indicators PIs 3 and 4 are reported against the period 2019 with follow-up to 31 December 2020. Incidence (PI 10) is reported for 2012–2016. Mortality (PI 11) is reported for 2015–2019.
2. Indicators 3–9 rely on information being reported back to the NCSR. 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 (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.

Sources: AIHW ACD 2016; AIHW NMD; AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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 lower age-standardised bowel cancer incidence and higher 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, where access to relevant services can be an issue, may be contributing 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	27.3%	42.6%
PI 2	Screening positivity rate	Higher screening positivity rate	10%	7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	44%	62%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	62 days	49 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[(b)(c)]	Lower age-standardised incidence rate[(c)]	111 per 100,000	119 per 100,000
PI 11	Bowel cancer mortality rate[(c)(d)]	Higher age-standardised mortality rate	38 per 100,000	30 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) These rates were calculated using Indigenous population based on the 2016 Census and should not be compared with rates calculated using populations based on previous Censuses. See Box 3.1 for more information.

(d) 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 2018–2019 with follow-up to June 2020. The screening indicator PI 2 is reported against the period 2019. The assessment indicators PIs 3 and 4 are reported against the period 2019 with follow-up to 31 December 2020. Incidence is reported for 2012–2016. Mortality is reported for 2015–2019.
2. Indicators 3–9 rely on information being reported back to the NCSR. 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 (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.
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.
5. Bowel cancer incidence and mortality rates for Indigenous and Non-Indigenous populations are compared using age-standardised rates to account for the different age structures of these populations.

Sources: 2016 Census data; AIHW ACD 2016; AIHW NMD; AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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 experienced similar screening positivity rates yet had a lower follow-up diagnostic assessment rate and longer median time between a positive screen and an assessment (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	24.8–34.3%	45.4–49.2%
PI 2	Screening positivity rate	Higher screening positivity rate	6%	7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	54%	63%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	51 days	49 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[(b)]	Comparison not available	n.a.	n.a.
PI 11	Bowel cancer mortality rate[(b)]	Comparison not available	n.a.	n.a.

(a) Participation rates by language spoken at home were estimated using 2016 Census proportions (see Table A5.1 and Appendix F for more information).

(b) Data for this indicator are not available.

Notes

1. The participation indicator PI 1 is reported against the period 2018–2019 with follow-up to June 2020. The screening indicator PI 2 is reported against the period 2019. The assessment indicators PIs 3 and 4 are reported against the period 2019 with follow-up to 31 December 2020. Incidence and mortality data are not currently available for reporting by language spoken at home.
2. Indicators 3–9 rely on information being reported back to the NCSR. 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 (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.

Sources: 2016 Census data; AIHW ACD 2016; AIHW NMD; AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

5.5 Disability status

Australians with severe or profound disability participated at a lower rate than other participants (including those who reported no limitation and those who did not respond). They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate, a longer median time between a positive screen and an assessment (Table 5.5).

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

Indicator		Summary of performance indicators for those with severe or profound disability compared with those without severe or profound disability	Severe or profound activity limitation	Other [b]
PI 1	Participation rate[a]	Lower participation rate	n.p.	45.1%
PI 2	Screening positivity rate	Higher screening positivity rate	13%	7%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	42%	63%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	63 days	49 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[c]	Comparison not available	n.a.	n.a.
PI 11	Bowel cancer mortality rate[c]	Comparison not available	n.a.	n.a.

(a) Estimates of participation rates by disability status could not be reported in the current report due to changes in completeness of disability status information in the NCSR (see Appendix C for more information).

(b) Participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown

(c) Data for this indicator are not available.

Notes

1. The participation indicator PI 1 is reported against the period 2018–2019 with follow-up to June 2020. The screening indicator PI 2 is reported against the period 2019. The assessment indicators PIs 3 and 4 are reported against the period 2019 with follow-up to 31 December 2020. Incidence and mortality data are not currently available for reporting by disability status.
2. Indicators 3–9 rely on information being reported back to the NCSR. 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 (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.

Sources: 2016 Census data; AIHW ACD 2016; AIHW NMD; AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Appendix A: Data tables

Additional tables for Chapter 2

Table A2.1: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2013–2017

	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.	100.1	96.9
15–19	98.8	97.0	97.7
20–24	87.5	93.9	91.4
25–29	73.9	79.9	77.1
30–34	73.6	76.5	75.2
35–39	80.9	78.0	79.4
40–44	73.1	74.4	73.7
45–49	71.7	74.1	72.9
50–54	75.7	79.2	77.2
55–59	74.6	77.6	75.8
60–64	72.4	75.1	73.4
65–69	74.1	76.3	75.0
70–74	70.9	73.4	72.0
75–79	67.9	68.2	68.0
80–84	63.4	65.4	64.5
85+	53.2	56.5	55.1
50–74	*73.1*	*75.7*	*74.2*
All ages	**69.8**	**71.0**	**70.3**

Source: AIHW ACD 2017.

Table A2.2: Trend in 5-year relative survival form bowel cancer, people aged 50–74, Australia, 1988–1992 to 2013–2017

Year	5-year relative survival (%)
1988–1992	55.1
1993–1997	58.4
1998–2002	63.5
2003–2007	67.5
2008–2012	71.9
2013–2017	74.2

Source: AIHW ACD 2017.

Table A2.3: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, people aged 50–74, Australia, 2013–2017

	Relative survival	Conditional survival	
Years after diagnosis	Relative survival (%)	Years already survived	5-year conditional relative survival (%)
1	90.8	. .	. .
2	84.6	. .	. .
3	79.9	. .	. .
4	76.6	. .	. .
5	74.2	0	74.2
6	72.3	1	79.6
7	70.9	2	83.8
8	69.8	3	87.3
9	68.7	4	89.8
10	68.0	5	91.6
11	67.4	6	93.2
12	66.8	7	94.2
13	66.3	8	95.0
14	65.9	9	95.9
15	65.5	10	96.3
16	65.0	11	96.4
17	64.5	12	96.6
18	64.0	13	96.6
19	63.7	14	96.8
20	63.2	15	96.5

Source: AIHW ACD 2017.

Table A2.4: Change in fatal burden—years of life lost (YLL) from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011, 2015 and 2018

	Year			
Age group (years)	**2003**	**2011**	**2015**	**2018**
30–34	0.7	0.5	1.2	0.9
35–39	0.9	1.1	1.1	1.4
40–44	2.2	1.7	2.0	2.0
45–49	4.0	2.9	3.3	2.7
50–54	5.8	4.2	5.3	4.8
55–59	9.2	6.5	6.0	6.5
60–64	14.6	10.1	8.8	8.0
65–69	17.3	12.6	11.2	10.2
70–74	20.7	15.4	12.5	11.2
75–79	22.2	19.1	17.3	14.8
80–84	21.2	19.0	18.6	16.2
85–89	19.6	18.5	18.7	17.1
90–94	17.2	17.3	16.2	16.2
95–99	12.6	12.1	14.0	11.0
100+	4.8	8.0	9.5	9.0

Source: AIHW Australian Burden of Disease database.

Additional tables for Chapter 3

Recruitment

Table A3.1: Screening invitations including opt-out, deferred and skip-round status of people aged 50–74, by sex and age group, Australia, 2018–2019

Sex	Age (years)	Invitations issued to eligible population (N)	Persons deferred[a] (N)	Persons opted out [b] (N)	Persons skipped a round[c] (N)	Persons deferred, skipped and opted out (N)	Persons deferred, skipped and opted out (%)	Invitations (minus opted out and deferred) (N)
Males	50–54	749,903	1,415	2,454	9	3,878	0.5	746,025
	55–59	435,013	985	1,483	75	2,543	0.6	432,470
	60–64	737,834	2,496	3,811	22	6,329	0.9	731,505
	65–69	432,632	2,252	3,899	9	6,160	1.4	426,472
	70–74	523,751	3,079	5,906	33	9,018	1.7	514,733
	50–74	*2,879,133*	*10,227*	*17,553*	*148*	*27,928*	*1.0*	*2,851,205*
Females	50–54	755,587	1,945	3,095	26	5,066	0.7	750,521
	55–59	438,705	1,365	1,778	71	3,214	0.7	435,491
	60–64	754,588	3,288	4,288	28	7,604	1.0	746,984
	65–69	442,238	2,928	4,210	12	7,150	1.6	435,088
	70–74	535,030	3,640	6,415	20	10,075	1.9	524,955
	50–74	*2,926,148*	*13,166*	*19,786*	*157*	*33,109*	*1.1*	*2,893,039*
Persons	50–54	1,505,490	3,360	5,549	35	8,944	0.6	1,496,546
	55–59	873,718	2,350	3,261	146	5,757	0.7	867,961
	60–64	1,492,422	5,784	8,099	50	13,933	0.9	1,478,489
	65–69	874,870	5,180	8,109	21	13,310	1.5	861,560
	70–74	1,058,781	6,719	12,321	53	19,093	1.8	1,039,688
	50–74	**5,805,281**	**23,393**	**37,339**	**305**	**61,037**	**1.1**	**5,744,244**

(a) Invitees from the eligible population who would like to participate in the National Bowel Screening Program but have advised they are unable to do so at this time. These invitees will be contacted once the nominated deferral period has elapsed.

(b) Invitees from the eligible population who have advised 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.

(c) Invitees from the eligible population who have had a recent colonoscopy (in the last 2 years) are notified that they will skip a round of the NBCSP rather than being sent an iFOBT screening invitation (from November 2019).

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.2: Participation of people aged 50–74, by sex and age, Australia, 2018–2019

Sex	Age (years)	Returned completed screening test (N)	Invitations (minus opted out, skipped and deferred) (N)	Participation (%)
Males	50–54	234,040	746,025	31.4
	55–59	156,283	432,470	36.1
	60–64	307,145	731,505	42.0
	65–69	207,841	426,472	48.7
	70–74	273,020	514,733	53.0
	50–74	*1,178,329*	*2,851,205*	*41.3*
Females	50–54	266,677	750,521	35.5
	55–59	179,356	435,491	41.2
	60–64	353,461	746,984	47.3
	65–69	230,579	435,088	53.0
	70–74	288,915	524,955	55.0
	50–74	*1,318,988*	*2,893,039*	*45.6*
Persons	50–54	500,717	1,496,546	33.5
	55–59	335,639	867,961	38.7
	60–64	660,606	1,478,489	44.7
	65–69	438,420	861,560	50.9
	70–74	561,935	1,039,688	54.0
	50–74	**2,497,317**	**5,744,244**	**43.5**

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.3: Participation of people aged 50–74, by invitation round, previous participation and age group, Australia, 2018–2019

Invitation round	Age (years)	Returned completed screening test (N)	Invitations (minus opted out, skipped and deferred) (N)	Participation (%)
People who participated for the first time				
First invitation	50–54	213,023	654,611	32.5
	55–59	2,841	8,688	32.7
	60–64	6,270	16,808	37.3
	65–69	2,990	7,675	39.0
	70–74	2,444	6,370	38.4
	50–74	*227,568*	*694,152*	*32.8*
Subsequent invitation	50–54	112,656	596,379	18.9
	55–59	73,207	493,061	14.8
	60–64	113,632	730,983	15.5
	65–69	83,387	407,667	20.5
	70–74	79,825	434,764	18.4
	50–74	*462,707*	*2,662,854*	*17.4*
People who have previously participated				
People who have previously participated in any invitation round				
Subsequent invitation	50–54	175,038	245,556	71.3
	55–59	259,591	366,212	70.9
	60–64	540,704	730,698	74.0
	65–69	352,043	446,218	78.9
	70–74	479,666	598,554	80.1
	50–74	*1,807,042*	*2,387,238*	*75.7*
People who participated in their previous invitation round				
Subsequent invitation	50–54	174,976	245,417	71.3
	55–59	226,014	293,859	76.9
	60–64	471,856	583,847	80.8
	65–69	322,135	383,259	84.1
	70–74	439,154	517,375	84.9
	50–74	*1,634,135*	*2,023,757*	*80.7*

(continued)

Table A3.3 (continued): Participation of people aged 50–74, by invitation round, previous participation and age group, Australia, 2018–2019

Invitation round	Age (years)	Returned completed screening test (N)	Invitations (minus opted out, skipped and deferred) (N)	Participation (%)
Total				
First invitation	50–54	213,023	654,611	32.5
	55–59	2,841	8,688	32.7
	60–64	6,270	16,808	37.3
	65–69	2,990	7,675	39.0
	70–74	2,444	6,370	38.4
	50–74	*227,568*	*694,152*	*32.8*
Subsequent invitation	50–54	287,694	841,935	34.2
	55–59	332,798	859,273	38.7
	60–64	654,336	1,461,681	44.8
	65–69	435,430	853,885	51.0
	70–74	559,491	1,033,318	54.1
	50–74	*2,269,749*	*5,050,092*	*44.9*
All	50–54	500,717	1,496,546	33.5
	55–59	335,639	867,961	38.7
	60–64	660,606	1,478,489	44.7
	65–69	438,420	861,560	50.9
	70–74	561,935	1,039,688	54.0
	50–74	**2,497,317**	**5,744,244**	**43.5**

Notes

1. Subsequent invitation round includes second, third and subsequent invitation rounds.
2. Previous invitation round is the round immediately before the current invitation (usually two years prior).

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.4: Participation of people aged 50–74, by state and territory, remoteness area, and socioeconomic area, 2018–2019

Area		Returned completed screening test (N)	Invitations (minus opted out and deferred) (N)	Participation rate (%)
State and territory	NSW	751,564	1,854,482	40.5
	Vic	650,355	1,415,020	46.0
	Qld	486,750	1,169,918	41.6
	WA	274,614	598,835	45.9
	SA	210,716	431,266	48.9
	Tas	67,913	138,765	48.9
	ACT	41,786	91,438	45.7
	NT	13,619	44,520	30.6
Remoteness area[(a)]	Major cities	1,661,666	3,876,679	42.9
	Inner regional	544,590	1,175,419	46.3
	Outer regional	229,199	527,082	43.5
	Remote	23,533	61,185	38.5
	Very remote	8,540	29,684	28.8
	Unknown	29,788	74,195	40.1
Socioeconomic area[(a)]	1 (lowest)	469,154	1,158,363	40.5
	2	508,750	1,174,722	43.3
	3	470,429	1,091,712	43.1
	4	495,569	1,103,425	44.9
	5 (highest)	522,949	1,140,194	45.9
	Unknown	30,466	75,828	40.2
Total		**2,497,317**	**5,744,244**	**43.5**

(a) Total may not equal the sum of individual remoteness or socioeconomic areas due to rounding.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.5: Participation rate (%) of people aged 50–74, by sex and age, Australia, 2007–2008 to 2018–2019

Sex	Age group (years)	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
Males	50–54	31.3	34.1	32.2	29.9	28.0	26.9	26.5	26.4	26.2	28.0	29.8	31.4
	55–59	37.5	38.3	36.8	34.4	32.3	32.6	33.9	34.1	33.0	33.1	34.8	36.1
	60–64	. .	. .	. .	. .	. .	. .	40.6	40.2	40.1	40.6	41.0	42.0
	65–69	49.0	50.6	49.4	47.0	45.5	43.5	41.7	41.1	42.0	45.5	47.6	48.7
	70–74	. .	. .	. .	. .	. .	. .	. .	51.8	51.8	51.8	52.2	53.0
	50–74	*40.0*	*39.8*	*37.9*	*35.7*	*34.1*	*33.4*	*34.7*	*36.5*	*39.0*	*39.4*	*40.3*	*41.3*
Females	50–54	38.0	40.8	37.4	34.7	32.6	31.2	30.8	30.7	30.0	31.7	34.0	35.5
	55–59	47.1	47.6	44.7	41.9	39.4	38.9	39.7	39.5	38.0	37.8	39.9	41.2
	60–64	. .	. .	. .	. .	. .	. .	47.2	46.2	45.2	45.6	46.5	47.3
	65–69	56.2	57.6	55.4	52.9	51.4	49.2	46.8	45.8	46.4	49.3	51.6	53.0
	70–74	. .	. .	. .	. .	. .	. .	. .	53.1	53.2	53.4	54.1	55.0
	50–74	*48.2*	*47.5*	*44.2*	*41.6*	*39.9*	*38.7*	*40.1*	*41.3*	*42.9*	*43.2*	*44.5*	*45.6*
Persons	50–54	34.7	37.4	34.8	32.3	30.3	29.0	28.6	28.5	28.1	29.8	31.9	33.5
	55–59	42.2	42.9	40.7	38.1	35.8	35.8	36.8	36.8	35.5	35.5	37.3	38.7
	60–64	. .	. .	. .	. .	. .	. .	43.9	43.2	42.7	43.1	43.8	44.7
	65–69	52.6	54.1	52.3	49.9	48.4	46.3	44.2	43.5	44.2	47.4	49.6	50.9
	70–74	. .	. .	. .	. .	. .	. .	. .	52.5	52.5	52.6	53.1	54.0
	50–74	**44.0**	**43.6**	**41.0**	**38.6**	**37.0**	**36.1**	**37.4**	**38.9**	**40.9**	**41.3**	**42.4**	**43.5**

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

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Screening

Table A3.6: iFOBT positivity rate of people aged 50–74, by sex and age, 2019

Sex	Age at screen (years)	Positive result (N)	Valid screening test (N)	Screening positivity (%)
Males	50–54	8,772	132,833	6.6
	55–59	6,443	93,972	6.9
	60–64	11,994	154,354	7.8
	65–69	9,492	104,554	9.1
	70–74	13,460	135,526	9.9
	50–74	*50,161*	*621,239*	*8.1*
Females	50–54	7,403	149,839	4.9
	55–59	5,230	107,199	4.9
	60–64	9,553	176,108	5.4
	65–69	7,156	115,933	6.2
	70–74	10,314	143,735	7.2
	50–74	*39,656*	*692,814*	*5.7*
Persons	50–54	16,175	282,672	5.7
	55–59	11,673	201,171	5.8
	60–64	21,547	330,462	6.5
	65–69	16,648	220,487	7.6
	70–74	23,774	279,261	8.5
	50–74	**89,817**	**1,314,053**	**6.8**

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.7: iFOBT positivity rate of people aged 50–74, by screening round, Australia, 2019

Screen round	Positive result (N)	Valid screening test (N)	Screening positivity (%)
First	29,378	368,281	8.0
Subsequent (≤2 years)	32,540	519,584	6.3
Subsequent (>2 years)	27,899	426,188	6.5
All rounds	**89,817**	**1,314,053**	**6.8**

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.8: iFOBT positivity rate of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2019

Area		Positive result (N)	Valid screening test (N)	Screening positivity (%)
State and territory	NSW	26,687	389,549	6.9
	Vic	22,608	339,106	6.7
	Qld	18,096	258,492	7.0
	WA	10,031	149,126	6.7
	SA	7,964	113,685	7.0
	Tas	2,563	35,084	7.3
	ACT	1,304	21,870	6.0
	NT	564	7,141	7.9
Remoteness area[(a)]	Major cities	56,984	876,040	6.5
	Inner regional	20,721	284,163	7.3
	Outer regional	9,652	121,020	8.0
	Remote	1,050	12,594	8.3
	Very remote	381	4,513	8.4
	Unknown	1,029	15,723	6.5
Socioeconomic area[(a)]	1 (lowest)	19,658	244,144	8.1
	2	19,858	267,422	7.4
	3	17,281	247,766	7.0
	4	16,733	262,610	6.4
	5 (highest)	15,231	275,973	5.5
	Unknown	1,056	16,138	6.5
Total		**89,817**	**1,314,053**	**6.8**

(a) Total may not equal the sum of individual remoteness or socioeconomic areas due to rounding.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.9: iFOBT positivity rate of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2019

Population group		Positive result (N)	Valid screening test (N)	Screening positivity (%)
Indigenous status	Indigenous	1,185	12,214	9.7
	Non-Indigenous	83,440	1,245,454	6.7
	Not stated	5,192	56,385	9.2
Main language spoken at home	Language other than English	11,719	183,536	6.4
	English	78,098	1,130,517	6.9
Disability status	Severe or profound activity limitation	4,370	34,819	12.6
	Other [(a)]	85,447	1,279,234	6.7
Total		**89,817**	**1,314,053**	**6.8**

(a) Includes participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Assessment

Table A3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2019

Sex	Age at first positive screen (years)	Assessments (N)	Positive iFOBT result (N)	Diagnostic assessment rate (%)
Males	50–54	5,090	8,772	58.0
	55–59	3,721	6,443	57.8
	60–64	6,964	11,994	58.1
	65–69	5,605	9,492	59.0
	70–74	7,606	13,460	56.5
	50–74	*28,986*	*50,161*	*57.8*
Females	50–54	5,022	7,403	67.8
	55–59	3,572	5,230	68.3
	60–64	6,579	9,553	68.9
	65–69	4,852	7,156	67.8
	70–74	6,646	10,314	64.4
	50–74	*26,671*	*39,656*	*67.3*
Persons	50–54	10,112	16,175	62.5
	55–59	7,293	11,673	62.5
	60–64	13,543	21,547	62.9
	65–69	10,457	16,648	62.8
	70–74	14,252	23,774	59.9
	50–74	**55,657**	**89,817**	**62.0**

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 differ across indicators.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.11: Diagnostic assessments (colonoscopy) performed for people aged 50–74, by health-care provider, Australia, 2019

Health-care provider	Assessments (N)	Proportion of assessments (%)
Public	7,695	13.8
Private	38,592	69.3
Not stated	9,370	16.8
Total	**55,657**	**100.0**

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2019

Area		Assessments (N)	Positive iFOBT result (N)	Diagnostic assessment rate (%)
State and territory	NSW	14,707	26,687	55.1
	Vic	13,955	22,608	61.7
	Qld	13,061	18,096	72.2
	WA	5,873	10,031	58.5
	SA	5,003	7,964	62.8
	Tas	1,866	2,563	72.8
	ACT	995	1,304	76.3
	NT	197	564	34.9
Remoteness area	Major cities	37,053	56,984	65.0
	Inner regional	11,948	20,721	57.7
	Outer regional	5,395	9,652	55.9
	Remote	508	1,050	48.4
	Very remote	154	381	40.5
	Unknown	599	1,029	58.2
Socioeconomic area	1 (lowest)	10,387	19,658	52.8
	2	11,238	19,858	56.6
	3	10,905	17,281	63.1
	4	11,371	16,733	68.0
	5 (highest)	11,139	15,231	73.1
	Unknown	617	1,056	58.4
Total		**55,657**	**89,817**	**62.0**

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 differ across indicators.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2019

Population group		Assessments (N)	Positive iFOBT result (N)	Diagnostic assessment rate (%)
Indigenous status	Indigenous	516	1,185	43.5
	Non-Indigenous	52,084	83,440	62.4
	Not stated	3,057	5,192	58.9
Main language spoken at home	Language other than English	6,367	11,719	54.3
	English	49,290	78,098	63.1
Disability status	Severe or profound activity limitation	1,828	4,370	41.8
	Other [(a)]	53,829	85,447	63.0
Total		**55,657**	**89,817**	**62.0**

(a) Includes participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown.

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 differ across indicators.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.14: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2007–2019

Sex	Age at first positive screen (years)	Diagnostic assessment rate (%)												
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Males	50–54	. .	75.5	76.4	76.8	74.7	74.2	71.8	73.4	71.4	69.2	67.7	66.8	58.0
	55–59	77.7	77.6	75.4	77.4	77.1	74.2	74.0	71.8	71.0	69.0	65.6	66.8	57.8
	60–64	. .	. .	. .	. .	. .	. .	74.5	72.8	70.5	68.8	66.4	65.6	58.1
	65–69	75.9	76.5	77.0	77.8	78.3	75.0	74.4	73.7	70.2	68.2	65.5	64.7	59.0
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.4	65.5	64.9	63.8	56.5
	50–74	*76.7*	*76.7*	*76.3*	*77.4*	*76.9*	*74.6*	*73.7*	*73.0*	*70.0*	*67.4*	*65.8*	*65.1*	*57.8*
Females	50–54	. .	77.4	76.2	78.4	77.9	75.5	74.2	73.6	73.6	69.5	69.1	67.8	67.8
	55–59	78.0	79.2	79.8	77.6	77.5	75.8	74.9	73.1	72.6	70.7	69.2	68.6	68.3
	60–64	. .	. .	. .	. .	. .	. .	75.9	74.1	72.8	70.3	67.4	65.8	68.9
	65–69	77.1	77.7	75.2	78.6	78.8	76.4	74.6	74.6	71.5	69.8	67.0	66.0	67.8
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.7	67.1	65.7	64.4	64.4
	50–74	*77.5*	*78.2*	*76.9*	*78.2*	*78.1*	*76.0*	*74.7*	*73.9*	*71.4*	*69.0*	*67.3*	*66.0*	*67.3*
Persons	50–54	. .	76.4	76.3	77.6	76.3	74.8	73.1	73.5	72.5	69.4	68.4	67.3	62.5
	55–59	77.9	78.4	77.6	77.5	77.3	75.0	74.5	72.5	71.8	69.9	67.3	67.6	62.5
	60–64	. .	. .	. .	. .	. .	. .	75.2	73.4	71.6	69.5	66.9	65.7	62.9
	65–69	76.4	77.0	76.2	78.2	78.5	75.7	74.5	74.1	70.8	69.0	66.2	65.2	62.8
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.5	66.2	65.3	64.0	59.9
	50–74	**77.1**	**77.4**	**76.6**	**77.8**	**77.5**	**75.3**	**74.2**	**73.4**	**70.6**	**68.2**	**66.5**	**65.5**	**62.0**

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 differ across indicators.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.15: Time between positive screen and diagnostic assessment of people aged 50–74, by sex and age, Australia, 2019

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	3,682	42.0	1,252	14.3	3,088	35.2	4,410	50.3	4,781	54.5	5,017	57.2	73	0.8	8,772
	55–59	2,722	42.2	937	14.5	2,295	35.6	3,222	50.0	3,468	53.8	3,681	57.1	40	0.6	6,443
	60–64	5,030	41.9	1,719	14.3	4,240	35.4	6,059	50.5	6,539	54.5	6,876	57.3	88	0.7	11,994
	65–69	3,887	41.0	1,428	15.0	3,407	35.9	4,874	51.3	5,262	55.4	5,538	58.3	67	0.7	9,492
	70–74	5,854	43.5	1,967	14.6	4,746	35.3	6,748	50.1	7,218	53.6	7,525	55.9	81	0.6	13,460
	50–74	*21,175*	*42.2*	*7,303*	*14.6*	*17,776*	*35.4*	*25,313*	*50.5*	*27,268*	*54.4*	*28,637*	*57.1*	*349*	*0.7*	*50,161*
Females	50–54	2,381	32.2	1,233	16.7	2,978	40.2	4,232	57.2	4,644	62.7	4,943	66.8	79	1.1	7,403
	55–59	1,658	31.7	879	16.8	2,081	39.8	3,042	58.2	3,304	63.2	3,515	67.2	57	1.1	5,230
	60–64	2,974	31.1	1,645	17.2	3,904	40.9	5,599	58.6	6,088	63.7	6,462	67.6	117	1.2	9,553
	65–69	2,304	32.2	1,250	17.5	2,970	41.5	4,147	58.0	4,525	63.2	4,773	66.7	79	1.1	7,156
	70–74	3,668	35.6	1,628	15.8	3,968	38.5	5,710	55.4	6,220	60.3	6,549	63.5	97	0.9	10,314
	50–74	*12,985*	*32.7*	*6,635*	*16.7*	*15,901*	*40.1*	*22,730*	*57.3*	*24,781*	*62.5*	*26,242*	*66.2*	*429*	*1.1*	*39,656*
Persons	50–54	6,063	37.5	2,485	15.4	6,066	37.5	8,642	53.4	9,425	58.3	9,960	61.6	152	0.9	16,175
	55–59	4,380	37.5	1,816	15.6	4,376	37.5	6,264	53.7	6,772	58.0	7,196	61.6	97	0.8	11,673
	60–64	8,004	37.1	3,364	15.6	8,144	37.8	11,658	54.1	12,627	58.6	13,338	61.9	205	1.0	21,547
	65–69	6,191	37.2	2,678	16.1	6,377	38.3	9,021	54.2	9,787	58.8	10,311	61.9	146	0.9	16,648
	70–74	9,522	40.1	3,595	15.1	8,714	36.7	12,458	52.4	13,438	56.5	14,074	59.2	178	0.7	23,774
	50–74	**34,160**	**38.0**	**13,938**	**15.5**	**33,677**	**37.5**	**48,043**	**53.5**	**52,049**	**58.0**	**54,879**	**61.1**	**778**	**0.9**	**89,817**

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

		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	11,980	44.9	3,298	12.4	8,353	31.3	12,253	45.9	13,431	50.3	14,397	53.9	310	1.2	26,687
	Vic	8,653	38.3	4,890	21.6	9,997	44.2	12,634	55.9	13,297	58.8	13,813	61.1	142	0.6	22,608
	Qld	5,035	27.8	2,773	15.3	7,314	40.4	11,164	61.7	12,268	67.8	12,906	71.3	155	0.9	18,096
	WA	4,158	41.5	1,657	16.5	4,086	40.7	5,369	53.5	5,625	56.1	5,814	58.0	59	0.6	10,031
	SA	2,961	37.2	840	10.5	2,520	31.6	4,162	52.3	4,630	58.1	4,930	61.9	73	0.9	7,964
	Tas	697	27.2	294	11.5	867	33.8	1,491	58.2	1,701	66.4	1,845	72.0	21	0.8	2,563
	ACT	309	23.7	144	11.0	430	33.0	803	61.6	918	70.4	985	75.5	10	0.8	1,304
	NT	367	65.1	42	7.4	110	19.5	167	29.6	179	31.7	189	33.5	8	1.4	564
Remoteness area[(a)]	Major cities	20,111	35.0	10,431	18.2	23,216	40.4	32,269	56.2	34,962	60.8	36,805	64.0	547	1.0	57,463
	Inner regional	8,837	42.6	2,508	12.1	7,041	34.0	10,326	49.8	11,155	53.8	11,762	56.7	138	0.7	20,737
	Outer regional	4,069	43.6	767	8.2	2,798	30.0	4,474	48.0	4,864	52.2	5,182	55.6	71	0.8	9,322
	Remote	497	54.7	56	6.2	198	21.8	340	37.4	384	42.2	405	44.6	7	0.8	909
	Very remote	216	60.5	28	7.8	66	18.5	121	33.9	131	36.7	140	39.2	1	n.p.	357
	Unknown	430	41.8	148	14.4	358	34.8	513	49.9	553	53.7	585	56.9	14	1.4	1,029
Socioeconomic area	1 (lowest)	9,271	47.2	1,742	8.9	5,343	27.2	8,555	43.5	9,536	48.5	10,240	52.1	147	0.7	19,658
	2	8,620	43.4	2,458	12.4	6,681	33.6	9,652	48.6	10,470	52.7	11,086	55.8	152	0.8	19,858
	3	6,376	36.9	2,853	16.5	6,692	38.7	9,459	54.7	10,243	59.3	10,759	62.3	146	0.8	17,281
	4	5,362	32.0	3,127	18.7	7,184	42.9	9,991	59.7	10,736	64.2	11,216	67.0	155	0.9	16,733
	5 (highest)	4,092	26.9	3,604	23.7	7,409	48.6	9,858	64.7	10,494	68.9	10,976	72.1	163	1.1	15,231
	Unknown	439	41.6	154	14.6	368	34.8	528	50.0	570	54.0	602	57.0	15	1.4	1,056
Total		**34,160**	**38.0**	**13,938**	**15.5**	**33,677**	**37.5**	**48,043**	**53.5**	**52,049**	**58.0**	**54,879**	**61.1**	**778**	**0.9**	**89,817**

(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 NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

	No diagnostic assessment		≤30 days		≤60 days		≤120 days		≤180 days		≤360 days		>360 days		All
Population group	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Indigenous status															
Indigenous	669	56.5	76	6.4	252	21.3	420	35.4	474	40.0	510	43.0	6	0.5	1,185
Non-Indigenous	31,356	37.6	13,248	15.9	31,898	38.2	45,234	54.2	48,917	58.6	51,380	61.6	704	0.8	83,440
Not stated	2,135	41.1	614	11.8	1,527	29.4	2,389	46.0	2,658	51.2	2,989	57.6	68	1.3	5,192
Language spoken at home															
Language other than English	5,352	45.7	1,616	13.8	3,680	31.4	5,235	44.7	5,799	49.5	6,250	53.3	117	1.0	11,719
English	28,808	36.9	12,322	15.8	29,997	38.4	42,808	54.8	46,250	59.2	48,629	62.3	661	0.8	78,098
Disability status															
Severe or profound activity limitation	2,542	58.2	294	6.7	865	19.8	1,428	32.7	1,632	37.3	1,784	40.8	44	1.0	4,370
Other [(a)]	31,618	37.0	13,644	16.0	32,812	38.4	46,615	54.6	50,417	59.0	53,095	62.1	734	0.9	85,447
Total	**34,160**	**38.0**	**13,938**	**15.5**	**33,677**	**37.5**	**48,043**	**53.5**	**52,049**	**58.0**	**54,879**	**61.1**	**778**	**0.9**	**89,817**

(a) Includes participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown.

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

Sex	Age at first positive screen (years)	Median	90th percentile
Males	50–54	50	140
	55–59	49	143
	60–64	49	138
	65–69	49	139
	70–74	48	130
	50–74	*49*	*137*
Females	50–54	50	157
	55–59	51	151
	60–64	50	153
	65–69	49	145
	70–74	50	146
	50–74	*50*	*151*
Persons	50–54	50	149
	55–59	50	147
	60–64	49	146
	65–69	49	143
	70–74	49	137
	50–74	**49**	**144**

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

Health-care provider	Median	90th percentile
Public	69	152
Private	45	135
Not stated	54	162
Total	**49**	**144**

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

Area		Median	90th percentile
State and territory	NSW	53	167
	Vic	40	117
	Qld	54	144
	WA	45	112
	SA	60	153
	Tas	64	173
	ACT	67	158
	NT	54	161
Remoteness area[(a)]	Major cities	48	144
	Inner regional	52	141
	Outer regional	57	153
	Remote	62	161
	Very remote	64	135
	Unknown	49	162
Socioeconomic area	1 (lowest)	59	162
	2	51	146
	3	49	142
	4	47	133
	5 (highest)	43	132
	Unknown	49	160
Total		**49**	**144**

(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 NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

Population group		Median	90th percentile
Indigenous status	Indigenous	62	157
	Non-Indigenous	49	139
	Not stated	61	211
Main language spoken at home	Language other than English	51	168
	English	49	140
Disability status	Severe or profound activity limitation	63	187
	Other[(a)]	49	142
Total		**49**	**144**

(a) Includes participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown.

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.22: Time between positive screen and diagnostic assessment of people aged 50–74, median (in days), by sex and age, Australia, 2007–2019

Sex	Age at first positive screen (years)	Median days												
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Males	50–54	. .	58	63	62	58	58	59	60	57	55	55	53	50
	55–59	56	55	58	60	57	57	56	56	56	57	55	54	49
	60–64	. .	. .	. .	. .	. .	. .	58	56	55	56	53	52	49
	65–69	54	52	59	56	55	52	51	55	53	55	53	51	49
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	54	53	53	51	48
	50–74	*55*	*54*	*60*	*58*	*56*	*55*	*55*	*56*	*55*	*55*	*53*	*52*	*49*
Females	50–54	. .	53	60	60	59	56	55	55	55	55	51	52	50
	55–59	54	55	57	56	54	54	54	56	53	52	53	49	51
	60–64	. .	. .	. .	. .	. .	. .	57	52	52	53	51	50	50
	65–69	52	51	54	54	51	52	48	52	51	53	50	49	49
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	51	53	51	50	50
	50–74	*53*	*53*	*56*	*57*	*54*	*54*	*52*	*53*	*52*	*53*	*51*	*50*	*50*
Persons	50–54	. .	56	61	61	58	57	57	56	56	55	53	52	50
	55–59	56	55	57	58	56	56	55	56	55	55	54	53	50
	60–64	. .	. .	. .	. .	. .	. .	58	54	53	55	52	51	50
	65–69	53	51	56	55	53	52	50	54	53	54	51	50	49
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	53	53	52	50	49
	50–74	**54**	**53**	**58**	**57**	**55**	**55**	**53**	**55**	**53**	**54**	**52**	**51**	**49**

Note: This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

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, 2019

Sex	Age group at assessment (years)	Hospital admissions (N)	Assessments (N)	Hospital admission rate (per 10,000 assessments)
Males	50–54	—	4,868	—
	55–59	—	3,768	—
	60–64	—	7,173	—
	65–69	1	6,001	n.p.
	70–74	2	8,060	n.p.
	50–74	*3*	*29,870*	*1*
Females	50–54	—	4,734	—
	55–59	—	3,565	—
	60–64	—	6,712	—
	65–69	—	5,164	—
	70–74	—	6,845	—
	50–74	—	*27,020*	—
Persons	50–54	—	9,602	—
	55–59	—	7,333	—
	60–64	—	13,885	—
	65–69	1	11,165	n.p.
	70–74	2	14,905	n.p.
	50–74	**3**	**56,890**	**0.5**

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 differs from the diagnostic assessment rate, which is calculated based on the screening test date. Therefore, assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A3.24: Incidence of bowel cancer, by sex and age group, Australia, 2021

	Male		Female		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	2	n.p.	2	n.p.	5	n.p.
10–14	11	1.3	21	2.6	32	1.9
15–19	23	2.9	35	4.6	57	3.7
20–24	28	3.0	53	6.0	81	4.5
25–29	61	6.1	79	8.1	141	7.1
30–34	139	14.3	145	14.5	284	14.4
35–39	137	14.7	141	14.8	279	14.7
40–44	195	23.7	189	22.6	385	23.1
45–49	299	36.7	302	36.2	601	36.4
50–54	474	60.8	360	43.9	835	52.1
55–59	534	71.2	423	54.0	957	62.4
60–64	932	131.9	594	79.6	1,526	105.0
65–69	878	143.2	647	98.9	1,525	120.3
70–74	1,381	251.6	1,141	197.1	2,522	223.6
75–79	1,263	326.7	1,050	250.8	2,313	287.2
80–84	1,026	416.1	997	338.1	2,023	373.6
85+	864	418.7	1,113	344.9	1,978	373.7
Ages 50–74 crude rate	*4,199*	*123.5*	*3,166*	*88.3*	*7,365*	*105.5*
Ages 50–74 ASR	*4,199*	*116.3*	*3,166*	*83.2*	*7,365*	*99.3*
All ages ASR	**8,248**	**55.7**	**7,293**	**44.2**	**15,541**	**49.7**

Notes

1. The 2021 estimates are based on 2008–2017 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people. The ASRs for ages 50–74 and all ages were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
3. The number of people in each age group may not sum to total due to rounding.

Source: AIHW ACD 2017.

Table A3.25: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic area, people aged 50–74 years, Australia, 2012–2016

Area		Number	ASR
State and territory	NSW	13,084	126.9
	Vic	9,478	122.0
	Qld	8,093	128.7
	WA	3,533	112.1
	SA	3,153	126.8
	Tas	1,175	140.2
	ACT	511	114.0
	NT	282	125.5
Remoteness area	Major cities	24,833	119.7
	Inner regional	9,237	133.2
	Outer regional	4,398	135.7
	Remote	515	126.3
	Very remote	215	113.6
	Unknown	112	. .
Socioeconomic area	1 (lowest)	8,853	135.7
	2	9,011	134.8
	3	7,953	124.5
	4	6,923	118.3
	5 (highest)	6,449	106.0
	Unknown	122	. .
Total		**39,311**	**124.7**

Notes

1. 'State or territory' refers to the state or territory of usual residence.
2. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).
4. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
5. The number of people in different remoteness or socioeconomic areas may not sum to total due to rounding.

Source: AIHW ACD 2017.

Table A3.26: Incidence of bowel cancer, by Indigenous status, NSW, Vic, Qld, WA and NT, 50–74 years, 2012–2016

Indigenous status	Number	ASR	Crude
Indigenous	447	111.2	95.6
Non-Indigenous	32,565	119.2	122.0
Not stated	1,458	. .	. .
Total	**34,470**	**124.3**	**127.0**

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

Source: AIHW ACD 2017.

Table A3.27: Incidence of bowel cancer, by sex, people aged 50–74, Australia, 1982–2021

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
1982	2,396	160.0	1,990	119.5	4,386	138.2
1983	2,473	160.9	1,941	114.8	4,414	136.3
1984	2,608	166.2	2,058	119.2	4,666	141.5
1985	2,811	176.3	2,192	126.6	5,003	150.0
1986	2,773	169.9	2,175	123.5	4,948	145.3
1987	2,872	173.8	2,218	123.5	5,090	147.3
1988	2,916	173.0	2,158	117.9	5,074	144.2
1989	3,111	181.5	2,257	122.7	5,368	150.6
1990	3,103	178.2	2,302	123.6	5,405	149.8
1991	3,426	193.0	2,418	126.9	5,844	158.7
1992	3,339	184.1	2,534	132.0	5,873	157.1
1993	3,475	188.1	2,504	128.3	5,979	157.0
1994	3,643	192.4	2,637	132.6	6,280	161.5
1995	3,726	193.8	2,577	127.3	6,303	159.6
1996	3,921	201.4	2,621	127.9	6,542	163.5
1997	3,936	197.1	2,610	125.1	6,546	160.2
1998	3,889	190.6	2,714	127.9	6,603	158.4
1999	3,928	188.4	2,721	125.8	6,649	156.4
2000	4,220	198.1	2,800	127.4	7,020	162.1
2001	4,174	191.7	2,847	127.0	7,021	158.8
2002	4,210	189.1	2,800	122.5	7,010	155.3
2003	4,192	184.8	2,870	123.4	7,062	153.6
2004	4,339	187.5	2,881	121.6	7,220	154.1
2005	4,296	181.3	2,851	117.4	7,147	148.9
2006	4,430	183.3	3,042	122.2	7,472	152.2
2007	4,760	189.8	3,303	128.6	8,063	158.7
2008	4,796	185.3	3,235	122.2	8,031	153.3
2009	4,541	170.1	3,089	113.4	7,630	141.4
2010	4,919	177.5	3,292	116.8	8,211	146.8
2011	4,719	165.6	3,297	114.0	8,016	139.6
2012	4,611	156.4	3,210	106.5	7,821	131.2
2013	4,467	146.7	3,147	101.7	7,614	123.9
2014	4,621	147.9	3,177	99.6	7,798	123.4
2015	4,723	148.2	3,317	101.3	8,040	124.4
2016	4,727	144.9	3,311	98.5	8,038	121.3
2017	4,612	138.0	3,331	96.3	7,943	116.7
2018	4,490	131.0	3,261	91.6	7,752	110.9
2019	4,408	126.1	3,241	88.8	7,648	107.0
2020	4,332	121.2	3,227	86.0	7,559	103.1
2021	4,199	116.3	3,166	83.2	7,365	99.3

Notes

1. The 2018–2021 estimates are based on 2008–2017 incidence data. The 2017 counts includes estimates for the Northern Territory. See Appendix D for further information.
2. ASRs are expressed as the number per 100,000 people.

Source: AIHW ACD 2017.

Table A3.28: Mortality from bowel cancer, by sex and age, Australia, 2021

	Males		Females		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	—	—	—	—	—	—
10–14	—	—	—	—	—	—
15–19	1	n.p.	—	—	1	n.p.
20–24	1	n.p.	1	n.p.	1	n.p.
25–29	6	0.6	9	0.9	15	0.8
30–34	31	3.2	20	2.0	51	2.6
35–39	30	3.2	22	2.3	52	2.7
40–44	36	4.4	34	4.0	70	4.2
45–49	61	7.5	55	6.6	116	7.1
50–54	114	14.6	90	10.9	204	12.7
55–59	155	20.6	91	11.7	246	16.0
60–64	221	31.3	154	20.7	375	25.8
65–69	314	51.2	195	29.8	509	40.2
70–74	327	59.6	246	42.5	573	50.8
75–79	413	106.8	322	76.9	735	91.3
80–84	456	185.1	368	124.8	824	152.3
85+	671	325.1	852	263.9	1,523	287.7
Ages 50–74 crude	*1,131*	*33.3*	*777*	*21.7*	*1,908*	*27.3*
Ages 50–74 ASR	*1,131*	*31.1*	*777*	*20.3*	*1,908*	*25.6*
All ages ASR	**2,836**	**19.0**	**2,459**	**13.6**	**5,296**	**16.1**

Notes

1. The 2021 estimates are based on 2010–2019 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people. The ASRs for ages 50–74 and all ages were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
3. The number of people in each age group may not sum to total due to rounding.

Source: AIHW NMD.

Table A3.29: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, 50–74 years, Australia, 2015–2019

Area		Number	ASR
State or territory	NSW	3,369	30.3
	Vic	2,502	29.3
	Qld	2,203	31.9
	WA	872	25.6
	SA	845	31.9
	Tas	270	29.8
	ACT	130	26.3
	NT	90	38.0
Remoteness area	Major cities	6,392	28.4
	Inner regional	2,472	32.6
	Outer regional	1,201	34.3
	Remote	124	28.8
	Very remote	59	30.4
	Unknown	32	. .
Socioeconomic group	1 (lowest)	2,536	36.3
	2	2,411	33.4
	3	2,016	28.8
	4	1,745	27.2
	5 (highest)	1,540	23.3
	Unknown	32	. .
Total		**10,281**	**30.0**

Notes

1. 'State or territory' refers to the state or territory of usual residence.
2. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).
4. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
5. Deaths registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
6. The number of people in different remoteness or socioeconomic areas may not sum to total due to rounding.

Source: AIHW NMD.

Table A3.30: Mortality from bowel cancer, by Indigenous status, NSW, Qld, WA, SA and NT, people aged 50–74, 2015–2019

Indigenous status	Number	ASR	Crude
Indigenous	174	37.5	33.2
Non-Indigenous	7,172	30.1	31.7
Not stated[(a)]	33	. .	. .
Total	**7,379**	**30.3**	**31.8**

(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 registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 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, 1984–2021

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
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	1,288	45.1	772	26.6	2,060	35.7
2012	1,289	43.9	813	27.2	2,102	35.4
2013	1,317	43.6	802	25.8	2,119	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	1,228	37.4	819	24.2	2,047	30.7
2017	1,228	36.5	809	23.3	2,037	29.7
2018	1,278	36.9	821	23.1	2,099	29.9
2019	1,227	34.6	783	21.2	2,010	27.8
2020	1,174	32.6	794	21.1	1,967	26.7
2021	1,131	31.1	777	20.3	1,908	25.6

Notes

1. The 2020–2021 estimates are based on 2010–2019 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 registered in 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
4. Values prior to 1984 are presented in our online data table, available on the AIHW website.

Source: AIHW NMD.

Additional tables for Chapter 4

Table A4.1: Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2019

Sex	Age group at assessment (years)		Assessments	Available assessment results						
				No issue noted[a]	Biopsy awaiting histopathology[b]	Other histopathology diagnosis[c]	Confirmed non-advanced adenoma[d]	Confirmed advanced adenoma[d]	Suspected cancer[e]	Confirmed cancer[f]
Males	50–54	N	4,868	2,969	1,201	83	275	233	91	16
		%		61.0	24.7	1.7	5.6	4.8	1.9	0.3
	55–59	N	3,768	2,357	862	57	208	194	77	13
		%		62.6	22.9	1.5	5.5	5.1	2.0	0.3
	60–64	N	7,173	4,359	1,755	97	377	381	175	29
		%		60.8	24.5	1.4	5.3	5.3	2.4	0.4
	65–69	N	6,001	3,661	1,376	75	341	338	191	19
		%		61.0	22.9	1.2	5.7	5.6	3.2	0.3
	70–74	N	8,060	4,934	1,909	109	468	416	190	34
		%		61.2	23.7	1.4	5.8	5.2	2.4	0.4
	50–74	N	*29,870*	*18,280*	*7,103*	*421*	*1,669*	*1,562*	*724*	*111*
		%		*61.2*	*23.8*	*1.4*	*5.6*	*5.2*	*2.4*	*0.4*
Females	50–54	N	4,734	3,490	797	71	150	150	61	15
		%		73.7	16.8	1.5	3.2	3.2	1.3	0.3
	55–59	N	3,565	2,594	630	49	107	110	60	15
		%		72.8	17.7	1.4	3.0	3.1	1.7	0.4
	60–64	N	6,712	4,827	1,159	121	250	236	105	14
		%		71.9	17.3	1.8	3.7	3.5	1.6	0.2
	65–69	N	5,164	3,647	953	73	202	179	94	16
		%		70.6	18.5	1.4	3.9	3.5	1.8	0.3
	70–74	N	6,845	4,761	1,280	95	299	249	128	33
		%		69.6	18.7	1.4	4.4	3.6	1.9	0.5
	50–74	N	*27,020*	*19,319*	*4,819*	*409*	*1,008*	*924*	*448*	*93*
		%		*71.5*	*17.8*	*1.5*	*3.7*	*3.4*	*1.7*	*0.3*

(continued)

Table A4.1 (continued): Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2019

Sex	Age group at assessment (years)		Assessments	Available assessment results						
				No issue noted[a]	Biopsy awaiting histopathology[b]	Other histopathology diagnosis[c]	Confirmed non-advanced adenoma[d]	Confirmed advanced adenoma[d]	Suspected cancer[e]	Confirmed cancer[f]
Persons	50–54	N	9,602	6,459	1,998	154	425	383	152	31
		%		67.3	20.8	1.6	4.4	4.0	1.6	0.3
	55–59	N	7,333	4,951	1,492	106	315	304	137	28
		%		67.5	20.3	1.4	4.3	4.1	1.9	0.4
	60–64	N	13,885	9,186	2,914	218	627	617	280	43
		%		66.2	21.0	1.6	4.5	4.4	2.0	0.3
	65–69	N	11,165	7,308	2,329	148	543	517	285	35
		%		65.5	20.9	1.3	4.9	4.6	2.6	0.3
	70–74	N	14,905	9,695	3,189	204	767	665	318	67
		%		65.0	21.4	1.4	5.1	4.5	2.1	0.4
	50–74	**N**	**56,890**	**37,599**	**11,922**	**830**	**2,677**	**2,486**	**1,172**	**204**
		%		**66.1**	**21.0**	**1.5**	**4.7**	**4.4**	**2.1**	**0.4**

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 25,643 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

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

(c) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, hyperplastic polyps.

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

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

(f) Cancer confirmed by histopathology.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Table A4.2: Available assessment outcomes of people aged 50–74, by state and territory, Australia, assessed in 2019

State		Assessments	Available assessment results						
			No issue noted[a]	Biopsy awaiting histopathology[b]	Other histopathology diagnosis[c]	Confirmed non-advanced adenoma[d]	Confirmed advanced adenoma[d]	Suspected cancer[e]	Confirmed cancer[f]
NSW	N	14,928	11,382	2,049	196	518	533	209	41
	%		76.2	13.7	1.3	3.5	3.6	1.4	0.3
Vic	N	14,409	9,664	3,100	202	592	487	319	45
	%		67.1	21.5	1.4	4.1	3.4	2.2	0.3
Qld	N	13,329	7,200	3,509	266	1,015	952	309	78
	%		54.0	26.3	2.0	7.6	7.1	2.3	0.6
WA	N	6,032	3,787	1,840	40	117	89	153	6
	%		62.8	30.5	0.7	1.9	1.5	2.5	0.1
SA	N	5,061	3,548	953	58	201	179	108	14
	%		70.1	18.8	1.1	4.0	3.5	2.1	0.3
Tas	N	1,992	1,388	225	44	130	144	48	13
	%		69.7	11.3	2.2	6.5	7.2	2.4	0.7
ACT	N	924	473	201	23	98	99	23	7
	%		51.2	21.8	2.5	10.6	10.7	2.5	0.8
NT	N	215	157	45	1	6	3	3	. .
	%		73.0	20.9	n.p.	2.8	n.p.	n.p.	. .
Australia	**N**	**56,890**	**37,599**	**11,922**	**830**	**2,677**	**2,486**	**1,172**	**204**
	%		**66.1**	**21.0**	**1.5**	**4.7**	**4.4**	**2.1**	**0.4**

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 25,643 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

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

(c) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, hyperplastic polyps.

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

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

(f) Cancer confirmed by histopathology.

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

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Additional tables for Chapter 5

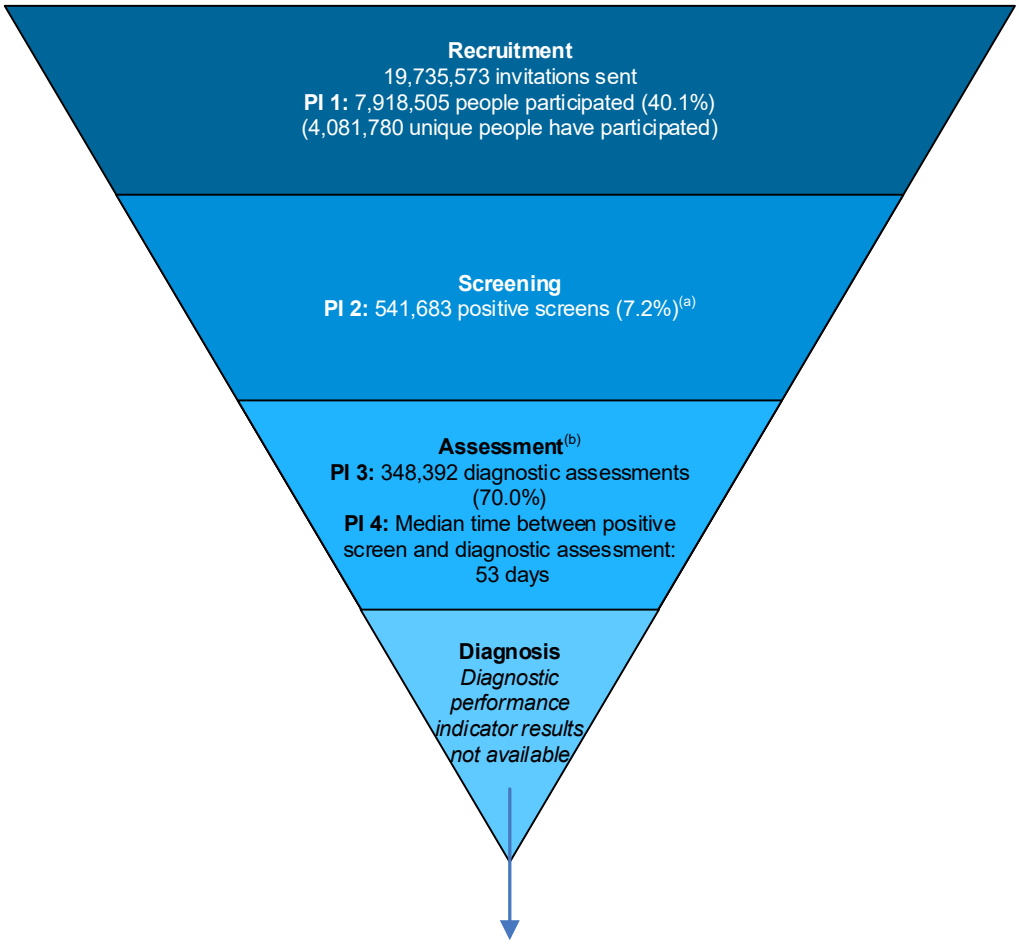
Table A5.1: Estimated participation rate for people aged 50–74, by language spoken at home, sex and age group, 2017–2018

Sex	Age group (years)	Estimated participation rate ranges (%)		Total participation rate (%)
		Language other than English	English	
Males	50–54	16.3–22.2	33.5–36.5	31.4
	55–59	21.2–29.7	37.4–40.7	36.1
	60–64	25.3–36.2	43.1–46.8	42.0
	65–69	27.6–40.4	50.2–54.5	48.7
	70–74	30.9–46.1	54.2–59.2	53.0
	50–74	*23.3–33.1*	*42.9–46.7*	*41.3*
Females	50–54	19.6–25.2	38.1–41.0	35.5
	55–59	25.4–33.6	42.9–46.2	41.2
	60–64	29.3–39.3	49.0–52.9	47.3
	65–69	30.8–43.2	54.9–59.4	53.0
	70–74	29.6–43.0	57.2–62.3	55.0
	50–74	*26.3–35.3*	*47.8–51.6*	*45.6*
Persons	50–54	17.9–23.8	35.8–38.7	33.5
	55–59	23.3–31.7	40.1–43.4	38.7
	60–64	27.3–37.8	46.1–49.9	44.7
	65–69	29.2–41.9	52.5–56.9	50.9
	70–74	30.2–44.5	55.7–60.8	54.0
	50–74	**24.8–34.3**	**45.4–49.2**	**43.5**

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021) 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 2020



***Assessment details*(c)**

No issue, or other diagnosis	192,888	(55.4%)
Polyp awaiting histopathology	91,369	(26.2%)
Non-advanced adenomas	25,902	(7.4%)
Advanced adenomas	25,971	(7.5%)
Suspected cancer	8,993	(2.6%)
Confirmed cancer	2,365	(0.7%)

(a) Based on the 7,494,793 participants who returned a valid iFOBT.

(b) Information on colonoscopies known through MBS claim only prior to 2018 is not included; PI 3 and PI 4 may be underreported.

(c) Based on available data. 'No issue, or other diagnosis' also includes 67,553 assessments with no record of outcome.

Notes

1. PI 1: 'people participated' counts the people who participated over the time the NBCSP has been operating. It is not a unique count of people, and people who participated multiple times over several years were counted more than once. 'Unique people participated' counts each unique person who has participated in the program at least once.
2. Assessment and diagnosis (PIs 3–9) rely on information being reported back to the NCSR. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 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 4 for more details.

Source: AIHW analysis of NCSR as at 31 December 2020 (NCSR RDE 23/2/2021).

Appendix C: National Bowel Cancer Screening Program information

Target population

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

From 2020, roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed; eligible Australians will be sent an iFOBT screening kit and invited to screen every 2 years between their 50th and 74th birthdays. 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 2016) onwards, monitoring reports differ from those released earlier. For a full summary of changes to the performance indicators, reporting period, and structure of the report since 2016, please see *National Bowel Cancer Screening Program: monitoring report 2019* (AIHW 2019b). This section includes only the major changes since the 2019 monitoring report.

Changes to the data custodian

In November 2019, the NBCSP Register data were transitioned from the NBCSP Register, maintained by Services Australia (formerly the Department of Human Services, or the DHS), to the National Cancer Screening Register (NCSR), maintained by Telstra Health. This is the first NBCSP monitoring report to use data extracted from the NCSR. The NCSR is a live database which is updated over time and later reports using this data may have a greater level of completeness.

Preliminary NBCSP participation data for 2018–2019 were published in December 2020. These preliminary data have been updated in this release. This has resulted in a small change in some results. For improved accuracy, we have reported participation data to one decimal place in this release.

As the reference periods for the performance indicators in this report include 1 January 2018 to 31 December 2020, this report uses data collected for the NBCSP Register (January 2018 to November 2019) as well as data collected for the NCSR (November 2019 to December 2020).

This report also summarises trends from 2007–08 to 2019–20 in program participation (PI 1), diagnostic assessment rate (PI 3), and time between positive screen and diagnostic assessment (PI 4). Data for these trends use data collected for the NBCSP Register as well as data collected for the NCSR.

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 than others and therefore for different cohorts. Where possible, indicator reporting periods in this report include the time frame 1 January 2019 to 31 December 2019.

Changes to reporting on disability status

Previous reports have categorised disability status as one of three categories: people with a severe or profound activity limitation; people with no severe or profound activity limitation; not stated (people who did not report their disability status).

Due to changes in data completeness, this report categorises disability status as one of two categories: people with a severe or profound activity limitation, and other (including those who reported no severe or profound activity limitation, those who did not report their disability status, and those whose disability status is unknown).

Estimated incidence and mortality numbers

This report includes 2021 estimates for bowel cancer incidence and mortality rather than actual numbers, which are not yet available for 2021. Estimates for 2021 provide data relevant to the timing of this report. The latest actual (non-estimated) incidence and mortality data are used to produce statistics by state and territory, remoteness and socioeconomic areas, and by Indigenous status, as 2021 estimates for these disaggregations are not yet available.

Changes to incidence and mortality populations and rates for Indigenous Australians

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

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

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

Changes to coding bowel cancer mortality

The Australian Institute of Health and Welfare (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 (ABS 2016). 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, monitoring reports from 2019 onwards use C18–C20, and also include C26.0 when reporting deaths from bowel cancer using the NMD. This differs from versions of this report prior to 2020 (which did not include C26.0) 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.

Australian Burden of Disease Study

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

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

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

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

Australian Cancer Database

All forms of cancer, except basal and squamous cell carcinomas of the skin, are notifiable diseases in each Australian state and territory. Legislation in each jurisdiction requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry. An agreed subset of the data collected by these registries is supplied annually to the AIHW, where it is compiled into the Australian Cancer Database (ACD). The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2016 for all states and territories; for 2017, it contains data for all jurisdictions except the Northern Territory.

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 2018–2021 estimates for incidence (plus 2017 estimates for the Northern Territory) used a method described in the technical notes of *Cancer data in Australia* (AIHW 2020).

The Data Quality Statement for the 2017 ACD can be found on the AIHW website at https://meteor.aihw.gov.au/content/index.phtml/itemId/743570.

National Bowel Cancer Screening Program

This report uses National Cancer Screening Register (NCSR) data (raw data extract as at 23 February 2021) to present statistics on the progression of eligible participants along the screening pathway for those invited into the National Bowel Cancer Screening Program (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.

From mid-November 2019, the NBCSP Register data were transitioned from the Department of Health Services (DHS) to the NCSR. Following the transition, the NCSR is now the sole source of NBCSP data in Australia.

The Data Quality Statement for the NBCSP can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/741979.

National Death Index

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

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

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

National Mortality Database

The AIHW NMD contains information supplied by the registrars of Births, Deaths and Marriages and the National Coronial Information System—and coded by the ABS—for deaths from 1964 to 2019. Registration of deaths is the responsibility of the Registry of Births, Deaths and Marriages in each state and territory. These data are then collated and coded by the ABS and maintained at the AIHW in the NMD.

In the NMD, both the year in which the death occurred and the year in which it was registered are provided. For the purposes of this report, actual mortality data are shown based on the year the death occurred, except for the most recent year (2019), 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 2016 and earlier are based on the final version of cause of death data; deaths registered in 2017 are based on the revised version; and deaths registered in 2018 and 2019 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

The 2020–2021 estimates for mortality were based on the 2010–2019 NMD and used a method as described in the technical notes of *Cancer data in Australia* (AIHW 2020).

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

- ABS quality declaration summary for Deaths, Australia https://www.abs.gov.au/methodologies/deaths-australia-methodology/2019
- ABS quality declaration summary for Causes of death, Australia https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2019

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

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 (and in monitoring reports from 2019 onwards).

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 them as follows:

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

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

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

Appendix E: Classifications

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 a separate classification for cancers 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 that 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.

Index of Relative Socio-economic Disadvantage

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

In this report, the first socioeconomic area corresponds to geographical areas containing the 20% of the population with the greatest socioeconomic disadvantage according to the IRSD, and the fifth area corresponds to the 20% of the population with the least socioeconomic disadvantage. Caution should always be used when analysing the results of data that have been converted using correspondences, with the potential limitations of the data taken into account.

Socioeconomic areas for screening data

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

Socioeconomic areas for incidence and mortality

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

International Statistical Classification of Diseases and Related Health Problems

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

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

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

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

Remoteness Areas

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

Remoteness Area for screening data

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

Remoteness Area for incidence and mortality

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

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

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 sent out to members of each of these population groups (the denominator) as well as the number of people in each 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 43.5% of people who participated, not for all invitees. As a result, it is not possible to accurately determine 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 2018–2019 NBCSP participation data and the 2016 Census data (8.7% 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 2017–2018 participation rate for Indigenous Australians aged 50–74 was estimated to be 27.3%; this compares with an estimated participation rate for non-Indigenous Australians of 42.6%, and an estimated participation rate among those who did not state their Indigenous status of 60.7% (giving the overall rate of 43.5% 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

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 this question (Table F2). This is equal to the ‘not stated’ option for those who participate and choose not to provide population group information.

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 the ‘not stated’ percentage data from the Census (used for the denominator).

To resolve this issue, a participation range method was 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 5.4).

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

		%		
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 this question (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 5.5).

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

		%	
Sex	**Age group (years)**	**Has need for assistance with core activities**	**Other [(a)]**
Males	50–54	3.77	96.23
	55–59	4.69	95.31
	60–64	6.41	93.59
	65–69	8.24	91.76
	70–74	10.51	89.50
	50–74	*6.29*	*93.71*
Females	50–54	4.14	95.86
	55–59	5.16	94.84
	60–64	6.50	93.50
	65–69	7.46	92.54
	70–74	10.47	89.53
	50–74	*6.37*	*93.63*
Persons	50–54	3.96	96.04
	55–59	4.93	95.07
	60–64	6.45	93.55
	65–69	7.84	92.16
	70–74	10.49	89.51
	50–74	**6.33**	**93.67**

(a) Participants who reported no severe or profound activity limitation, who did not report their disability status, or whose disability status is unknown.

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
AIHW	Australian Institute of Health and Welfare
ASGS	Australian Statistical Geography Standard
ASR	age-standardised rate
DALY	disability-adjusted life year
DHS	Department of Human Services
ICD	International Classification of Diseases and Related Health Problems
ICD-O	International Classification of Diseases for Oncology
iFOBT	immunochemical faecal occult blood test
IRSD	Index of Relative Socio-economic Disadvantage
LOTE	language other than English
NBCSP	National Bowel Cancer Screening Program
NCSR	National Cancer Screening Register
NMD	National Mortality Database
NSW	New South Wales
NT	Northern Territory
PHCP	primary health-care practitioner (general practitioner or other primary health-care provider)
PI	performance indicator
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
>	greater 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

Note: Terms in bold within definitions are defined elsewhere in the glossary.

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

adenocarcinoma: A **cancer** that began in a glandular epithelial cell (see **epithelium**).

adenoma (adenomatous polyp): A **benign** tumour that arises from epithelial cells (see **epithelium**). All adenomas have **malignant** potential. Adenomas in the rectum or colon have a higher chance of developing into **cancer** (see **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-standardised rate: A rate derived by removing the influence of age when comparing populations with different age structures. This is usually necessary as the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure, which allows disease rates to be compared.

asymptomatic: Describes being 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: A cancer definition that comprises both **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 and begin to multiply out of control. These cells can invade and damage the area around them and can also spread to other parts of the body through the blood and lymph systems 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.

conditional relative survival: The probability of surviving a given number of years, provided that an individual has already survived a specified amount of time after diagnosis (usually 5 or 10 years). Compare with **relative survival**.

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 procedure.

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. Compare with **opt out**.

disability-adjusted life year (DALY): A year of healthy life lost, either through premature death or equivalently through living with disability due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

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**, 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 **iFOBTs** 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**.

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

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 National Bowel Cancer Screening Program 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 **Immunochemical Faecal Occult Blood Tests (iFOBTs)**, 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).

incidence: The number of new cases (of an illness or event, and so on) occurring during a given period, usually 1 year. Compare with **prevalence**.

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

interval cancer: A bowel cancer that is diagnosed after completion of a negative screening episode and before the next screening examination or within 24 months of a negative screening episode, whichever comes first.

invitee: A person 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 lymphatic fluid 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.

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

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

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. Most polyps are **benign**. **Adenomatous polyps** are more likely to become **malignant** than other types of polyps.

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

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 total number of people alive at a specific date who have been diagnosed with a particular disease (such as cancer) within a defined time period.

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.

relative survival: A measure of the average survival experience of a population of people diagnosed with cancer, relative to the ‘average’ Australian of the same sex and age, at a specified interval after diagnosis (usually 5 or 10 years). A 5-year relative survival figure of 100% means that the cancer has no impact on the person’s chance of still being alive 5 years after diagnosis, whereas a figure of 50% means that the cancer has halved that chance.

screening: Repeated testing, at regular intervals, of **asymptomatic** 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.

Skipping a round: As of November 2019, people who are potentially eligible for the National Bowel Cancer Screening Program but who have had a recent colonoscopy (within the last 2 years) are notified that they will skip a round of the **Immunochemical Faecal Occult Blood Test (iFOBT)**, rather than being invited to participate**.**

stage: The extent of a cancer in the body. 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 (**metastasised)**.

symptom: Any evidence of disease apparent to the patient. For the purposes of this report, symptoms can include visible rectal bleeding, change in bowel habit, bowel obstruction or anaemia.

target population: People who are actively targeted by the National Bowel Cancer Screening Program. This includes people 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.

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

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.

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

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

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List of tables

Table 1: Summary of NBCSP performance indicators[(a)], Australia vi

Table 1.1: Registry-defined Australian stages of bowel cancer, 2011 2

Table 2.1: Prevalence of bowel cancer, by age group and sex, Australia, end of 2016 10

Table 2.2: Bowel cancer burden attributed to selected risk factors (DALY and proportion), 2018 12

Table 5.1: Summary of performance indicators for lowest and highest socioeconomic groups . 45

Table 5.2: Summary of performance indicators for *Very remote* and *Major cities* areas 46

Table 5.3: Summary of performance indicators for Indigenous and non-Indigenous Australians 47

Table 5.4: Summary of performance indicators for English speakers and those who spoke a language other than English (LOTE) at home 48

Table 5.5: Summary of performance indicators for those with severe or profound activity limitation and those with no severe or profound activity limitation 49

Table A2.1: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2013–2017 50

Table A2.2: Trend in 5-year relative survival form bowel cancer, people aged 50–74, Australia, 1988–1992 to 2013–2017 50

Table A2.3: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, people aged 50–74, Australia, 2013–2017 51

Table A2.4: Change in fatal burden—years of life lost (YLL) from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011, 2015 and 2018 52

Table A3.1: Screening invitations including opt-out, deferred and skip-round status of people aged 50–74, by sex and age group, Australia, 2018–2019 53

Table A3.2: Participation of people aged 50–74, by sex and age, Australia, 2018–2019 54

Table A3.3: Participation of people aged 50–74, by invitation round, previous participation and age group, Australia, 2018–2019 55

Table A3.4: Participation of people aged 50–74, by state and territory, remoteness area, and socioeconomic area, 2018–2019 57

Table A3.5: Participation rate (%) of people aged 50–74, by sex and age, Australia, 2007–2008 to 2018–2019 58

Table A3.6: iFOBT positivity rate of people aged 50–74, by sex and age, 2019 59

Table A3.7: iFOBT positivity rate of people aged 50–74, by screening round, Australia, 2019.. 59

Table A3.8: iFOBT positivity rate of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2019 60

Table A3.9: iFOBT positivity rate of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2019 60

Table A3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2019 61

Table A3.11: Diagnostic assessments (colonoscopy) performed for people aged 50–74, by health-care provider, Australia, 2019 61

Table A3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2019 62

Table A3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2019 63

Table A3.14: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2007–2019 64

Table A3.15: Time between positive screen and diagnostic assessment of people aged 50–74, by sex and age, Australia, 2019 65

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, 2019 66

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, 2019 67

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, 2019 68

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, 2019 68

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, 2019 69

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, 2019 70

Table A3.22: Time between positive screen and diagnostic assessment of people aged 50–74, median (in days), by sex and age, Australia, 2007–2019 71

Table A3.23: Hospital admissions within 30 days of assessment of people aged 50–74, by sex and age, Australia, 2019 72

Table A3.24: Incidence of bowel cancer, by sex and age group, Australia, 2021 73

Table A3.25: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic area, people aged 50–74 years, Australia, 2012–2016 74

Table A3.26: Incidence of bowel cancer, by Indigenous status, NSW, Vic, Qld, WA and NT, 50–74 years, 2012–2016 74

Table A3.27: Incidence of bowel cancer, by sex, people aged 50–74, Australia, 1982–2021 75

Table A3.28: Mortality from bowel cancer, by sex and age, Australia, 2021 76

Table A3.29: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, 50–74 years, Australia, 2015–2019 77

Table A3.30: Mortality from bowel cancer, by Indigenous status, NSW, Qld, WA, SA and NT, people aged 50–74, 2015–2019 78

Table A3.31: Mortality from bowel cancer for people aged 50–74, by sex, Australia, 1984–2021 79

Table A4.1: Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2019 80

Table A4.1 (continued): Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2019 81

Table A4.2: Available assessment outcomes of people aged 50–74, by state and territory, Australia, assessed in 2019 82

Table A5.1: Estimated participation rate for people aged 50–74, by language spoken at home, sex and age group, 2017–2018 83

Table C1: NBCSP phases and target populations 85

Table F1: Percentage of the population by Indigenous status as identified in the 2016 Census, by sex and age 95

Table F2: Percentage of the population by language spoken at home as self-identified in the 2016 Census, by sex and age 96

Table F3: Percentage of the population by disability status as self-identified in the 2016 Census, by sex and age 97

List of figures

Figure 1.1: Beginnings of bowel cancer 1
Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2021 6
Figure 2.2: Age-specific mortality rates of bowel cancer, by sex, Australia, 2021 7
Figure 2.3: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2013–2017 8
Figure 2.4: Trend in 5-year relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 1988–1992 to 2013–2017 9
Figure 2.5: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 2013–2017 9
Figure 2.6: Change in fatal burden—YLL from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011, 2015 and 2018 11
Figure 3.1: Summary of NBCSP performance indicators for this report, Australia 15
Figure 3.2: Participation of people aged 50–74, by sex and age and by invitation round, 2018–2019 17
Figure 3.3: Participation of people aged 50–74, by sex, 2007–2008 to 2018–2019 17
Figure 3.4: Participation of people aged 50–74, by state and territory, 2018–2019 18
Figure 3.5: Participation of people aged 50–74, by remoteness area and socioeconomic area, 2018–2019 18
Figure 3.6: Screening positivity rate of people aged 50–74, by sex and age, 2019 19
Figure 3.7: Screening positivity rate of people aged 50–74, by screening round, 2019 20
Figure 3.8: Screening positivity rate of people aged 50–74, by state and territory, 2019 20
Figure 3.9: Screening positivity rate of people aged 50–74, by remoteness area and socioeconomic area, 2019 21
Figure 3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age group, 2019 23
Figure 3.11: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex, 2007–2019 24
Figure 3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, 2019 24
Figure 3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by remoteness area and socioeconomic area, 2019 25
Figure 3.14: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by sex and age, 2019 27
Figure 3.15: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by sex, 2007–2019 28
Figure 3.16: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by state and territory, 2019 28
Figure 3.17: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by remoteness area and socioeconomic area, 2019 29

Figure 3.18: Incidence rate of bowel cancer for people aged 50–74, by sex and age group, 2021 32
Figure 3.19: Trend in new cases of bowel cancer, people aged 50–74, Australia, 1982–2021 . 33
Figure 3.20: Incidence rate of bowel cancer for people aged 50–74, by state and territory, 2012–2016 34
Figure 3.21: Incidence rate of bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2012–2016 34
Figure 3.22: Incidence rate of bowel cancer, by Indigenous status, 50–74 years, NSW, Vic, Qld, WA and NT, 2012–2016 36
Figure 3.23: Mortality rate from bowel cancer for people aged 50–74, by sex and age, 2021 ... 38
Figure 3.24: Trend in deaths from bowel cancer, people aged 50–74, Australia, 1982–2021 .. 39
Figure 3.25: Mortality rate from bowel cancer for people aged 50–74, by state and territory, 2015–2019 40
Figure 3.26: Mortality rate from bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2015–2019 41
Figure 3.27: Mortality rate from bowel cancer, 50–74 years, by Indigenous status, NSW, Qld, WA, SA and NT, 2015–2019 42
Figure B1: Summary of NBCSP performance indicators, Australia, August 2006 to June 2020 84

Related material

The following Australian Institute of Health and Welfare (AIHW) publications relating to bowel cancer and cancer screening more generally might also be of interest:

- AIHW 2021. Cancer screening programs: quarterly data. Cat no. CAN 114. Canberra: AIHW.
- AIHW 2020. National Bowel Cancer Screening Program: monitoring report 2020. Cancer series no.128. Cat. no. CAN 133. Canberra: AIHW
- AIHW 2020. Cancer data in Australia. Cat no. CAN 122. Canberra: AIHW.
- AIHW 2020. BreastScreen Australia monitoring report 2020. Cancer series no. 129. Cat. no. CAN 135. Canberra: AIHW.
- AIHW 2020. National Cervical Screening Program monitoring report 2020. Cancer series no. 130. Cat. no. 138. 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. Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia. Cat. no. CAN 115. 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 2018 and 31 December 2019, 43.5% undertook screening. Among those who screened in 2019, 7% had a positive result warranting further assessment. One in 41 participants who underwent a follow-up diagnostic assessment was diagnosed with a confirmed or suspected cancer.

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