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National Bowel Cancer Screening Program: monitoring report

2018

AIHW

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Monitoring report 2018

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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
ASR	age-standardised rate
DALY	disability-adjusted life year
ICD	International Classification of Diseases and Related Health Problems
ICD-10	International Classification of Diseases and Related Health Problems, 10th revision
ICD-10-AM	International Classification of Diseases and Related Health Problems, 10th revision, Australian modification
iFOBT	immunochemical faecal occult blood test
NBCSP	National Bowel Cancer Screening Program
NMD	National Mortality Database
NSW	New South Wales
NT	Northern Territory
PI	performance indicator
PPV	positive predictive value
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

—	nil or rounded to zero
. .	not applicable
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
No.	number

Summary

In 2018, it is estimated that about 17,000 people will be diagnosed with bowel cancer and 4,100 people will die from bowel cancer.

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 third to look at the NBCSP using key performance indicators.

Participation

Of the 3.2 million people invited between January 2015 and December 2016, 41% participated in the program. This national participation rate was slightly higher than that for the previous rolling 2-year period (2014–2015) (39%). The recurring participation rate for people who had taken part in an earlier round and were receiving a subsequent screening invitation was 77%.

Screening results

In 2016, about 59,000 Australians returned a positive screening test, or 8% of those who were screened. Of those who received a positive screening test, 68% had reported a follow-up diagnostic assessment.

The median time from positive screening test result to diagnostic assessment was 54 days.

Cancers and adenomas detected

Data for cancer and adenoma diagnoses were not complete enough for formal reporting of that performance indicator. But, of the data available for participants who had a diagnostic assessment in 2016, 1 in 26 were diagnosed with a confirmed cancer (228) or a suspected cancer (1,182), and a further 4,439 participants were diagnosed with adenomas (1 in 9 participants assessed). Adenomas are benign growths that have the potential to become cancerous; their removal lowers the risk of future bowel cancers.

Population groups

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

Since the NBCSP began

Since the program began in August 2006, about 4.4 million NBCSP screening tests have been completed, with about 234,000 participants having a diagnostic assessment to follow up a positive screening result.

From the data available for participants who have had diagnostic assessment, 1 in 30 have been diagnosed with a confirmed or suspected cancer, and 1 in 7 have had an adenoma detected. A previous study by the Australian Institute of Health and Welfare (AIHW) found that the NBCSP is helping to reduce morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

Data at a glance

Table S1: Summary of NBCSP performance indicators[a]

Performance indicator		Definition	Value
PI 1	Participation rate	The percentage of people invited to screen through the NBCSP between **1 January 2014 and 31 December 2015** who returned a completed screening test within that period or by **30 June 2016**.	41%
PI 2	Screening positivity rate	The percentage of people who returned a valid NBCSP screening test and received a positive screening result (warranting further assessment) between **1 January 2016 and 31 December 2016**.	8%
PI 3	Diagnostic assessment rate	The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2016 and 31 December 2016** and had follow-up diagnostic assessment within that period or by **31 December 2017**.	68%
PI 4	Time between positive screen and diagnostic assessment	For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2016 and 31 December 2016**, the median time between the positive screen and a follow-up diagnostic assessment within that period, or by **31 December 2017**.	54 days
PI 9	Adverse events—hospital admission	The rate at which people who had a diagnostic assessment between **1 January 2016 and 31 December 2016** were admitted to hospital within 30 days of their assessment.	6 per 10,000 assessments
PI 10	Incidence of colorectal (bowel) cancer	The (estimated) incidence of bowel cancer per 100,000 estimated resident population in **2018**[b].	58 cases per 100,000 people[c]
PI 11	Mortality from colorectal (bowel) cancer	The (estimated) mortality of bowel cancer per 100,000 estimated resident population in **2018**[b].	14 deaths per 100,000 people[c]

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

(b) Rates for 2018 are estimated based on data to 2012–2013. See Appendix D for more information.

(c) Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Notes

1. PIs 3–9 rely on information being reported back to the register. As the return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
2. The following performance indicators are not reported due to data incompleteness or unavailability: PI 5a (adenoma detection rate), PI 5b (positive predictive value (PPV) of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate), and PI 8 (cancer clinico-pathological stage). See 'Current reporting limitations' in Section 1.3 for more details.

1 Introduction

1.1 Purpose of this report

This monitoring report is the second to monitor data for the National Bowel Cancer Screening Program (NBCSP) based on the NBCSP key performance indicators (AIHW 2014b).

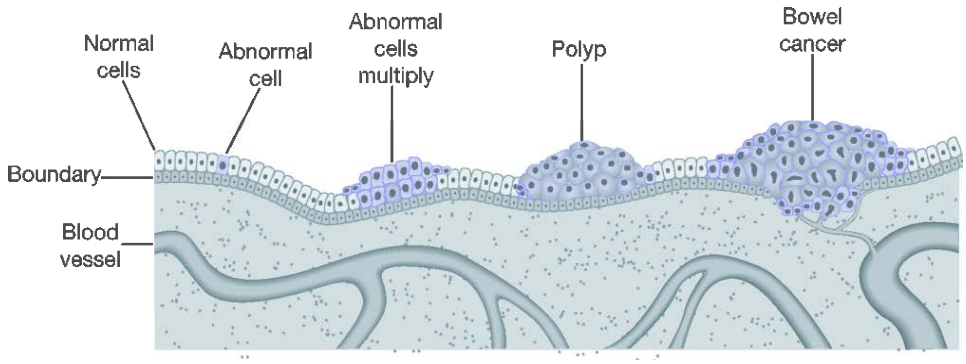
To ensure that the most recent data are used for each indicator, the timeframe in which each performance indicator is analysed can vary. But where possible, analysis for indicators includes the period from 1 January 2016 to 31 December 2016.

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. Polyps might 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.



Source: Cancer Council Victoria 2013.

Figure 1.1: Beginnings of bowel cancer

Stage of bowel cancer

Bowel cancer stage describes the extent or spread of cancer in the body at the time of diagnosis. Staging is usually based on:

- the size of the tumour
- whether lymph nodes contain cancer
- whether the cancer has spread from the original site to other parts of the body (Sobin et al. 2010).

Bowel cancer stages are generally defined using the Australian Clinico-Pathological Staging classification system. 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: Defined Australian clinico-pathological stages of bowel cancer

Australian clinico-pathological stage	Description	Survival estimates
A	Cancer is contained within superficial layers of the bowel	93% 5-year survival rate
B	Cancer has spread to outer surface of the bowel wall	82% 5-year survival rate
C	Cancer has spread to the lymph nodes	59% 5-year survival rate
D	Cancer has spread to other sites in the body	8% 5-year survival rate

Note: Survival estimates were sourced from an American study (O'Connell et al. 2004), which used a comparable classification system. Similar rates have been shown in Australia (Morris et al. 2007).

Risk factors for bowel cancer

A risk factor is any factor associated with an increased likelihood of a person developing a health disorder or health condition.

It is not known what causes bowel cancer, but, as at December 2016, several risk factors have been identified that might increase the chance of developing bowel cancer (Bouvard et al. 2015; IARC 2014; WCRF & AICR 2007).

Personal and lifestyle factors

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

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

Family history and genetic susceptibility

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

Ionising radiation

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

Bowel cancer treatment

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

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

1.3 Bowel cancer screening

Bowel cancer may be present for many years before showing symptoms like visible rectal bleeding, change in bowel habit, bowel obstruction, or anaemia. Often, symptoms like these are not seen until the cancer has reached a relatively advanced stage.

But non-visible bleeding of the bowel might have been occurring in the pre-cancerous stages for some time (Figure 1.1).

The relatively slow development of bowel cancer means that pre-cancerous and early stage cancers can potentially be screened for and treated. This makes bowel cancer a valid candidate for population screening (Standing Committee on Screening 2016).

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

National Bowel Cancer Screening Program

In Australia, government-funded, population-based bowel cancer screening is available through the NBCSP. The program started in 2006, and is managed by the Department of Health in partnership with state and territory governments.

The goal of the NBCSP is to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the target population for early detection or prevention of the disease.

A recent AIHW study of people diagnosed with bowel cancer in 2006–2008 showed that NBCSP invitees (particularly those who participated) who had been diagnosed with bowel cancer had less risk of dying from bowel cancer, and their cancers were less advanced when diagnosed than non-invitees. These findings show that the NBCSP is helping to reduce morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

The latest Clinical Practice Guidelines for the Prevention, Early Detection and Management of Colorectal Cancer were endorsed by the National Health and Medical Research Council in 2017. These guidelines recommend that biennial iFOBT bowel cancer screening for the asymptomatic Australian population begin at age 50 and continue to age 74 (CCACCGWP 2017).

The Australian Government is rolling out biennial screening for those in the target age group, which will be completed by 2020 (see Appendix C). The staged rollout is to help ensure that health services, such as diagnostic assessment and treatment options, can meet an increased demand.

Once fully rolled out, eligible Australians will be sent an iFOBT screening kit, and invited to screen every 2 years while aged 50–74. To participate, invitees complete the screening test, and post it to the NBCSP pathology laboratory for analysis.

Results are sent to the participant, the participant's nominated primary health-care practitioner, and the NBCSP Register.

Participants with a positive screening result, indicated by blood in the stool sample, are advised to consult their primary health-care practitioner to discuss further diagnostic assessment; in most cases, this will be a colonoscopy.

For more information on the NBCSP see <www.cancerscreening.gov.au>.

Monitoring the NBCSP

NBCSP participant data come from various sources throughout the screening pathway. Data are collected electronically, and from forms completed and returned to the NBCSP Register by participants, primary health-care practitioners, colonoscopists, pathologists, and other medical staff. But form return is not mandatory, which might mean monitoring data are not complete.

This report is the third to present national data for the NBCSP using key performance indicators.

The National Bowel Cancer Screening Program Report and Indicator Working Group developed these indicators, and they have been endorsed by the:

- Standing Committee on Screening
- Community Care and Population Health Principal Committee
- National Health Information Standards and Statistics Committee
- National Health Information and Performance Principal Committee.

The indicators are consistent with the 5 Australian Population-Based Screening Framework steps:

- recruitment
- screening
- assessment
- diagnosis
- outcomes (AIHW 2014b).

See Appendix C for a summary of changes in monitoring the NBCSP.

Current reporting limitations

Apart from participation and iFOBT results, it is not mandatory for practitioners to complete and send other NBCSP forms or data, so data and results for PIs 3–9 are incomplete. Further, data identifying whether individual diagnostic assessments were public or private medical procedures are currently unreliable, and cannot be used for reporting.

Other limitations of the NBCSP data include the unavailability of population subgroup identification at the time of invitation.

Identification of participants as being an Aboriginal and/or Torres Strait Islander, having a disability or speaking a language other than English at home is by self-identification through the participants' return of a completed participant details form, along with their iFOBT for analysis.

As membership of these subgroups is reliably known only for those who participate, it is not possible to accurately determine NBCSP participation rates for these subgroups due to the lack of denominators for them.

Ways to improve upon these limitations are constantly being investigated, and Chapter 5 in this report gives estimates of participation for these subgroups, using proportions from the Census.

Some performance indicators are aspirational, in that there was either a lack of national data or a lack of completeness of data at the time of their creation.

In this report, PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), and PI 6b (PPV of diagnostic assessment for detecting colorectal cancer) are not formally reported, as data were incomplete. These indicators require better data return from histopathology.

As well, PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not formally reported, as data were unavailable.

These performance indicators require data from the NBCSP records to be linked to the Australian Cancer Database (ACD) once it contains cancer staging data (which are not yet available).

Lastly, PI 9 (adverse events—hospital admission) requires linkage with complete national hospital admissions data, which is not currently done. But the NBCSP Register currently has incomplete information on adverse events, and this will be used until a more complete adverse event data source becomes available.

Expenditure Spending on the NBCSP in 2015–16

The NBCSP is funded through direct appropriation from the Australian Government, plus a national partnership payment for the jurisdictional participant follow-up functions.

NBCSP invitations are managed and sent out centrally, with states and territories providing local program promotion and a follow-up function for those who receive positive screening results.

In 2015–16, an estimated $56.1 million was spent on the NBCSP (Table A1.1). As the rollout of biennial screening for those aged 50–74 expands (due to be completed by 2020), this amount is expected to rise.

2 Picture of bowel cancer in Australia

2.1 Number of new cases

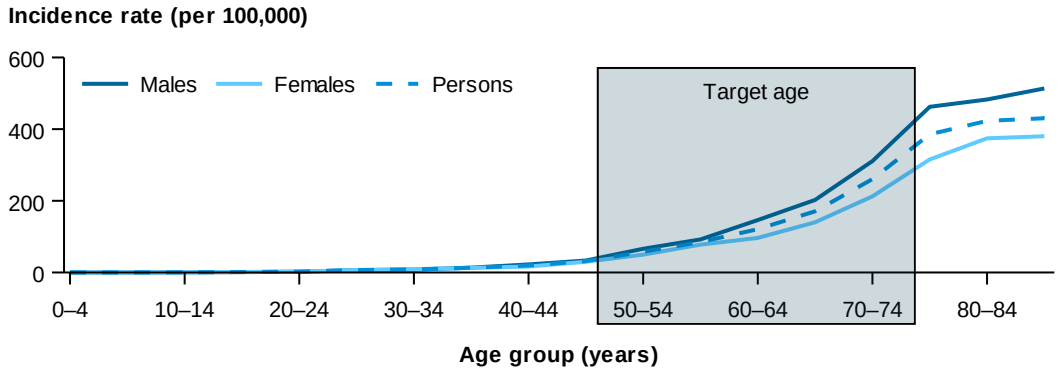
In 2018, an estimated 17,004 people will be diagnosed with bowel cancer—an age-standardised rate (ASR) of 58 cases diagnosed per 100,000 people. Of these, 8,586 (50%) will be in the NBCSP target age group (50–74). It is estimated that, in 2018, bowel cancer will be the third most commonly diagnosed cancer in Australia (after breast and prostate cancer).

9,294 new cases estimated for 2018

7,709 new cases estimated for 2018

Target age group (50–74)	All ages
8,586 new cases estimated for 2018 128 new cases per 100,000 target-age people	17,004 new cases estimated for 2018 58 new cases per 100,000 people (ASR)

Bowel cancer risk increases with age. In 2018, the incidence rate is expected to remain higher for people aged 45 and over than for younger people (Figure 2.1).



Notes

1. The 2018 estimates are based on 2004–2013 incidence data. See Appendix D for more information.
2. Age-specific rates are expressed per 100,000 people.

Sources: AIHW ACD 2013; Table A3.22.

Figure 2.1: Incidence rates of bowel cancer, by sex and age group, 2018

It is estimated that a person's risk of being diagnosed with bowel cancer sometime between the ages of 50 and 74 is 34 in 1,000 (about 1 in 29) (Figure 2.2). 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).

Figure 2.2: Incidence risk of bowel cancer, by age group, 2018

2.2 Number of deaths

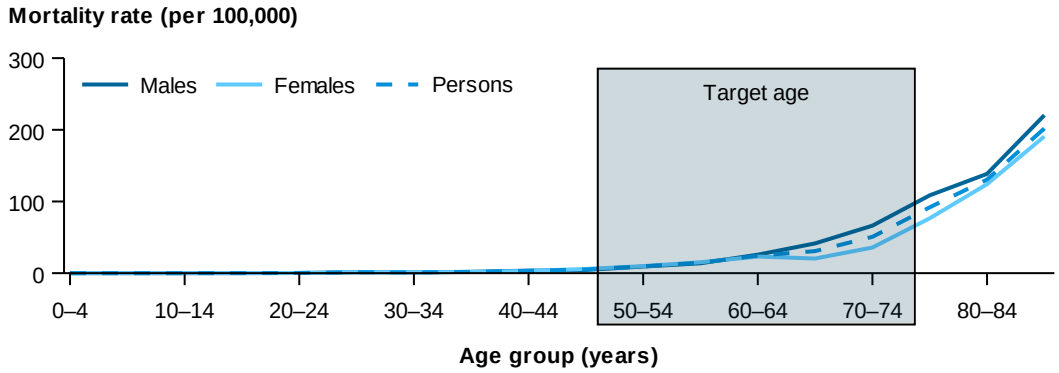
In 2018, an estimated 4,129 will die from bowel cancer—an age-standardised rate (ASR) of 14 deaths for every 100,000 people. Of these, 1,596 (39%) will be in the NBCSP target age group (50–74). It is estimated that bowel cancer will remain the second leading cause of cancer death in Australia (after lung cancer).

2,124 deaths estimated for 2018

2,005 deaths estimated for 2018

Target age group (50–74)	All ages
1,596 deaths estimated in 2018 24 deaths per 100,000 target-age people	4,129 deaths estimated in 2018 14 deaths per 100,000 people (ASR)

It is estimated that, in 2018, the mortality rate will be higher for people aged 50 and over than for younger people (Figure 2.3).



Notes

1. The 2018 estimates are based on 1997–2013 mortality data for males, and 2006–2013 mortality data for females. See Appendix D for more information.
2. Age-specific rates are expressed per 100,000 people.

Sources: AIHW National Mortality Database (NMD); Table A3.26.

Figure 2.3: Mortality rates of bowel cancer, by sex and age group, 2018

The risk of dying from bowel cancer increases with age. It is estimated that the risk of dying from bowel cancer sometime between the ages of 50 and 74 is 6 in 1,000 (Figure 2.4). The risk of dying from bowel cancer before age 50 is less than 1 in 1,000.

It is expected that once biennial screening for those aged 50–74 has been in place for several 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.

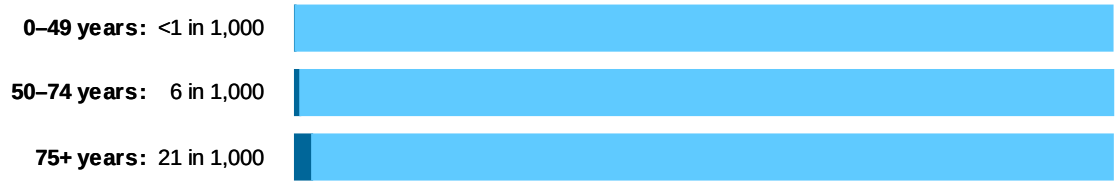


Figure 2.4: Mortality risk of bowel cancer, by age group, 2018

2.3 Survival

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

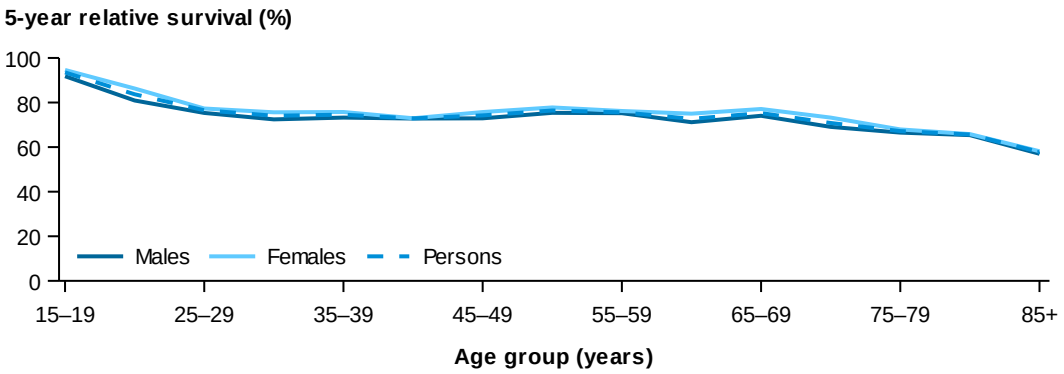
In 2010–2014, Australians diagnosed with bowel cancer had a 70% chance of surviving for 5 years compared with their counterparts in the general population. For the NBCSP target age group (50–74), 5-year relative survival was 74%.

70% 5-year relative survival

71% 5-year relative survival

Target age group (50–74)	All ages
74% 5-year relative survival (2010–2014)	70% 5-year relative survival (2010–2014)

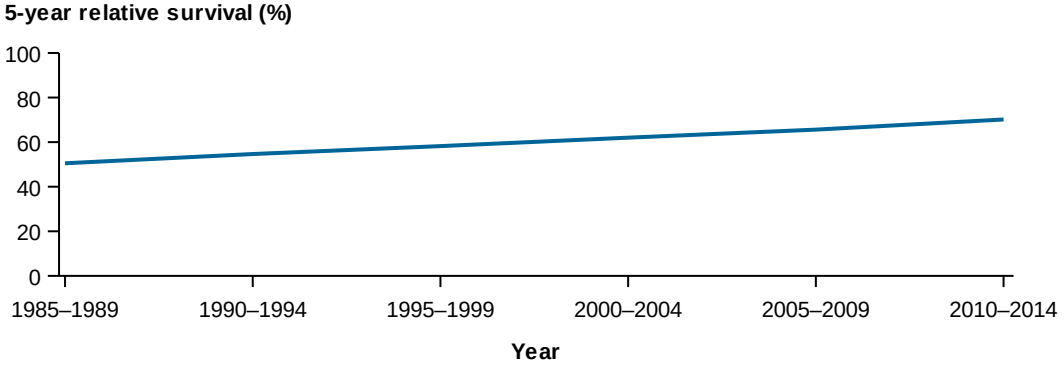
In 2010–2014, 5-year relative survival was lower for people over the age of 70 than for younger people (Figure 2.5).



Sources: AIHW ACD 2014; Table A2.1.

Figure 2.5: Five-year relative survival from bowel cancer, by age group, 2010–2014

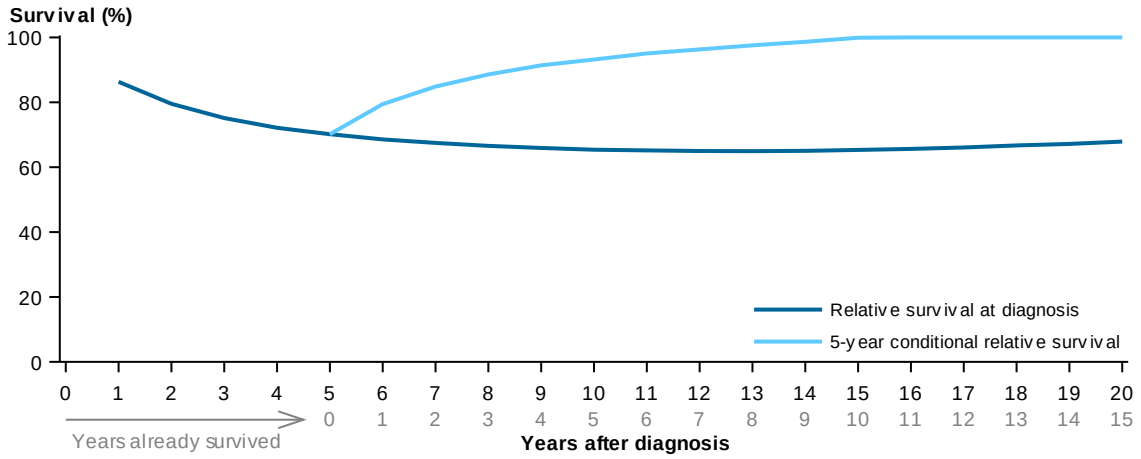
Between 1985–1989 and 2010–2014, the 5-year relative survival rate rose from 51% to 70% (Figure 2.6).



Sources: AIHW ACD 2014; Table A2.2.

Figure 2.6: Trend in 5-year relative survival from bowel cancer, all ages, 1985–1989 to 2010–2014

While people first diagnosed with bowel cancer had a lower (70%) chance of surviving for at least 5 years after diagnosis than the general population, among those who had already survived 5 years from their initial bowel cancer diagnosis, the chance of surviving for at least another 5 years (5-year conditional survival) was 93% (Figure 2.7).



Note: Conditional 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.

Sources: AIHW ACD 2014; Table A2.3.

Figure 2.7: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, all ages, 2010–2014

Prevalence of bowel cancer

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

Prevalence is the number of people alive (surviving) after a diagnosis of cancer. At the end of 2013, there were 53,172 Australians alive who had been diagnosed with bowel cancer in the previous 5 years and 86,923 who had been diagnosed in the previous 10 years (Table 2.1).

Table 2.1: Prevalence of bowel cancer, by sex, 31 December 2013

	5-year prevalence		10-year prevalence	
Sex	**Number**	**Rate (per 100,000)**	**Number**	**Rate (per 100,000)**
Males	29,185	252.0	47,197	407.5
Females	23,987	205.0	39,726	339.5
Persons	**53,172**	**228.3**	**86,923**	**373.3**

Source: AIHW ACD 2014.

2.4 Burden of bowel cancer

Burden of disease analysis is used to assess and compare the impact of different diseases and injuries on a population. It involves determining their impact in terms of the number of years of healthy life lost through living with an illness or injury (the non-fatal burden, referred to as years lived with disability, or YLD), and the number of years of life lost through dying

prematurely from an illness or injury (the fatal burden, referred to as years of life lost, or YLL).

The non-fatal and fatal burden can then be combined into a summary measure of health called the disability-adjusted life year (DALY). Burden of disease studies can also estimate the contribution of specific risk factors to disease burden (known as the attributable burden).

The Australian Burden of Disease Study (ABDS) 2011 found that bowel cancer was responsible for more than 90,000 years of healthy life lost (from fatal and non-fatal outcomes) in 2011 (AIHW 2016a).

Bowel cancer accounted for 2.1% of the total disease burden in Australia, making it the 13th most burdensome disease overall (12th in males and 16th in females).

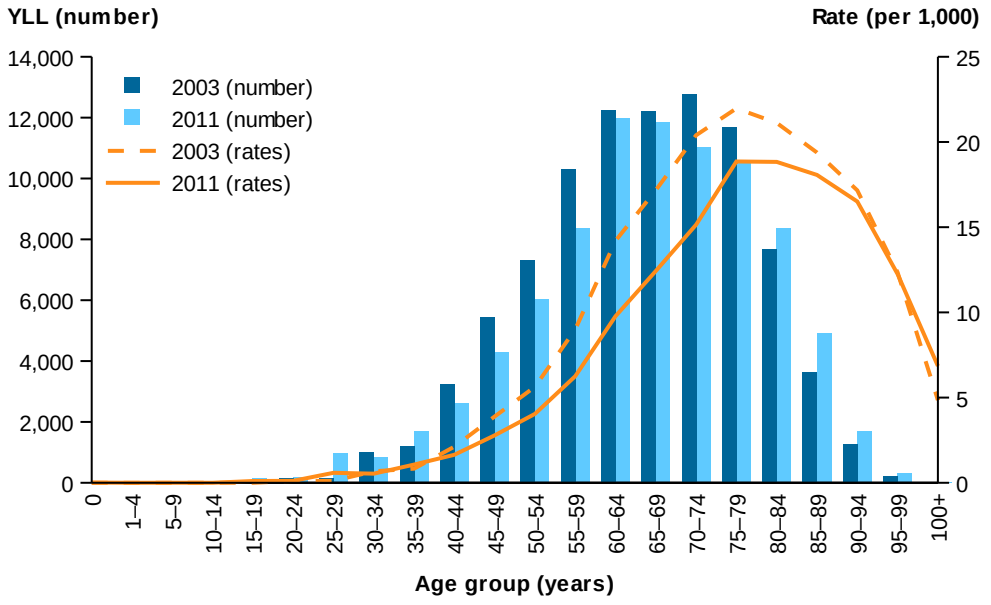
Of all cancers, bowel cancer was the second most burdensome in 2011 (behind lung cancer), accounting for 11% of the total cancer burden (11% of the fatal cancer burden, and 13% of the non-fatal burden).

Changes in burden since 2003

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

Between 2003 and 2011, the age-standardised rate of total burden from bowel cancer dropped from 4.8 to 3.8 disability-adjusted life years per 1,000 people.

This reduction was primarily due to a drop in fatal burden from 4.5 to 3.5 years of life lost per 1,000 people, which was driven by a shift towards people dying from bowel cancer at older ages—2011 rates were similar to 2003 rates for people who were 5–10 years younger (particularly for people aged 60–79) (Figure 2.8).



Source: AIHW 2016a.

Figure 2.8: Change in fatal burden—YLL number and age-specific rate (per 1,000 people) —from bowel cancer, 2003 and 2011

Contribution of risk factors to bowel cancer burden

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

After adjusting for interrelated risk factors, the study estimated that about 51% of bowel cancer burden in 2011 was attributable to 8 risk factors combined: physical inactivity, high body mass, diet low in milk, diet low in fibre, tobacco use, diet high in processed meat, alcohol use, and diet high in red meat (AIHW, unpublished data).

Of these risk factors, physical inactivity and high body mass contributed the most individually to bowel cancer burden in 2011 (16% and 13% of the bowel cancer burden, respectively; although, as they are likely to be interrelated, their combined burden will be less than the sum of the individual burden estimates). A greater proportion of bowel cancer burden in males (18%) was due to high body mass than in females (6%) (Table 2.2).

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

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

Table 2.2: Bowel cancer burden attributed to selected risk factors (disability-adjusted life years and proportion), 2011

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

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

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

Sources: AIHW 2016a, 2017b, 2017c, 2018; AIHW analysis of ABDS 2011 (unpublished data).

3 Performance indicators

3.1 Summary

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

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

Recruitment

Of those invited in the 2-year period for 2015–2016, 41% participated in the NBCSP (Table A3.2). This was up from 39% in the previous rolling 2-year period (2014–2015) (Table A3.5).

The participation rate was higher for people receiving a subsequent screening invitation (45% for those receiving their second, third, or later screening invitation) than for those receiving their initial invitation (34%) (Figure 3.2; Table A3.3). For those invitees who had participated in an earlier round, 77% participated again.

Screening and assessment

In 2016, about 59,000 participants returned a positive screening test—an 8.1% screening positivity rate (Table A3.6). People who receive a positive screening result are encouraged to visit their primary health-care practitioner for referral to diagnostic assessment. Of the people who received a positive screening test, 68% 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 54 days (Table A3.17).

Diagnosis

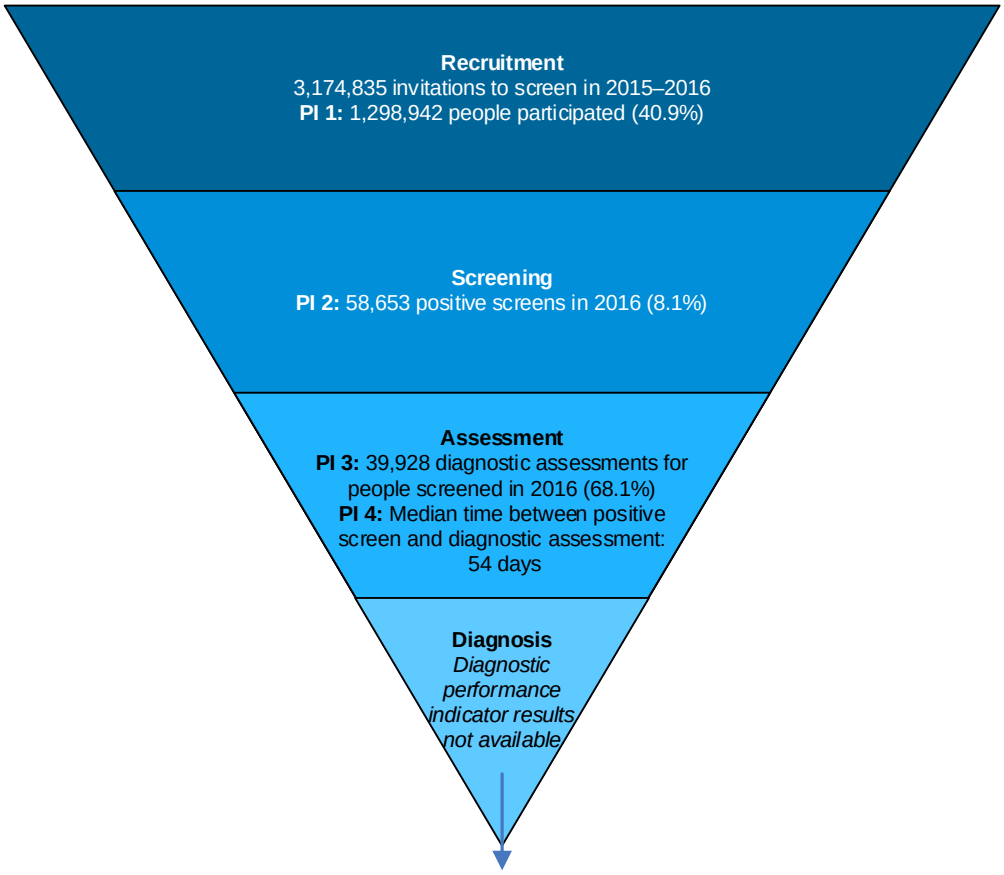
Diagnosis data were not complete enough for formal reporting of that performance indicator. But using the available data for those assessed in 2016, 228 confirmed cancers, 1,182 suspected cancers, and 4,439 adenomas were detected (Table A4.1).

See Chapter 4 for a summary of bowel abnormality detection results, based on available assessment and diagnosis data. For the most recent accurate PPV of diagnostic assessment for detecting bowel (colorectal) cancer, see *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program* (AIHW 2014a).

Outcomes

In 2016, 23 people who underwent a diagnostic assessment were admitted to hospital within 30 days of this procedure, a hospital admission rate 6 per 10,000 assessments (Table A3.21).

In 2018, an estimated 17,004 people will be diagnosed with bowel cancer (Table A3.22), and an estimated 4,129 people will die from bowel cancer (Table A3.26).



Assessment details
Those assessed in 2016[(a)]

No issue or other diagnosis	21,078	(57.2%)
Biopsy awaiting histopathology	9,928	(26.9%)
Non-advanced adenomas	2,237	(6.1%)
Advanced adenomas	2,204	(6.0%)
Suspected cancer	1,182	(3.2%)
Confirmed cancer	228	(0.6%)

Outcomes
For morbidity and mortality

PI 9: Adverse events	6 per 10,000	(2016)
PI 10: Incidence	58 per 100,000	(2018)
PI 11: Mortality	14 per 100,000	(2018)

(a) Based on available data. Percentages might not sum to 100% due to rounding. 'No issue or other diagnosis' includes 8,105 assessments with no record of outcome, plus any non-cancer or adenoma diagnoses from colonoscopy or histopathology.

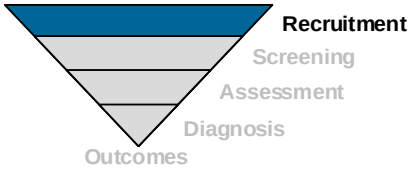
Notes

1. The recruitment indicator is reported against the 2-year calendar period 2015–2016, with follow-up to June 2017. The screening indicator is reported against the year 2016. The assessment and adverse events indicators are reported against the year 2016, with follow-up to June 2017. Incidence and mortality are estimated rates for 2018.
2. Assessment, diagnosis, and outcomes (PIs 3–9) rely on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
3. The following performance indicators are not reported due to data incompleteness or unavailability: 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). See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Figure 3.1: Summary of NBCSP performance indicators for this report

3.2 Recruitment



PI 1—Participation rate

Definition: The percentage of people invited to screen through the NBCSP between **1 January 2015 and 31 December 2016** who returned a completed screening test within that period or by **30 June 2017** (AIHW 2014b).

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

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

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

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

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

National participation rate: 41%.

Participation

Between 1 January 2015 and 31 December 2016, 3,174,835 eligible people were invited to participate in the NBCSP.

Of those, 1,298,942 people participated, an overall Australia-wide participation rate of 41% (Table A3.2).

Sex

Males (39%) had a lower participation rate than females (43%) (Figure 3.2).

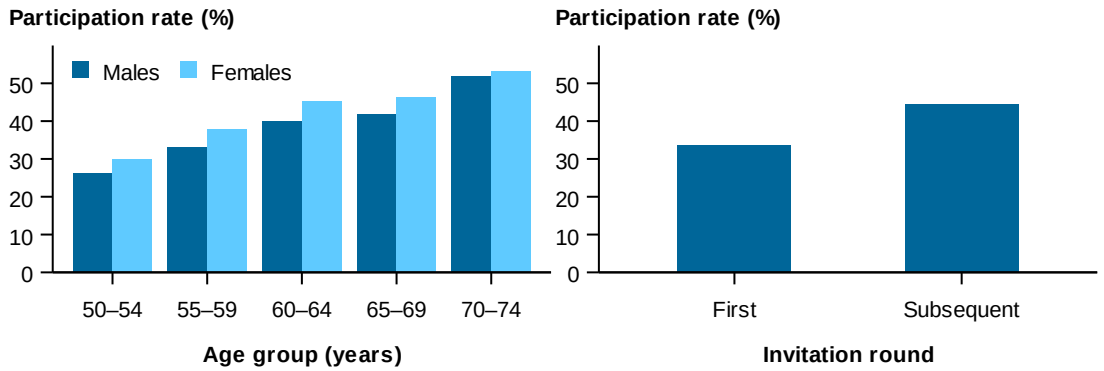
Age

The participation rate increased with each invitation age group, from 28% for people aged 50–54 to 53% for people aged 70–74 (Figure 3.2).

Invitation round

The participation rate was higher for people receiving their second or later (subsequent) screening invitation (45% compared with 34%) (Figure 3.2).

For those invitees who had participated in an earlier round, 77% participated again.



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

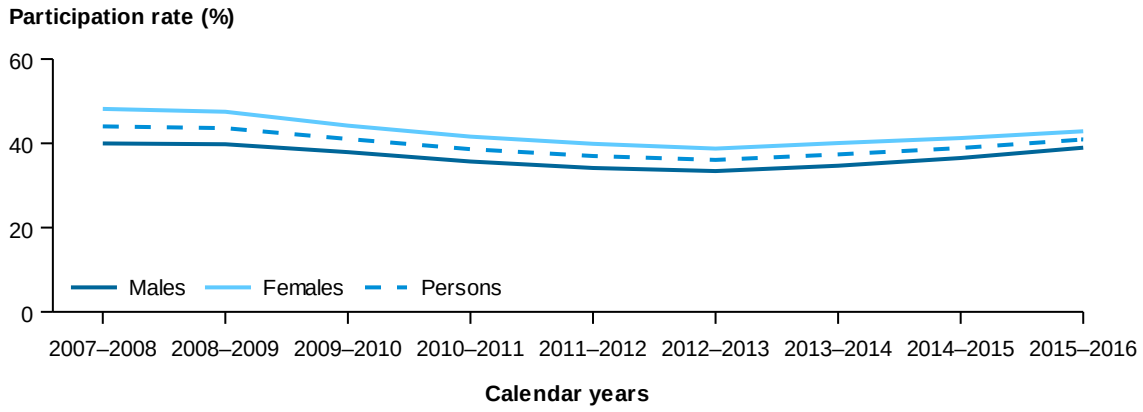
Sources: NBCSP Register as at 30 June 2017; tables A3.2 and A3.3.

Figure 3.2: Participation of people aged 50–74, by sex and age group, and by invitation round, 2015–2016

Trend

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

Using this indicator across all program data to date, the participation rate fell from 44% in 2007–2008 to 36% in 2012–2013, then rose to 41% in 2015–2016 (Figure 3.3).



Notes

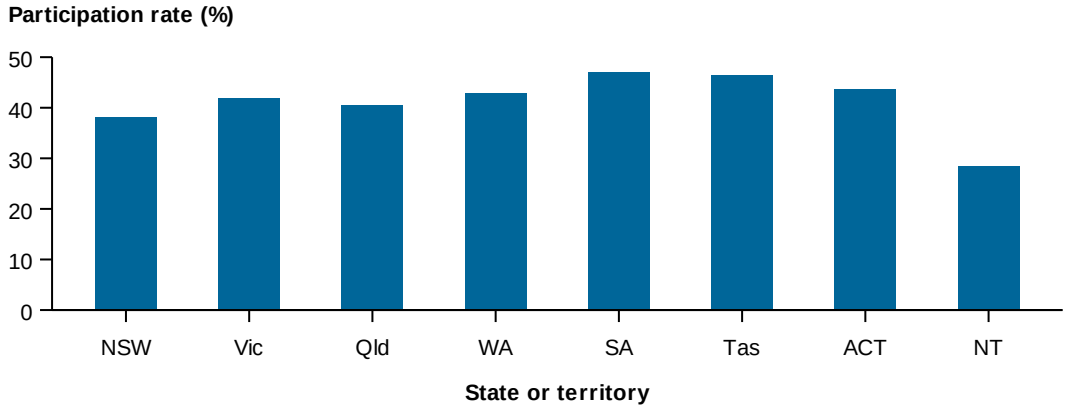
1. Data presented are for rolling 2-year participation periods.
2. Trend data use the performance indicator specifications retrospectively on previous years' data.
3. Data for this figure are in Table A3.5.

Source: NBCSP Register as at 30 June 2017; Table A3.5.

Figure 3.3: Participation of people aged 50–74, by sex, 2007–2008 to 2015–2016

State and territory

The participation rate was highest for people living in South Australia (47%), and lowest for people living in the Northern Territory (28%) (Figure 3.4).



Sources: NBCSP Register as at 30 June 2017; Table A3.4.

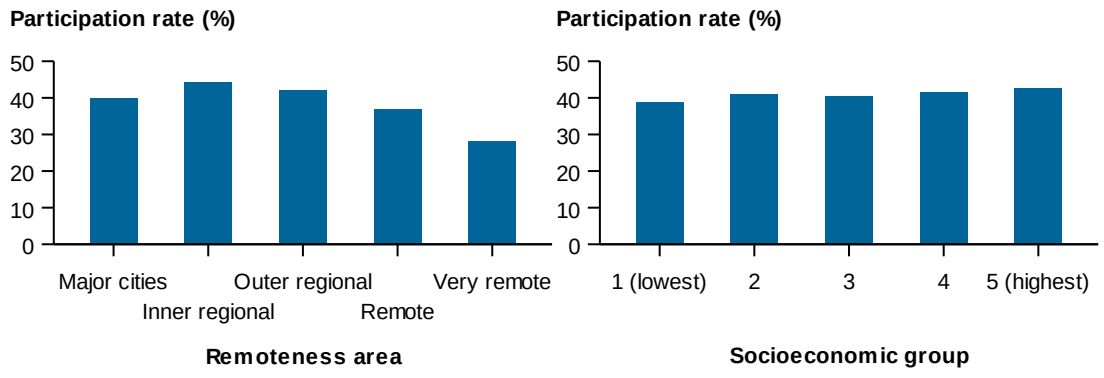
Figure 3.4: Participation of people aged 50–74, by state and territory, 2015–2016

Remoteness area

The participation rate was highest for people living in *Inner regional* areas (44%), and lowest for people living in *Very remote* areas (28%) (Figure 3.5).

Socioeconomic group

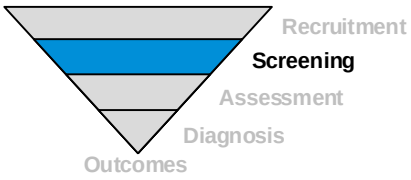
The participation rate was highest for people living in the highest socioeconomic areas (43%), and lowest for people living in the lowest socioeconomic areas (39%) (Figure 3.5).



Source: NBCSP Register as at 30 June 2017; Table A3.4.

Figure 3.5: Participation of people aged 50–74, by remoteness area, and by socioeconomic group, 2015–2016

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 2016 and 31 December 2016** (AIHW 2014b).

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

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

Guide to interpretation: This indicator counts all tests analysed in the defined period (as recorded by 30 June 2017), not tests analysed from those invited in the defined period; As a result, the cohort monitored is different from that in the participation indicator.

National screening positivity rate: 8.1%.

Positive screening results

In 2016, 725,971 invitees had a screening test analysed.

Of those, 58,653 people received a positive screening test result, an overall Australia-wide screening positivity rate of 8.1% (Table A3.6).

Sex

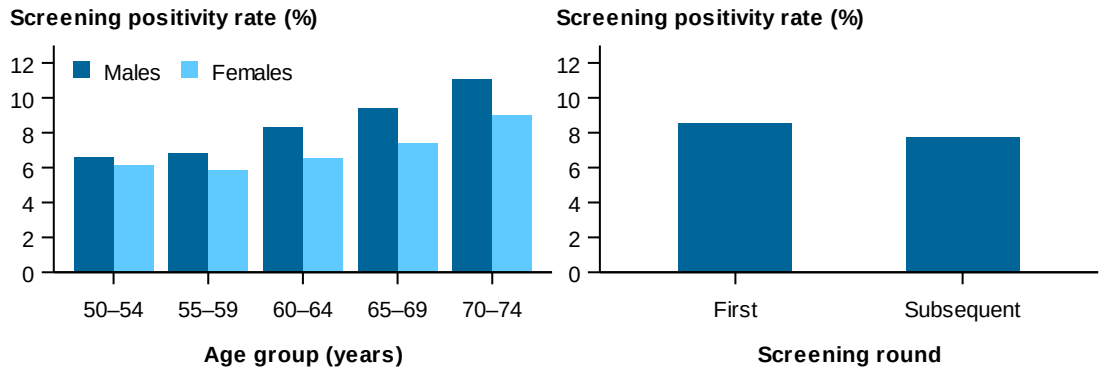
Males (9.0%) had a higher screening positivity rate than females (7.3%) (Figure 3.6).

Age

The screening positivity rate increased with each age group, from 6.3%–6.4% for people aged 50–59 to 10.0% for people aged 70–74 (Figure 3.6).

Screening round

The screening positivity rate was higher for people receiving their first round of screening (8.5%) than for subsequent rounds (7.7%) (Figure 3.6).



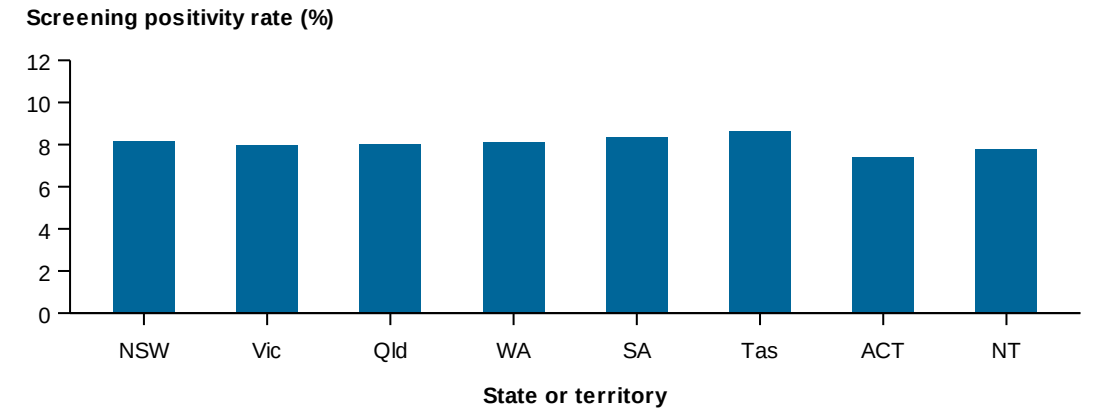
Note: 'Subsequent' includes subsequent screens both 2 years or less, and more than 2 years after the first NBCSP screening round.

Sources: NBCSP Register as at 30 June 2017; tables A3.6 and A3.7.

Figure 3.6: Screening positivity rate of people aged 50–74, by sex and age group, and by screening round, 2016

State and territory

The screening positivity rate was highest for people living in Tasmania (8.6%), and lowest for people living in the Australian Capital Territory (7.4%) (Figure 3.7).



Sources: NBCSP Register as at 30 June 2017; Table A3.8.

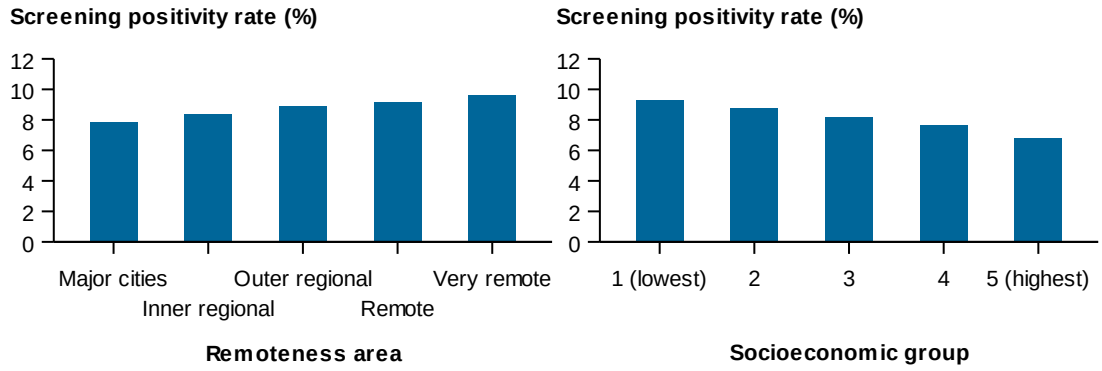
Figure 3.7: Screening positivity rate of people aged 50–74, by state and territory, 2016

Remoteness area

The screening positivity rate was highest for people living in *Very remote* areas (9.6%), and lowest for people living in *Major cities* (7.8%) (Figure 3.8).

Socioeconomic group

The screening positivity rate was highest for people living in the lowest socioeconomic areas (9.2%), and lowest for people living in the highest socioeconomic areas (6.8%) (Figure 3.8).



Sources: NBCSP Register as at 30 June 2017; Table A3.8.

Figure 3.8: Screening positivity rate of people aged 50–74, by remoteness area, and by socioeconomic group, 2016

Indigenous status

Indigenous Australians (11.1%) had a higher screening positivity rate than non-Indigenous Australians (8.0%) (Table A3.9).

Language spoken at home

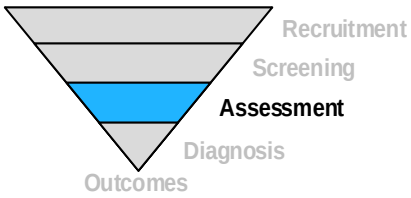
The screening positivity rate was similar for those who spoke a language other than English at home and those who spoke English at home (8.5% and 8.0%, respectively) (Table A3.9).

Disability status

Those reporting a severe or profound activity limitation had a higher screening positivity rate than those who did not report such a limitation (12.4% compared with 7.8%) (Table A3.9).

Reasons for this difference are not well understood, but might include a lower level of physical activity (Wolin et al. 2011) or comorbidities, as well as medications that increase the likelihood of a positive iFOBT screening result in people with a severe or profound activity limitation.

3.4 Assessment



PI 3—Diagnostic assessment rate

Definition: The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2016 and 31 December 2016** and had a follow-up diagnostic assessment within that period or by **31 December 2017** (AIHW 2014b).

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

Data quality: This indicator relies on information being reported to the register. But this reporting is not mandatory, so data are incomplete. As a result, there is an unknown level of under-reporting for this indicator, and levels of under-reporting might differ across groups (for example, across jurisdictions, remoteness areas, and socioeconomic areas).

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

National diagnostic assessment rate: 68%.

Diagnostic assessments

In 2016, 58,663 participants returned a positive screening test.

Of those, 29,928 people reported a follow-up diagnostic assessment (colonoscopy), an overall Australia-wide diagnostic assessment rate of 68% (Table A3.10).

Sex

Diagnostic assessment rates were similar for males and females (Figure 3.9).

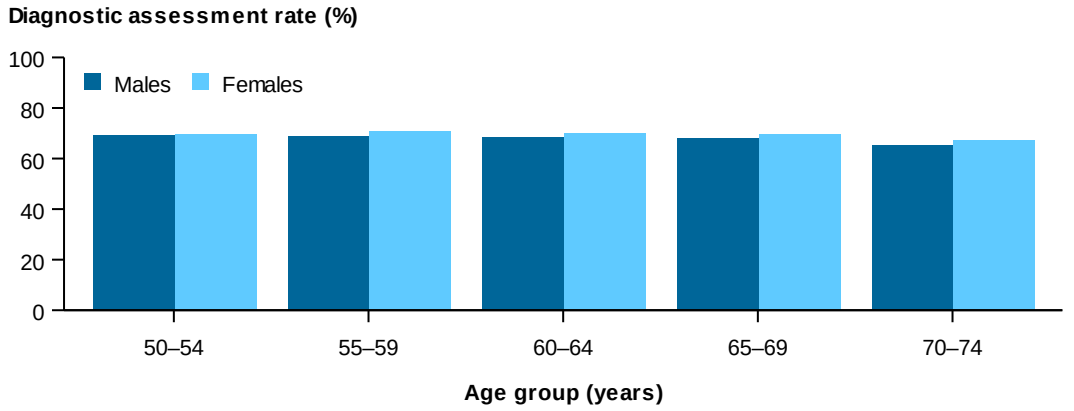
Age

Diagnostic assessment rates were slightly lower for people aged 70–74 (66%) than for younger age groups (69%–70%) (Figure 3.9).

Trend

Monitoring reports before 2016 analysed the diagnostic assessment rate differently from the indicator used in this report. This means that trend comparisons with the rates published in those earlier reports cannot be made. To enable a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.10; Table A3.13).

Using this diagnostic assessment rate indicator across all program data to date, the follow-up diagnostic assessment rate fluctuated between 75% and 78% over 2007–2012, and then fell to 68% in 2016. Differences in form return, and varying pathway practices for diagnostic assessment between years might be contributing factors to this outcome.

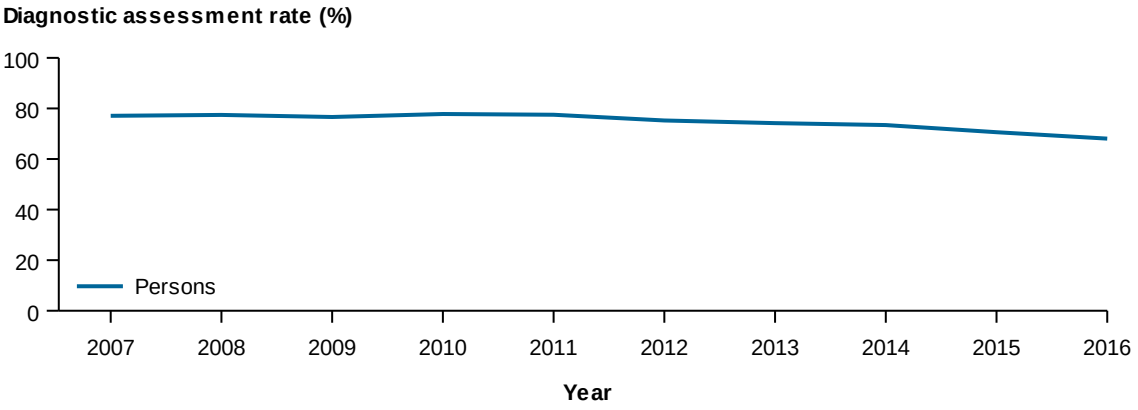


Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, are based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Sources: NBCSP Register as at 31 December 2017; Table A3.10.

Figure 3.9: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age group, 2016



Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
3. Trend data uses the performance indicator specifications retrospectively on previous years' data.

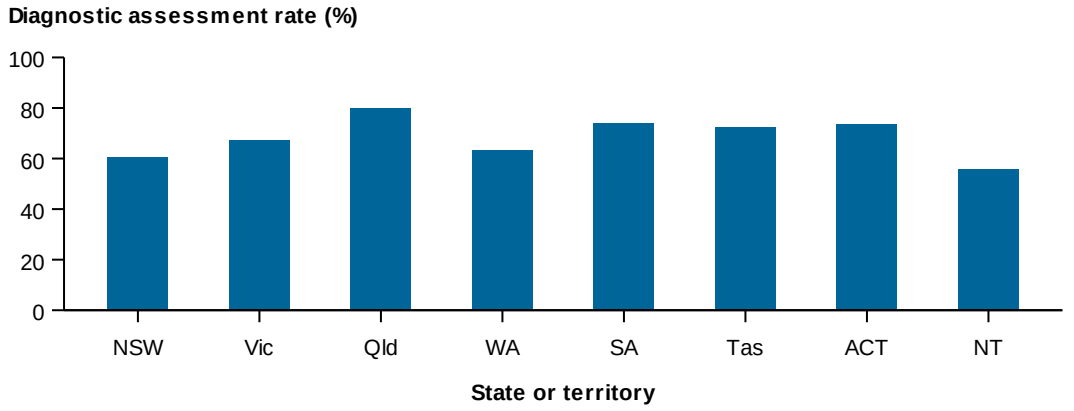
Sources: NBCSP Register as at 31 December 2017; Table A3.13.

Figure 3.10: Trend in diagnostic assessment rate (colonoscopy) of people aged 50–74, 2007–2016

State and territory

The follow-up diagnostic assessment rate was highest for people living in Queensland (80%), and lowest for people living in the Northern Territory (56%) (Figure 3.11).

Differences in form return and varying pathway practices for diagnostic assessment might affect the results across jurisdictions.



Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
3. Differences across jurisdictions might involve differences in form return and varying pathway practices for diagnostic assessment.

Sources: NBCSP Register as at 31 December 2017; Table A311.

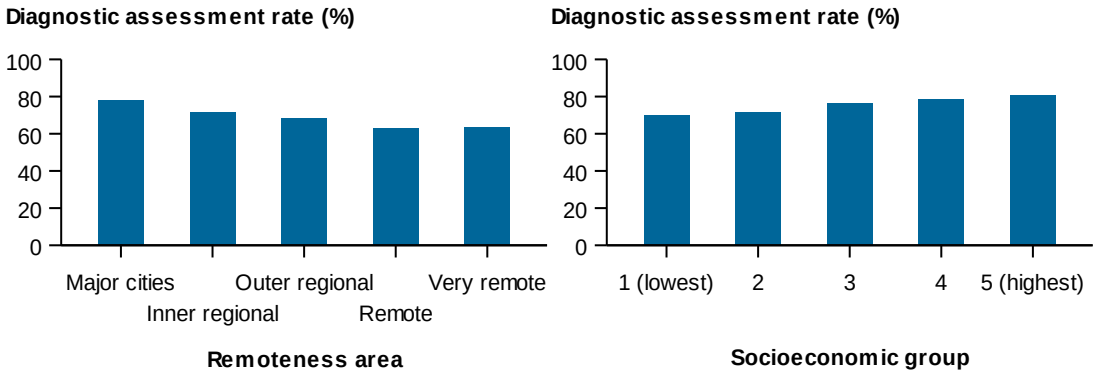
Figure 3.11: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, 2016

Remoteness area

The follow-up diagnostic assessment rate was highest for people living in *Major cities* (72%), and lowest for people living in *Very remote* areas (53%) (Figure 3.12).

Socioeconomic group

The follow-up diagnostic assessment rate was highest for people living in the highest socioeconomic areas (76%), and lowest for people living in the lowest socioeconomic areas (61%) (Figure 3.12).



Notes

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Sources: NBCSP Register as at 31 December 2017; Table A3.11.

Figure 3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by remoteness area, and by socioeconomic group, 2016

Indigenous status

Indigenous Australians (53%) had a lower follow-up diagnostic assessment rate than non-Indigenous Australians (68%) (Table A3.12).

Language spoken at home

People who spoke a language other than English at home (64%) had a lower follow-up diagnostic assessment rate than those who spoke English at home (69%) (Table A3.12).

Disability status

Those reporting a severe or profound activity limitation (55%) had a lower follow-up diagnostic assessment rate than those who did not report such a limitation (70%) (Table A3.12).

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 2016 and 31 December 2016**, the median time between the positive screening test, and a follow-up diagnostic assessment within that period or by **31 December 2017** (AIHW 2014b).

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

Data quality: This indicator relies on information being reported to the register, but this reporting is not mandatory, so data are incomplete. As a result, there is an unknown level of under-reporting for this indicator, and levels of under-reporting might differ across groups (for example, across jurisdictions, remoteness areas, and socioeconomic areas).

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

The number and proportion of participants where time between positive screen and diagnostic assessment was less than or equal to 30, 60, 90, 180 or 360 days, or greater than 360 days, are also included in tables A3.14–A3.16 in Appendix A (together with median time and 90th percentile information in tables A3.17–A3.20).

National median time between positive screen and diagnostic assessment: 54 days.

Time between positive screen and diagnostic assessment

In 2016, 58,663 participants had a positive screening test with a diagnostic assessment recorded.

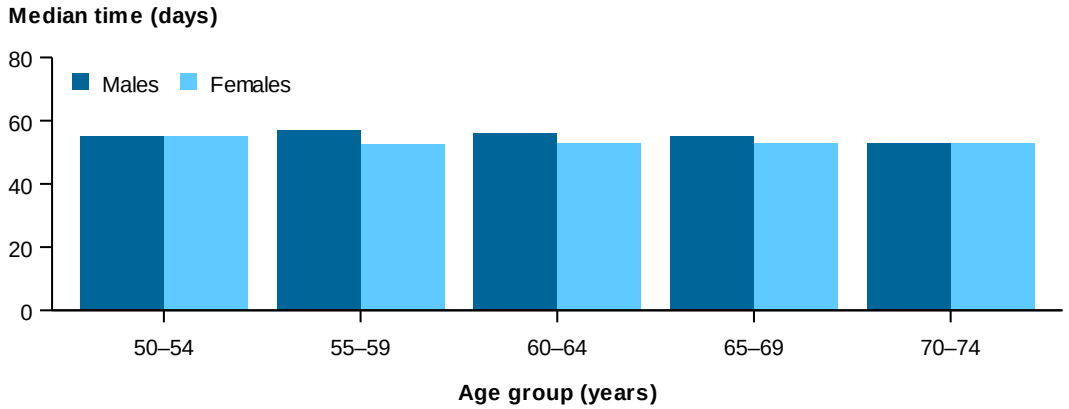
For those people, the median time between positive screen and assessment was 54 days (Table A3.17).

Sex

Males (55 days) and females (53 days) had a similar median time between a positive screen and assessment (Figure 3.13).

Age

The median time between a positive screen and diagnostic assessment decreased as age increased, from 55 days for people aged 50–54 to 53 days for people aged 70–74 (Figure 3.13).



Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

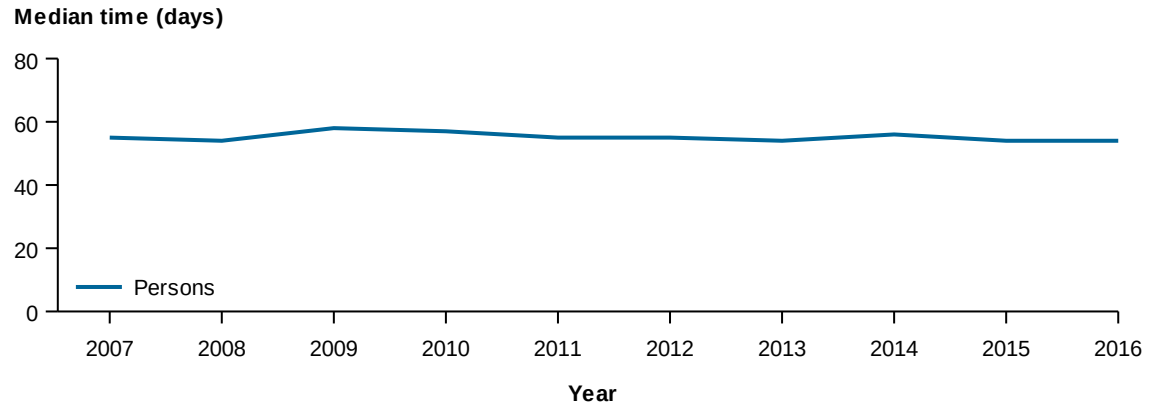
Sources: NBCSP Register as at 31 December 2017; Table A3.17.

Figure 3.13: Median time (days) between positive screen and diagnostic assessment of people aged 50–74, by sex and age group, 2016

Trend

Monitoring reports before 2016 did not include this analysis. This means that trend comparisons with data from those earlier reports cannot be made. To enable a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data in this report (Figure 3.14; Table A3.20).

Using this indicator for time between positive screen and diagnostic assessment across all program data to date, the median time between a positive screen and diagnostic assessment fluctuated between 54 and 58 days over 2007–2016 (Figure 3.14). Differences in form return, and varying pathway practices for diagnostic assessment between years might be contributing factors to this outcome.



Notes

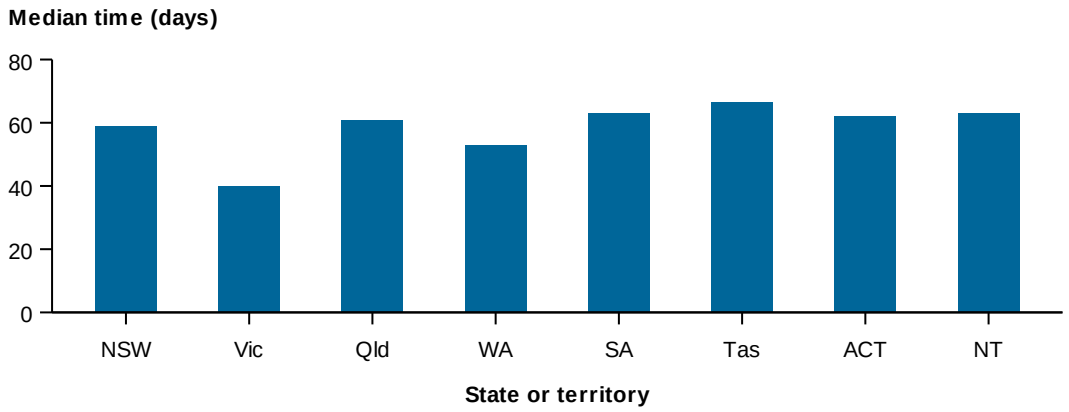
1. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
2. Trend data uses the performance indicator specifications retrospectively on previous years' data.

Sources: NBCSP Register as at 31 December 2017; Table A3.20.

Figure 3.14: Trend in median time (days) between positive screen and diagnostic assessment of people aged 50–74, 2007–2016

State and territory

The median time between a positive screen and diagnostic assessment was highest for people living in Tasmania (67 days), and lowest for people living in Victoria (40 days) (Figure 3.15; Table A3.18). Differences in form return, and varying pathway practices for diagnostic assessment might affect the results across jurisdictions.



Notes

1. Differences across jurisdictions might involve differences in form return, and varying pathway practices for diagnostic assessment.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Sources: NBCSP Register as at 31 December 2017; Table A3.18.

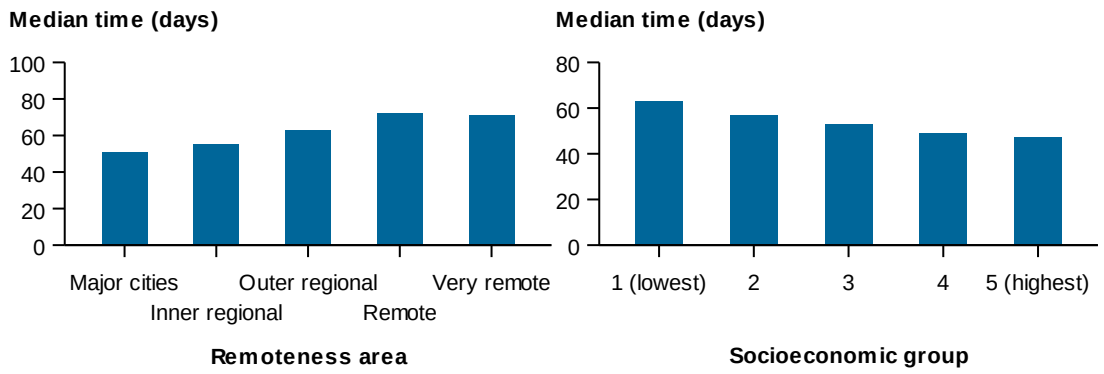
Figure 3.15: Median time (days) between positive screen and diagnostic assessment of people aged 50–74, by state and territory, 2016

Remoteness area

The median time between a positive screen and assessment was highest for people living in *Remote* areas (72 days), and lowest for people living in *Major cities* (51 days) (Figure 3.16).

Socioeconomic group

The median time between a positive screen and assessment was highest for people living in the lowest socioeconomic areas (64 days), and lowest for people living in the highest socioeconomic areas (47 days) (Figure 3.16; Table A3.18).



Notes

1. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 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.

Sources: NBCSP Register as at 31 December 2017; Table A3.18.

Figure 3.16: Median time (days) between positive screen and diagnostic assessment of people aged 50–74, by remoteness area, and by socioeconomic group, 2016

Indigenous status

There was a longer median time between positive screen and assessment for Indigenous Australians (76 days) than for non-Indigenous Australians (54 days) (Table A3.19).

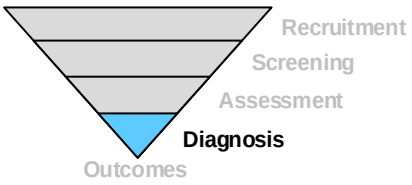
Language spoken at home

There was little difference in the median time between a positive screen and assessment for those who spoke a language other than English (55 days) at home and those who spoke English at home (54 days) (Table A3.19).

Disability status

There was a longer median time between positive screen and assessment for participants reporting a severe or profound activity limitation (65 days) than participants who did not report such a limitation (53 days) (Table A3.19).

3.5 Diagnosis

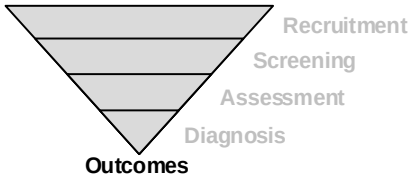


Diagnosis data available were not considered complete enough to enable formal performance indicator reporting for indicators:

- PI 5a—Adenoma detection rate
- PI 5b—Positive predictive 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) 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 2016 and 31 December 2016** 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 aspect of population screening. Accordingly, it is important to report known harms from screening when monitoring the performance for the program.

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

Guide to interpretation: This indicator includes all those who underwent a diagnostic assessment in the defined period (as recorded by 30 June 2017), 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: 6 per 10,000 assessments.

Hospital admissions

In 2016, 36,781 people had a diagnostic assessment.

Of those, 23 people were admitted to hospital within 30 days of assessment, giving an overall Australia-wide hospital admission rate after assessment of 6 per 10,000 assessments (Table A3.21). Reporting of adverse events after a NBCSP colonoscopy is not mandatory, so this rate might be an underestimate.

Due to concerns about the level of data completeness, data are not further broken down for this indicator.

PI 10—Incidence of colorectal (bowel) cancer

Definition: The (estimated) incidence rate for bowel cancer (per 100,000 estimated resident population) between **1 January 2018 and 31 December 2018** (AIHW 2014b).

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

Data quality: Each Australian state and territory has legislation that makes the reporting of cancer (excluding basal cell and squamous cell carcinomas of the skin) mandatory. The ACD contains data on cancers diagnosed up to and including 2014—but the 2014 incidence counts for New South Wales are estimates, because the data were not available.

Guide to interpretation: The latest estimated incidence results (for 2018) are given where possible. But estimated 2018 incidence numbers are not available for analysis by state and territory, remoteness areas, socioeconomic areas, or Indigenous status. As a result, for these groups, the latest actual data to 2013 are used.

National bowel cancer incidence rate: 58 cases per 100,000 people.

Incidence of bowel cancer

In 2018, an estimated 17,004 people will be diagnosed with bowel cancer, an age-standardised rate of 58 cases per 100,000 people (Table A3.22).

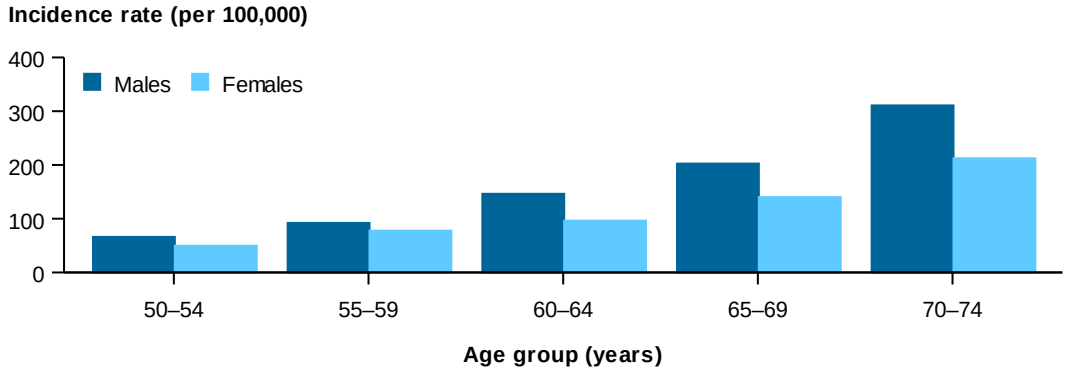
Sex

Males will be more likely to be diagnosed with bowel cancer than females (67 cases per 100,000 males compared with 49 cases per 100,000 females) (Table A3.22).

This pattern is similar for people in the target age range (150 cases per 100,000 males aged 50–74, and 107 cases per 100,000 females aged 50–74) (Figure 3.17).

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 increasing age, from 58 per 100,000 people aged 50–54 to 261 per 100,000 people aged 70–74 (Figure 3.17; Table A3.22).



Notes

1. The 2018 estimates are based on 2004–2013 incidence data.
2. Age-specific rates are expressed per 100,000 people.

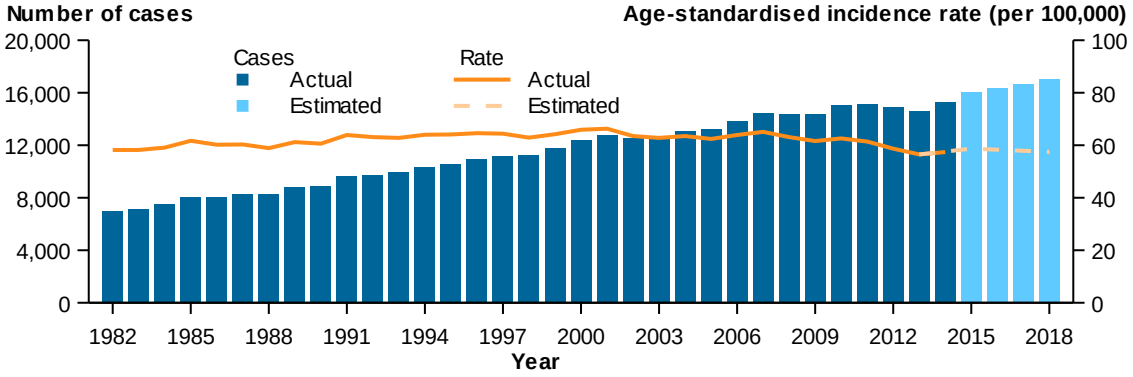
Sources: AIHW ACD 2014 Table A3.22.

Figure 3.17: Incidence rate of bowel cancer for people aged 50–74, by sex and age group, 2018

Trend

The number of bowel cancer cases rose from 6,985 in 1982 to an estimated 17,004 in 2018. The age-standardised rate fluctuated between 57 cases per 100,000 people and 66 cases per 100,000 (Figure 3.18).

The overall effect of the ageing population is that, while the age-standardised incidence rate has recently fallen, the actual number of cases has continued to increase. The introduction of the NBCSP in 2006 might have contributed to rises in the bowel cancer incidence count, because some prevalent cases of cancer are diagnosed earlier than they might have been without screening.



Notes

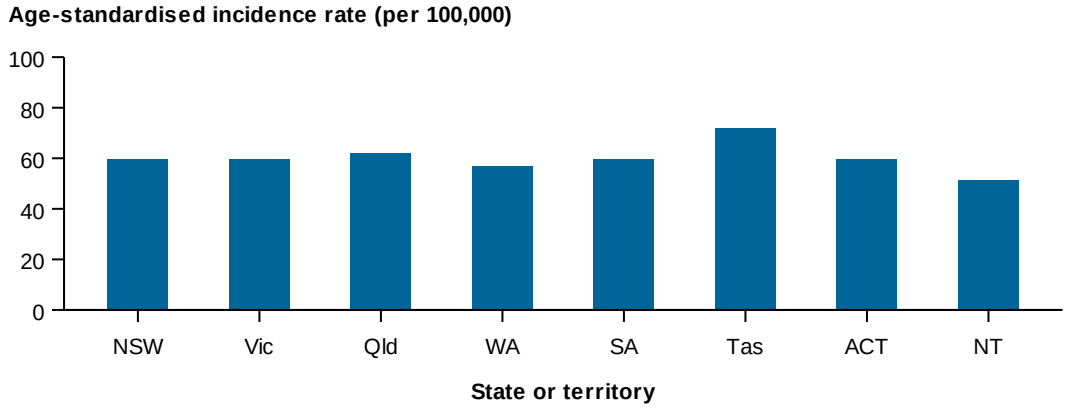
1. Estimated incidence data for 2015–2018 are based on 2004–2013 incidence data. Actual incidence data for 2015–2018 might differ from these estimated incidence data due to current and ongoing program or practice changes.
2. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Sources: AIHW ACD 2014; Table A3.25.

Figure 3.18: Trend in new cases of bowel cancer, all ages, 1982–2018

State and territory

In 2009–2013, the age-standardised incidence rate was highest in Tasmania (72 cases per 100,000 people), and lowest in the Northern Territory (51 per 100,000) (Figure 3.19).



Notes

1. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.

Sources: AIHW ACD 2014; Table A3.23.

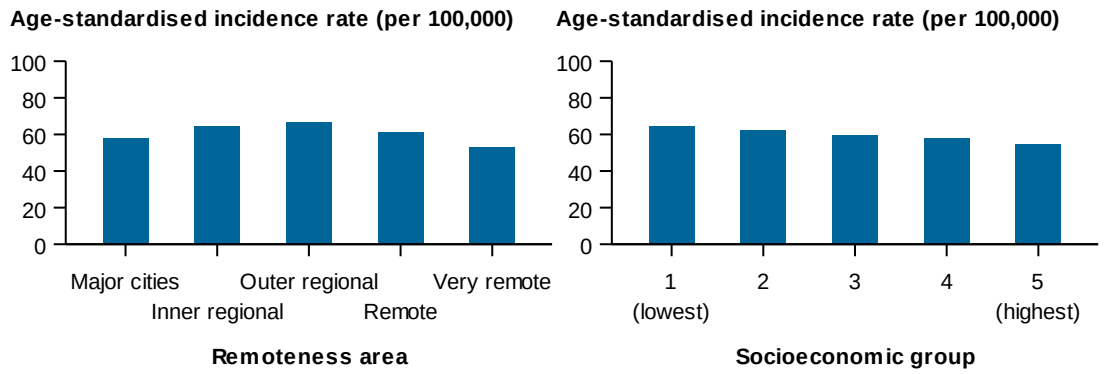
Figure 3.19: Incidence rate of bowel cancer, all ages, by state and territory, 2009–2013

Remoteness area

In 2009–2013, the age-standardised incidence rate was highest for people living in *Outer regional* areas (67 cases per 100,000 people), and lowest for people living in *Very remote* areas (53 cases per 100,000 people) (Figure 3.20).

Socioeconomic group

In 2009–2013, the age-standardised incidence rate was highest for people living in the lowest socioeconomic areas (65 cases per 100,000 people), and lowest for people living in the highest socioeconomic areas (55 cases per 100,000 people) (Figure 3.20).



Notes

1. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
2. Remoteness was classified according to the Australian Statistical Geography Standard remoteness areas (see Appendix E). Incidence cells might not sum to the total due to non-concordance of some remoteness categories.
3. Socioeconomic areas are classified using the Australian Bureau of Statistics (ABS) Index of Relative Socio-Economic Disadvantage (see Appendix E).

Sources: AIHW ACD 2014; Table A3.23.

Figure 3.20: Incidence rate of bowel cancer, all ages, by remoteness area, and by socioeconomic group, 2009–2013

Indigenous status

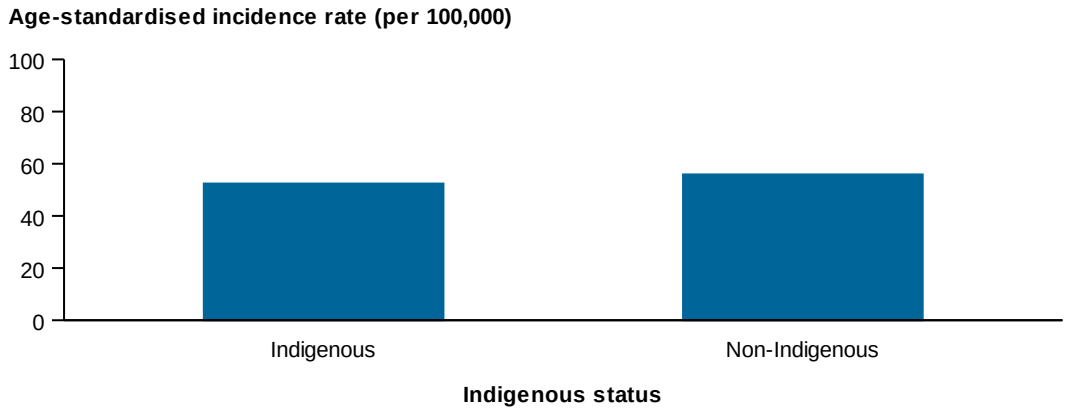
Reliable national data on the diagnosis of cancer for Aboriginal and Torres Strait Islander people are not available. All state and territory cancer registries collect information on Indigenous status, but in some jurisdictions, the quality of Indigenous status data is insufficient for analysis.

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

While the majority (90%) of Aboriginal and Torres Strait Islander people live in these 5 jurisdictions, the degree to which data for these jurisdictions are representative of data for all Indigenous Australians is unknown (ABS 2012).

For the 5 jurisdictions analysed, 7% of the ACD had records with unknown Indigenous status for bowel cancer diagnoses between 2009 and 2013. It is unclear how many Indigenous Australians are misclassified as non-Indigenous or classified with an 'unknown' Indigenous status.

In these 5 jurisdictions, Indigenous Australians had a lower age-standardised incidence rate than non-Indigenous Australians (52 cases per 100,000 people compared with 56 cases per 100,000) (Figure 3.21).



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

Sources: AIHW ACD 2014; Table A3.24.

Figure 3.21: Incidence rate of bowel cancer, all ages, by Indigenous status, New South Wales, Victoria, Queensland, Western Australia, and the Northern Territory, 2009–2013

PI 11—Mortality from colorectal (bowel) cancer

Definition: The (estimated) mortality rate for bowel cancer per 100,000 estimated resident population between **1 January 2018 and 31 December 2018** (AIHW 2014b).

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

Data quality: Data from the Cause of Death Unit Record File 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). These data 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).

Guide to interpretation: The latest estimated mortality results (for 2018) are given where possible. But analysis by state and territory, remoteness area, socioeconomic area, and Indigenous status groups use the latest mortality data (2015 at the time this report was prepared).

National bowel cancer mortality rate: 14 deaths per 100,000 people.

Bowel cancer deaths

In 2018, an estimated 4,129 people will die from bowel cancer, an age-standardised rate of 14 deaths per 100,000 people (Table A3.26).

Sex

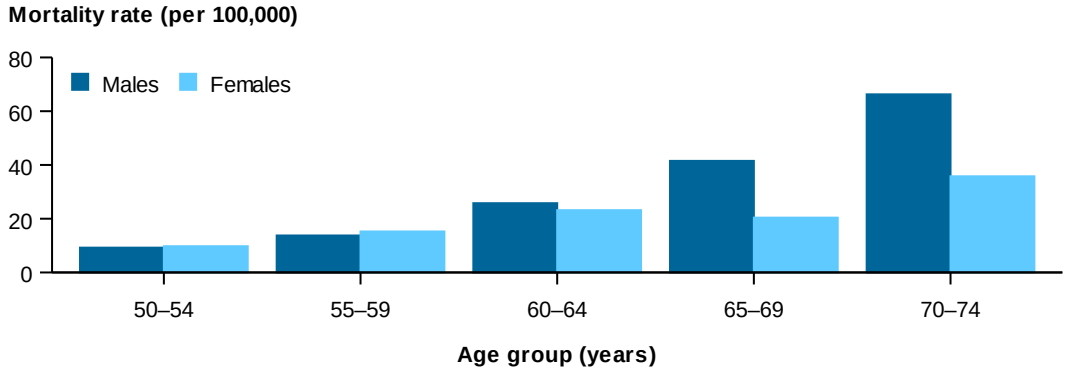
Males will be more likely to die from bowel cancer than females (15 deaths per 100,000 males compared with 12 deaths per 100,000 females) (Table A3.26).

This pattern is similar for people in the target age range (28 deaths per 100,000 males aged 50–74, and 20 deaths per 100,000 females aged 50–74) (Figure 3.22).

Age

The bowel cancer mortality rate will continue to be higher for older age groups (Table A3.26).

For people in the target age range, the estimated bowel cancer mortality rate will rise from 10 deaths per 100,000 people aged 50–54 to 51 deaths per 100,000 people aged 70–74 (Figure 3.22; Table A3.26).



Notes

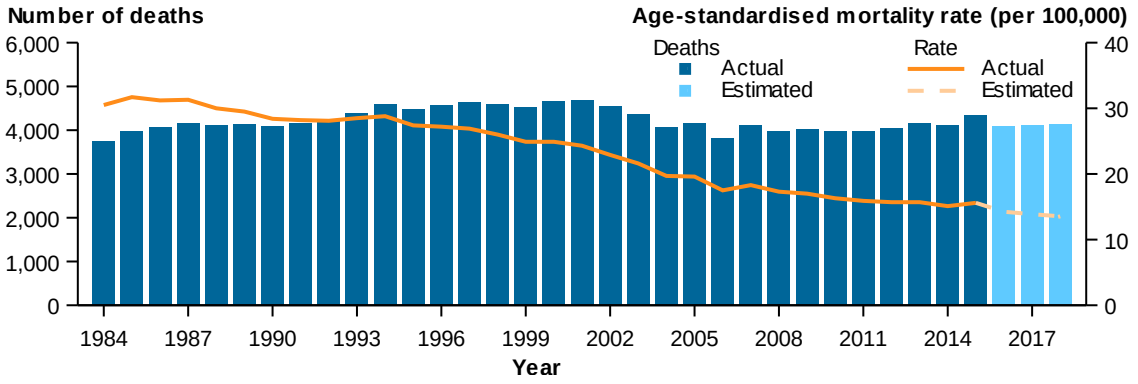
1. The 2018 estimates are based on 1997–2013 mortality data for males and 2006–2013 mortality data for females. See Appendix D for more information.
2. Age-specific rates are expressed per 100,000 people.

Source: AIHW NMD; Table A3.26.

Figure 3.22: Mortality rate from bowel cancer for people aged 50–74, by sex and age group, 2018

Trend

Between 1984 and 2018, the age-standardised mortality rate fell from 31 deaths per 100,000 people to an estimated 14 deaths per 100,000 (Figure 3.23).



Notes

1. Estimated mortality data for 2016–2018 are based on 1997–2013 mortality data for males and 2006–2013 mortality data for females. Actual mortality data for 2016–2018 might differ from these estimated mortality data due to current and ongoing program or practice changes. See Appendix D for more information.
2. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Source: AIHW NMD; Table A3.29.

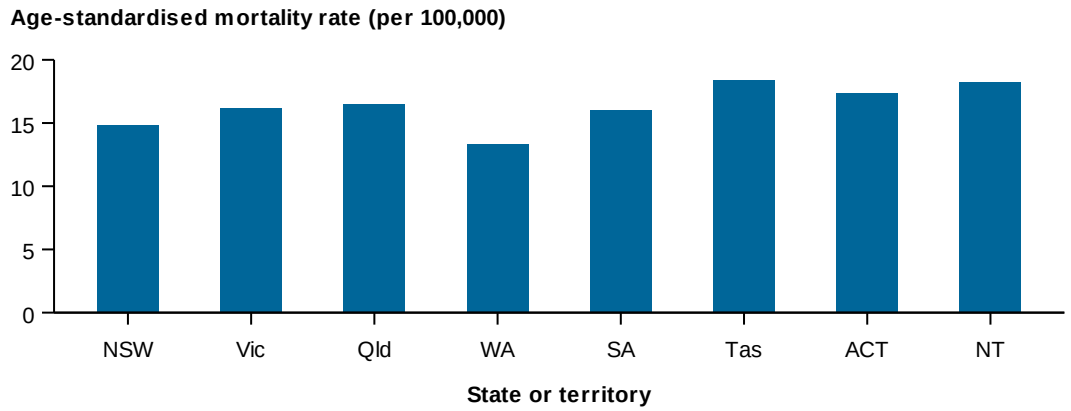
Figure 3.23: Trend in deaths from bowel cancer, all ages, 1984–2018

The NBCSP started in 2006 and has not yet completed its full rollout to biennially invite those in the 50–74 target age range.

This makes it harder to quantify its impact on bowel cancer mortality. But an AIHW study of people diagnosed with bowel cancer in 2006–2008 showed that NBCSP invitees (particularly those who participated) who had been diagnosed with bowel cancer had less risk of dying from bowel cancer, and were more likely to have less advanced cancers when diagnosed than non-invitees. These findings provide evidence that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

State and territory

Between 2011 and 2015, the age-standardised mortality rate was highest in Tasmania and the Northern Territory (18 deaths per 100,000 people), and lowest in Western Australia (13 deaths per 100,000) (Figure 3.24).



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

Source: AIHW NMD; Table A3.27.

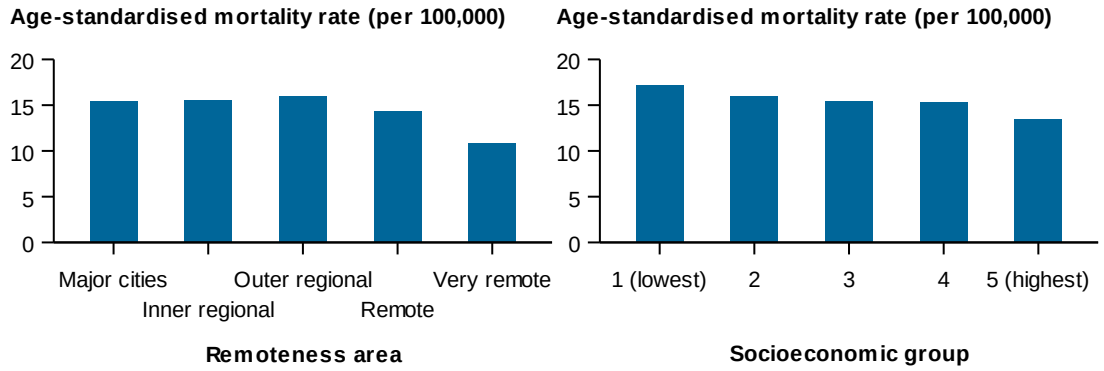
Figure 3.24: Mortality rate from bowel cancer, all ages, by state and territory, 2011–2015

Remoteness area

Between 2011 and 2015, the age-standardised mortality rate was highest for people living in *Major cities*, *Inner regional* areas and *Outer regional* areas (16 deaths per 100,000 people), and lowest for people living in *Very Remote* areas (11 deaths per 100,000) (Figure 3.25).

Socioeconomic group

Between 2011 and 2015, the age-standardised mortality rate was highest for people living in the lowest socioeconomic areas (17 deaths per 100,000 people), and lowest for people living in the highest socioeconomic areas (14 deaths per 100,000) (Figure 3.25).



Notes

1. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
2. Remoteness was classified according to the Australian Statistical Geography Standard remoteness areas (see Appendix E).
3. Socioeconomic areas are classified using the ABS Index of Relative Socio-Economic Disadvantage (see Appendix E).

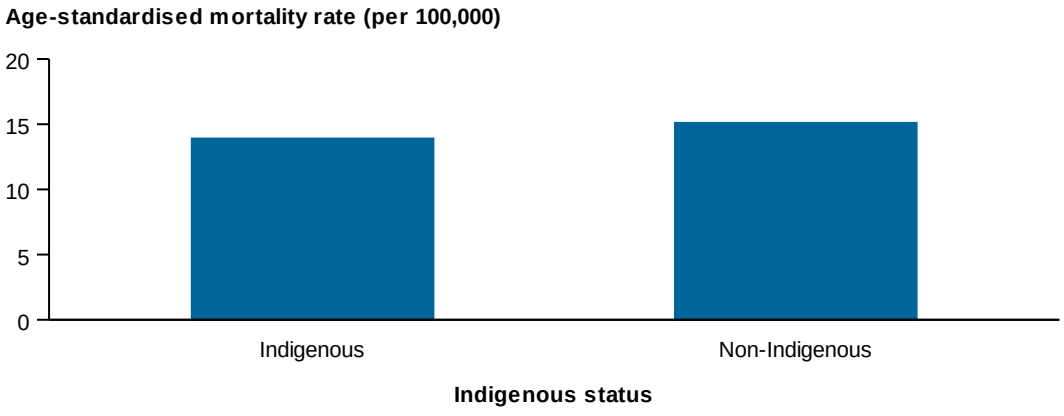
Source: AIHW NMD; Table A3.27.

Figure 3.25: Mortality rate from bowel cancer, all ages, by remoteness area, and by socioeconomic group, 2011–2015

Indigenous status

Only mortality data from New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory are currently considered adequate for reporting by Indigenous status.

In these jurisdictions, Indigenous Australians had a slightly lower age-standardised bowel cancer mortality rate than non-Indigenous Australians (14 deaths per 100,000 people compared with 15 deaths per 100,000) (Figure 3.26).



Source: AIHW NMD; Table A3.28.

Figure 3.26: Mortality rate from bowel cancer, all ages, by Indigenous status, New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory, 2011–2015

4 Bowel abnormality detection results

Diagnosis data were not considered complete enough to be formally reported in Chapter 3. Instead, a summary of bowel abnormality detection results for those assessed in 2016 are presented in this section, using available assessment and histopathology data to 31 December 2017.

In 2016, of the 36,855 participants who had a diagnostic assessment, Australia-wide:

- 228 (less than 1%) had a bowel cancer detected and confirmed by histopathology
- 1,182 (3.2%) had a suspected bowel cancer that was still awaiting histopathological diagnosis
- 4,439 (12.1%) had an adenoma diagnosed by histopathology
- 21,078 (57.2%) had no adenoma or cancer recorded (includes those with other diagnoses, and those only known to have had a colonoscopy by a Medicare claim, with no results available)
- 9,928 (26.9%) were still awaiting histopathology outcomes for a polyp biopsy sample that was not suspected of being bowel cancer (Table A4.1).

5 Spotlight on participation by population subgroups

5.1 Self-reported population group identification

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

Unfortunately, at present, reliable information is known only by self-identification when a participant returns a completed details form along with his or her iFOBT for analysis (the numerator). That is, membership of these population groups is known only for the 41% of people who participated, not for all invitees. As a result, it is not possible to 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 A5.1–A5.3) 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.

Note that in this report 2016 Census data were used to produce estimated denominators for these population groups. The previous 2017 Monitoring report used 2011 Census data to produce estimated population group denominators. Therefore, chapter 5 results in the two reports cannot be compared.

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 2015–2016 NBCSP participation data and the 2016 Census data (2.9% 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, the 2015–2016 participation rate for Indigenous Australians aged 50–74 was estimated to be 19.5%; this compares with an estimated participation rate for non-Indigenous Australians of 42.7% (giving the overall rate of 40.9% reported for PI 1). While the Indigenous participation estimate in this report is lower than the 2014–2015 Indigenous participation estimate presented in the 2017 Monitoring report, the difference is likely to be largely due to the use of 2016 Census data to produce Indigenous population denominators in this report rather than a decrease in Indigenous participation in the program. To illustrate, if 2016 Census proportions are also applied to the data used in the earlier 2017 Monitoring report, the estimated Indigenous participation rates for the 2014–2015 period is 19.2%.

Overall, this high-level estimate indicates it is highly likely that Indigenous Australians participate at a lower rate than non-Indigenous Australians.

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.

Estimated participation by language spoken at home

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

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

To resolve this issue, a participation range method has been used for language spoken at home. The rate is provided as a range that covers what the percentage would be if the entire 'not stated' percentage was added to the 'English' column, and what it would be if the entire 'not stated' percentage was added to the 'Language other than English' column (tables 5.1 and A5.2).

Table 5.1: Estimated participation rate for people aged 50–74, by language spoken at home, sex and age group, 2015–2016

		Estimated participation rate ranges		
Sex	**Age group (years)**	**Language other than English**	**English**	**Total participation rate (%)**
Males	50–54	14.9–20.4	27.5–30.0	26.2
	55–59	20.2–28.4	33.9–36.9	33.0
	60–64	24.6–35.2	41.0–44.6	40.1
	65–69	23.4–34.2	43.3–47.0	42.0
	70–74	29.4–43.9	53.2–58.0	51.8
	50–74	*22.3–31.7*	*40.4–43.9*	*39.0*
Females	50–54	18.1–23.3	31.6–34.0	30.0
	55–59	24.4–32.2	39.2–42.3	38.0
	60–64	28.8–38.7	46.6–50.3	45.2
	65–69	26.9–37.7	48.0–51.9	46.4
	70–74	28.5–41.5	55.3–60.3	53.2
	50–74	*25.2–33.9*	*44.8–48.4*	*42.9*
Persons	50–54	16.5–21.9	29.5–32.0	28.1
	55–59	22.3–30.4	36.6–39.6	35.5
	60–64	26.7–37.0	43.8–47.4	42.7
	65–69	25.2–36.0	45.6–49.5	44.2
	70–74	29.0–42.7	54.3–59.2	52.5
	50–74	**23.8–32.8**	**42.6–46.1**	**40.9**

Source: AIHW analysis of NBCSP Register as at 30 June 2017, using 2016 Census data.

From the estimated participation rate ranges in Table 5.1, it is likely that those who speak a language other than English participate at a lower rate than those who speak English. Females and older age groups have larger differences in estimated participation rates.

Estimated participation by disability status

Using the Census data in Table A5.3 to estimate denominators, estimated participation rates by disability status have been calculated (Table 5.2).

Table 5.2: Estimated participation rate for people aged 50–74, by disability status, sex and age group, 2015–2016

Sex	Age group (years)	Estimated participation rate			Total participation rate (%)
		Severe or profound activity limitation	No severe or profound activity limitation	Not stated[(a)]	
Males	50–54	24.9	26.0	28.3	26.2
	55–59	27.4	34.2	22.6	33.0
	60–64	31.4	42.0	25.9	40.1
	65–69	29.7	43.8	34.3	42.0
	70–74	36.0	56.0	29.4	51.8
	50–74	*33.9*	*40.3*	*27.9*	*39.0*
Females	50–54	30.8	29.8	31.3	30.0
	55–59	35.3	39.3	23.0	38.0
	60–64	40.0	47.2	24.4	45.2
	65–69	35.5	48.3	34.6	46.4
	70–74	32.9	58.3	25.9	53.2
	50–74	*37.6*	*44.5*	*27.6*	*42.9*
Persons	50–54	28.0	27.9	29.7	28.1
	55–59	31.5	36.7	22.8	35.5
	60–64	35.7	44.6	25.2	42.7
	65–69	32.5	46.1	34.5	44.2
	70–74	34.5	57.2	27.7	52.5
	50–74	**35.7**	**42.4**	**27.8**	**40.9**

(a) The total proportions of 'Not stated' records were 4.9% for participants, and 7.2% in the 2016 Census.

Source: AIHW analysis of NBCSP Register as at 30 June 2017 using 2016 Census data.

From the estimated participation rates in Table 5.2 it is likely that those with a severe or profound activity limitation participate at a lower rate than those without such a limitation.

Appendix A: Data tables

Additional table for Chapter 1

Table A1.1: Government funding for cancer screening programs, 2015–16 ($ million)

Screening program	Australian Government	State/territory governments	Total expenditure for 2015–16
BreastScreen Australia	15.9[(a)]	252.7	268.6[(b)]
National Cervical Screening Program	55.5[(a)]	28.8	84.3[(b)(c)]
Medicare Benefits Schedule items for cervical screening	*41.0*		
Practice Incentives Program payments for cervical screening	*5.1*		
Funding for the Victorian Cytology Service	*9.3*		
National Bowel Cancer Screening Program	52.9[(d)]	3.2	56.1[(e)]

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

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

(c) Excludes the proportion of the costs associated with general practitioner, specialist and nurse attendances that would have been for pap tests. As a result, it cannot be compared with expenditure for 2008–09, which included an estimate for these costs (AIHW 2013).

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

(e) Excludes: Medicare Benefits Schedule flow-on costs; general practitioner incentives payments; and bowel screening that occurs outside the National Bowel Cancer Screening Program.

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

Sources: AIHW Health Expenditure Database; Medicare Australia statistics.

Additional tables for Chapter 2

Table A2.1: Five-year relative survival from bowel cancer, by sex and age group, 2010–2014

	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.	n.p.	n.p.
15–19	91.8	94.6	93.5
20–24	80.9	86.3	83.7
25–29	75.3	77.3	76.5
30–34	72.4	75.6	74.1
35–39	73.2	75.8	74.5
40–44	72.8	72.9	72.9
45–49	72.9	75.7	74.2
50–54	75.4	77.8	76.4
55–59	75.2	76.2	75.6
60–64	71.2	75.0	72.7
65–69	74.1	77.1	75.3
70–74	69.1	73.2	70.8
75–79	66.5	67.9	67.2
80–84	65.4	65.8	65.7
85+	57.0	58.1	57.8
50–74	*72.4*	*75.5*	*73.7*
All ages	**69.6**	**70.8**	**70.2**

Source: ACD 2014.

Table A2.2: Trend in 5-year relative survival from bowel cancer, all ages, 1985–1989 to 2010–2014

Year	5-year relative survival (%)
1985–1989	50.5
1990–1994	54.7
1995–1999	58.2
2000–2004	62.0
2005–2009	65.6
2010–2014	70.2

Source: ACD 2014.

Table A2.3: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, all ages, 2010–2014

	Relative survival	Conditional survival	
Years after diagnosis	Relative survival (%)	Years already survived	5-year conditional relative survival (%)
1	86.3	. .	. .
2	79.5	. .	. .
3	75.1	. .	. .
4	72.1	. .	. .
5	70.2	0	70.2
6	68.6	1	79.4
7	67.5	2	84.9
8	66.6	3	88.6
9	65.9	4	91.4
10	65.4	5	93.2
11	65.2	6	95.1
12	65.0	7	96.3
13	64.9	8	97.6
14	65.0	9	98.6
15	65.3	10	99.9
16	65.6	11	100.0
17	66.1	12	100.0
18	66.7	13	100.0
19	67.2	14	100.0
20	67.9	15	100.0

Source: ACD 2014.

Additional tables for Chapter 3

Recruitment

Table A3.1: Screening invitations including opt-out and deferred status of people aged 50–74, by sex and age group, 2015–2016

Sex	Age group (years)	Invitations issued to eligible persons (No.)	Persons differing (No.)	Persons opting out (No.)	Persons deferred and opted out (No.)	Persons deferred and opted out (%)	Invitations (minus deferred and opted out) (No.)
Males	50–54	317,584	1,204	3,173	4,377	1.4	313,417
	55–59	306,447	1,392	2,608	4,000	1.3	302,672
	60–64	378,442	2,709	4,896	7,605	2.0	371,317
	65–69	246,150	2,988	8,165	11,153	4.5	235,629
	70–74	378,643	4,364	11,907	16,271	4.3	363,597
	50–74	*1,627,266*	*12,657*	*30,749*	*43,406*	*2.7*	*1,586,632*
Females	50–54	316,450	1,807	3,963	5,770	1.8	311,017
	55–59	307,179	1,995	3,329	5,324	1.7	302,206
	60–64	383,302	3,770	5,883	9,653	2.5	374,456
	65–69	249,286	3,994	10,282	14,276	5.7	235,989
	70–74	382,900	5,505	14,627	20,132	5.3	364,535
	50–74	*1,639,117*	*17,071*	*38,084*	*55,155*	*3.4*	*1,588,203*
Persons	50–54	634,034	3,011	7,136	10,147	1.6	624,434
	55–59	613,626	3,387	5,937	9,324	1.5	604,878
	60–64	761,744	6,479	10,779	17,258	2.3	745,773
	65–69	495,436	6,982	18,447	25,429	5.1	471,618
	70–74	761,543	9,869	26,534	36,403	4.8	728,132
	50–74	**3,266,383**	**29,728**	**68,833**	**98,561**	**3.0**	**3,174,835**

Source: NBCSP Register as at 30 June 2017.

Table A3.2: Participation of people aged 50–74, by sex and age group, 2015–2016

Sex	Age group (years)	Returned completed screening test (No.)	Invitations (minus opted out and deferred) (No.)	Participation (%)
Males	50–54	81,990	313,417	26.2
	55–59	99,951	302,672	33.0
	60–64	148,909	371,317	40.1
	65–69	98,880	235,629	42.0
	70–74	188,483	363,597	51.8
	50–74	*618,213*	*1,586,632*	*39.0*
Females	50–54	93,254	311,017	30.0
	55–59	114,742	302,206	38.0
	60–64	169,289	374,456	45.2
	65–69	109,383	235,989	46.4
	70–74	194,061	364,535	53.2
	50–74	*680,729*	*1,588,203*	*42.9*
Persons	50–54	175,244	624,434	28.1
	55–59	214,693	604,878	35.5
	60–64	318,198	745,773	42.7
	65–69	208,263	471,618	44.2
	70–74	382,544	728,132	52.5
	50–74	**1,298,942**	**3,174,835**	**40.9**

Source: NBCSP Register as at 30 June 2017

Table A3.3: Participation of people aged 50–74, by invitation round and age group, 2015–2016

Round	Screened in previous round	Age group (years)	Returned completed screening test (No.)	Invitations (minus opted out and deferred) (No.)	Participation (%)
First	n.a.	50–54	173,472	621,523	27.9
		55–59	3,598	13,661	26.3
		60–64	5,920	18,718	31.6
		65–69	144,226	336,933	42.8
		70–74	24,182	53,868	44.9
		50–74	*351,398*	*1,044,703*	*33.6*
Subsequent	No	50–54	1,472	2,538	58.0
		55–59	72,237	399,856	18.1
		60–64	96,677	444,481	21.8
		65–69	18,763	73,631	25.5
		70–74	79,219	326,471	24.3
		50–74	*268,368*	*1,246,977*	*21.5*
	Yes	50–54	300	373	80.4
		55–59	138,858	191,361	72.6
		60–64	215,601	282,574	76.3
		65–69	45,274	61,054	74.2
		70–74	279,143	347,793	80.3
		50–74	*679,176*	*883,155*	*76.9*
	All	50–54	1,772	2,911	60.9
		55–59	211,095	591,217	35.7
		60–64	312,278	727,055	43.0
		65–69	64,037	134,685	47.5
		70–74	358,362	674,264	53.1
		50–74	*947,544*	*2,130,132*	*44.5*
All rounds	No[(a)]	50–54	174,944	624,061	28.0
		55–59	75,835	413,517	18.3
		60–64	102,597	463,199	22.1
		65–69	162,989	410,564	39.7
		70–74	103,401	380,339	27.2
		50–74	*619,766*	*2,291,680*	*27.0*
	Yes	50–54	300	373	80.4
		55–59	138,858	191,361	72.6
		60–64	215,601	282,574	76.3
		65–69	45,274	61,054	74.2
		70–74	279,143	347,793	80.3
		50–74	*679,176*	*883,155*	*76.9*
	All	50–54	175,244	624,434	28.1
		55–59	214,693	604,878	35.5
		60–64	318,198	745,773	42.7
		65–69	208,263	471,618	44.2
		70–74	382,544	728,132	52.5
		50–74	**1,298,942**	**3,174,835**	**40.9**

(a) Includes all first-round invitations.

Source: NBCSP Register as at 30 June 2017.

Table A3.4: Participation of people aged 50–74, by state and territory, remoteness area, and socioeconomic group, 2015–2016

Area		Returned completed screening test (No.)	Invitations (minus opted out and deferred) (No.)	Participation rate (%)
State or territory	NSW	396,271	1,038,357	38.2
	Vic	332,870	794,704	41.9
	Qld	252,763	624,896	40.4
	WA	138,981	323,820	42.9
	SA	113,321	241,239	47.0
	Tas	36,595	78,943	46.4
	ACT	21,349	48,992	43.6
	NT	6,792	23,884	28.4
Remoteness area	Major cities	860,941	2,157,636	39.9
	Inner regional	289,892	654,533	44.3
	Outer regional	129,061	306,941	42.0
	Remote	14,170	38,321	37.0
	Very remote	4,685	16,719	28.0
	Unknown	192	686	28.0
Socioeconomic group	1 (lowest)	247,784	637,932	38.8
	2	261,675	638,046	41.0
	3	252,183	622,622	40.5
	4	255,167	612,529	41.7
	5 (highest)	269,411	630,207	42.7
	Unknown	12,722	33,499	38.0
Total		**1,298,942**	**3,174,835**	**40.9**

Source: NBCSP Register as at 30 June 2017.

Table A3.5: Participation rate (%) of people aged 50–74, by sex and age group, 2007–2008 to 2015–2016

Sex	Age group (years)	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
Males	50–54	31.3	34.1	32.2	29.9	28.0	26.9	26.5	26.4	26.2
	55–59	37.4	38.3	36.8	34.4	32.3	32.6	33.9	34.1	33.0
	60–64	. .	. .	. .	. .	. .	. .	40.6	40.2	40.1
	65–69	49.1	50.6	49.4	47.1	45.5	43.5	41.7	41.1	42.0
	70–74	. .	. .	. .	. .	. .	. .	. .	51.8	51.8
	50–74	*40.0*	*39.8*	*37.9*	*35.7*	*34.1*	*33.4*	*34.7*	*36.5*	*39.0*
Females	50–54	38.0	40.8	37.4	34.7	32.6	31.2	30.8	30.6	30.0
	55–59	47.1	47.6	44.7	41.9	39.4	38.9	39.7	39.4	38.0
	60–64	. .	. .	. .	. .	. .	. .	47.2	46.2	45.2
	65–69	56.2	57.7	55.4	52.9	51.4	49.2	46.8	45.8	46.4
	70–74	. .	. .	. .	. .	. .	. .	. .	53.1	53.2
	50–74	*48.2*	*47.5*	*44.2*	*41.6*	*39.9*	*38.8*	*40.1*	*41.2*	*42.9*
Persons	50–54	34.7	37.4	34.8	32.3	30.3	29.0	28.6	28.5	28.1
	55–59	42.2	42.9	40.7	38.1	35.8	35.8	36.8	36.8	35.5
	60–64	. .	. .	. .	. .	. .	. .	43.9	43.2	42.7
	65–69	52.6	54.1	52.3	49.9	48.4	46.3	44.2	43.5	44.2
	70–74	. .	. .	. .	. .	. .	. .	. .	52.5	52.5
	50–74	**44.0**	**43.6**	**41.0**	**38.6**	**37.0**	**36.1**	**37.4**	**38.9**	**40.9**

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

Source: NBCSP Register as at 30 June 2017.

Screening

Table A3.6: Screening positivity rate of people aged 50–74, by sex and age group, 2016

Sex	Age group at screen (years)	Positive result (No.)	Valid screening test (No.)	Screening positivity (%)
Males	50–54	2,709	41,114	6.6
	55–59	3,437	50,216	6.8
	60–64	7,558	90,638	8.3
	65–69	4,822	51,203	9.4
	70–74	12,556	113,711	11.0
	50–74	*31,082*	*346,882*	*9.0*
Females	50–54	2,862	46,495	6.2
	55–59	3,352	57,297	5.9
	60–64	6,718	102,444	6.6
	65–69	4,202	56,649	7.4
	70–74	10,437	116,204	9.0
	50–74	*27,571*	*379,089*	*7.3*
Persons	50–54	5,571	87,609	6.4
	55–59	6,789	107,513	6.3
	60–64	14,276	193,082	7.4
	65–69	9,024	107,852	8.4
	70–74	22,993	229,915	10.0
	50–74	**58,653**	**725,971**	**8.1**

Source: NBCSP Register as at 30 June 2017.

Table A3.7: Screening positivity rate of people aged 50–74, by screening round, 2016

Screening round	Positive result (No.)	Valid screening test (No.)	Screening positivity (%)
First	26,308	308,052	8.5
Subsequent	32,345	417,919	7.7
All rounds	**58,653**	**725,971**	**8.1**

Source: NBCSP Register as at 30 June 2017.

Table A3.8: Screening positivity rate of people aged 50–74, by state and territory, remoteness area, and socioeconomic group, 2016

Area		Positive result (No.)	Valid screening test (No.)	Screening positivity (%)
State or territory	NSW	18,206	223,273	8.2
	Vic	14,972	188,573	7.9
	Qld	11,436	143,188	8.0
	WA	5,977	73,539	8.1
	SA	5,227	62,506	8.4
	Tas	1,680	19,488	8.6
	ACT	874	11,793	7.4
	NT	281	3,611	7.8
Remoteness area	Major cities	37,566	479,093	7.8
	Inner regional	13,630	163,539	8.3
	Outer regional	6,483	72,804	8.9
	Remote	722	7,899	9.1
	Very remote	244	2,530	9.6
	Unknown	8	105	7.6
Socioeconomic group	1 (lowest)	12,781	138,214	9.2
	2	12,859	147,089	8.7
	3	11,502	141,387	8.1
	4	10,859	142,763	7.6
	5 (highest)	10,170	149,680	6.8
	Unknown	482	6,838	7.0
Total		**58,653**	**725,971**	**8.1**

Source: NBCSP Register as at 30 June 2017.

Table A3.9: Screening positivity rate of people aged 50–74, by Indigenous status, language spoken at home, and disability status, 2016

Population group		Positive result (No.)	Valid screening test (No.)	Screening positivity (%)
Indigenous status	Indigenous	579	5,197	11.1
	Non-Indigenous	56,062	700,861	8.0
	Not stated	2,012	19,913	10.1
Language spoken at home	Language other than English	8,278	97,843	8.5
	English	50,375	628,128	8.0
Disability status	Severe or profound activity limitation	4,921	39,778	12.4
	No severe or profound activity limitation	50,681	652,786	7.8
	Not stated	3,051	33,407	9.1
Total		**58,653**	**725,971**	**8.1**

Source: NBCSP Register as at 30 June 2017.

Assessment

Table A3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age group, 2016

Sex	Age group at first positive screen (years)	Assessments (No.)	Positive iFOBT result (No.)	Diagnostic assessment rate (%)
Males	50–54	1,877	2,712	69.2
	55–59	2,368	3,438	68.9
	60–64	5,184	7,557	68.6
	65–69	3,284	4,823	68.1
	70–74	8,216	12,557	65.4
	50–74	*20,929*	*31,087*	*67.3*
Females	50–54	1,988	2,863	69.4
	55–59	2,368	3,354	70.6
	60–64	4,714	6,721	70.1
	65–69	2,933	4,202	69.8
	70–74	6,996	10,436	67.0
	50–74	*18,999*	*27,576*	*68.9*
Persons	50–54	3,865	5,575	69.3
	55–59	4,736	6,792	69.7
	60–64	9,898	14,278	69.3
	65–69	6,217	9,025	68.9
	70–74	15,212	22,993	66.2
	50–74	**39,928**	**58,663**	**68.1**

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. As a result, the number of assessment counts might be different across indicators.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See ‘Current reporting limitations’ in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.11: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, remoteness area, and socioeconomic group, 2016

Area		Assessments (No.)	Positive iFOBT result (No.)	Diagnostic assessment rate (%)
State or territory	NSW	11,018	18,210	60.5
	Vic	10,088	14,973	67.4
	Qld	9,146	11,435	80.0
	WA	3,790	5,981	63.4
	SA	3,869	5,229	74.0
	Tas	1,216	1,680	72.4
	ACT	644	874	73.7
	NT	157	281	55.9
Remoteness area	Major cities	26,912	37,574	71.6
	Inner regional	8,520	13,632	62.5
	Outer regional	3,958	6,484	61.0
	Remote	406	722	56.3
	Very remote	128	243	52.6
	Unknown	5	8	62.5
Socioeconomic group	1 (lowest)	7,815	12,782	61.1
	2	8,199	12,864	63.7
	3	7,966	11,504	69.2
	4	7,907	10,860	72.8
	5 (highest)	7,733	10,171	76.0
	Unknown	308	482	63.9
Total		**39,928**	**58,663**	**68.1**

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. As a result, the number of assessment counts might be different across indicators.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by Indigenous status, language spoken at home and disability status, 2016

Population group		Assessments (No.)	Positive iFOBT result (No.)	Diagnostic assessment rate (%)
Indigenous status	Indigenous	306	581	52.7
	Non-Indigenous	38,378	56,081	68.4
	Not stated	1,244	2,001	62.2
Language spoken at home	Language other than English	5,336	8,288	64.4
	English	34,592	50,375	68.7
Disability status	Severe or profound activity limitation	2,717	4,920	55.2
	No severe or profound activity limitation	35,291	50,691	69.6
	Not stated	1,920	3,052	62.9
Total		**39,928**	**58,663**	**68.1**

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. As a result, the number of assessment counts might be different across indicators.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age group, 2007–2016

Sex	Age group at first positive screen (years)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Males	50–54	. .	75.5	76.4	76.8	74.7	74.2	71.8	73.4	71.5	69.2
	55–59	77.7	77.6	75.4	77.4	77.0	74.2	74.1	71.7	70.9	68.9
	60–64	. .	. .	. .	. .	. .	. .	74.5	72.8	70.5	68.6
	65–69	75.9	76.5	77.0	77.8	78.3	75.0	74.4	73.8	70.1	68.1
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.4	65.4
	50–74	*76.7*	*76.7*	*76.3*	*77.4*	*76.9*	*74.6*	*73.7*	*73.0*	*69.9*	*67.3*
Females	50–54	.	77.4	76.2	78.4	78.0	75.5	74.3	73.6	73.5	69.4
	55–59	78.0	79.2	79.8	77.6	77.5	75.8	74.8	73.2	72.6	70.6
	60–64	. .	. .	. .	. .	. .	. .	75.9	74.0	72.8	70.1
	65–69	77.1	77.7	75.2	78.6	78.8	76.4	74.5	74.5	71.5	69.8
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.6	67.0
	50–74	*77.5*	*78.2*	*76.9*	*78.2*	*78.1*	*75.9*	*74.7*	*73.9*	*71.4*	*68.9*
Persons	50–54	. .	76.4	76.3	77.6	76.4	74.9	73.1	73.5	72.5	69.3
	55–59	77.8	78.4	77.6	77.5	77.3	75.0	74.4	72.5	71.7	69.7
	60–64	. .	. .	. .	. .	. .	. .	75.2	73.4	71.6	69.3
	65–69	76.4	77.0	76.2	78.2	78.5	75.6	74.4	74.1	70.7	68.9
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	68.5	66.2
	50–74	**77.1**	**77.4**	**76.6**	**77.8**	**77.5**	**75.2**	**74.2**	**73.4**	**70.6**	**68.1**

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. As a result, the number of assessment counts might be different across indicators.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.14: Time between positive screen and diagnostic assessment of people aged 50–74, by sex and age group, 2016

Sex	Age group (years)	No diagnostic assessment		30 days or less		60 days or less		90 days or less		180 days or less		360 days or less		More than 360 days		All
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Males	50–54	835	30.8	430	15.9	1,010	37.2	1,355	50.0	1,732	63.9	1,867	68.8	10	0.4	2,712
	55–59	1,070	31.1	518	15.1	1,258	36.6	1,681	48.9	2,184	63.5	2,351	68.4	17	0.5	3,438
	60–64	2,373	31.4	1,127	14.9	2,780	36.8	3,751	49.6	4,807	63.6	5,159	68.3	25	0.3	7,557
	65–69	1,539	31.9	712	14.8	1,809	37.5	2,425	50.3	3,054	63.3	3,262	67.6	22	0.5	4,823
	70–74	4,341	34.6	1,914	15.2	4,642	37.0	6,098	48.6	7,685	61.2	8,181	65.2	35	0.3	12,557
	50–74	*10,158*	*32.7*	*4,701*	*15.1*	*11,499*	*37.0*	*15,310*	*49.2*	*19,462*	*62.6*	*20,820*	*67.0*	*109*	*0.4*	*31,087*
Females	50–54	875	30.6	459	16.0	1,094	38.2	1,454	50.8	1,845	64.4	1,976	69.0	12	0.4	2,863
	55–59	986	29.4	571	17.0	1,334	39.8	1,783	53.2	2,230	66.5	2,355	70.2	13	0.4	3,354
	60–64	2,007	29.9	1,155	17.2	2,659	39.6	3,514	52.3	4,437	66.0	4,701	69.9	13	0.2	6,721
	65–69	1,269	30.2	715	17.0	1,654	39.4	2,239	53.3	2,766	65.8	2,922	69.5	11	0.3	4,202
	70–74	3,440	33.0	1,565	15.0	4,028	38.6	5,303	50.8	6,597	63.2	6,968	66.8	28	0.3	10,436
	50–74	*8,577*	*31.1*	*4,465*	*16.2*	*10,769*	*39.1*	*14,293*	*51.8*	*17,875*	*64.8*	*18,922*	*68.6*	*77*	*0.3*	*27,576*
Persons	50–54	1,710	30.7	889	15.9	2,104	37.7	2,809	50.4	3,577	64.2	3,843	68.9	22	0.4	5,575
	55–59	2,056	30.3	1,089	16.0	2,592	38.2	3,464	51.0	4,414	65.0	4,706	69.3	30	0.4	6,792
	60–64	4,380	30.7	2,282	16.0	5,439	38.1	7,265	50.9	9,244	64.7	9,860	69.1	38	0.3	14,278
	65–69	2,808	31.1	1,427	15.8	3,463	38.4	4,664	51.7	5,820	64.5	6,184	68.5	33	0.4	9,025
	70–74	7,781	33.8	3,479	15.1	8,670	37.7	11,401	49.6	14,282	62.1	15,149	65.9	63	0.3	22,993
	50–74	**18,735**	**31.9**	**9,166**	**15.6**	**22,268**	**38.0**	**29,603**	**50.5**	**37,337**	**63.6**	**39,742**	**67.7**	**186**	**0.3**	**58,663**

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.15: Time between positive screen and diagnostic assessment of people aged 50–74, by state and territory, remoteness area, and socioeconomic group, 2016

		No diagnostic assessment		30 days or less		60 days or less		90 days or less		180 days or less		360 days or less		More than 360 days		All
Area		**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**
State or territory	NSW	7,192	39.5	1,911	10.5	5,614	30.8	7,874	43.2	10,185	55.9	10,970	60.2	48	0.3	18,210
	Vic	4,885	32.6	3,745	25.0	7,133	47.6	8,480	56.6	9,710	64.9	10,061	67.2	27	0.2	14,973
	Qld	2,289	20.0	1,780	15.6	4,571	40.0	6,390	55.9	8,535	74.6	9,100	79.6	46	0.4	11,435
	WA	2,191	36.6	845	14.1	2,144	35.8	2,898	48.5	3,589	60.0	3,764	62.9	26	0.4	5,981
	SA	1,360	26.0	596	11.4	1,877	35.9	2,617	50.0	3,475	66.5	3,848	73.6	21	0.4	5,229
	Tas	464	27.6	173	10.3	546	32.5	806	48.0	1,104	65.7	1,207	71.8	9	0.5	1,680
	ACT	230	26.3	102	11.7	309	35.4	437	50.0	603	69.0	637	72.9	7	0.8	874
	NT	124	44.1	14	5.0	74	26.3	101	35.9	136	48.4	155	55.2	2	0.7	281
Remoteness area[(a)]	Major cities	10,750	28.4	6,924	18.3	15,549	41.0	20,257	53.5	25,346	66.9	27,011	71.3	120	0.3	37,881
	Inner regional	5,184	37.8	1,648	12.0	4,764	34.7	6,368	46.4	7,995	58.3	8,493	61.9	34	0.2	13,711
	Outer regional	2,400	38.5	541	8.7	1,778	28.5	2,700	43.3	3,597	57.7	3,804	61.0	28	0.4	6,232
	Remote	291	47.5	42	6.9	133	21.7	210	34.3	294	48.0	318	52.0	3	0.5	612
	Very remote	107	48.9	11	5.0	42	19.2	65	29.7	102	46.6	111	50.7	1	0.5	219
	Unknown	3	37.5	—	—	2	25.0	3	37.5	3	37.5	5	62.5	—	—	8
Socioeconomic group	1 (lowest)	4,967	38.9	1,285	10.1	3,689	28.9	5,226	40.9	7,141	55.9	7,761	60.7	54	0.4	12,782
	2	4,665	36.3	1,606	12.5	4,319	33.6	6,014	46.8	7,654	59.5	8,162	63.4	37	0.3	12,864
	3	3,538	30.8	1,877	16.3	4,526	39.3	5,993	52.1	7,467	64.9	7,937	69.0	29	0.3	11,504
	4	2,953	27.2	2,066	19.0	4,746	43.7	6,082	56.0	7,485	68.9	7,876	72.5	31	0.3	10,860
	5 (highest)	2,438	24.0	2,264	22.3	4,816	47.4	6,061	59.6	7,307	71.8	7,700	75.7	33	0.3	10,171
	Unknown	174	36.1	68	14.1	172	35.7	227	47.1	283	58.7	306	63.5	2	0.4	482
Total		**18,735**	**31.9**	**9,166**	**15.6**	**22,268**	**38.0**	**29,603**	**50.5**	**37,337**	**63.6**	**39,742**	**67.7**	**186**	**0.3**	**58,663**

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

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more detail.

Source: NBCSP Register as at 31 December 2017.

Table A3.16: Time between positive screen and diagnostic assessment of people aged 50–74, by Indigenous status, language spoken at home and disability status, 2016

		No diagnostic assessment		30 days or less		60 days or less		90 days or less		180 days or less		360 days or less		More than 360 days		All
Population group		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Indigenous status	Indigenous	275	47.3	30	5.2	125	21.5	183	31.5	280	48.2	302	52.0	4	0.7	581
	Non-Indigenous	17,703	31.6	8,910	15.9	21,542	38.4	28,582	51.0	35,937	64.1	38,211	68.1	167	0.3	56,081
	Not stated	757	37.8	226	11.3	601	30.0	838	41.9	1,120	56.0	1,229	61.4	15	0.7	2,001
Language spoken at home	Language other than English	2,952	35.6	1,332	16.1	2,886	34.8	3,756	45.3	4,907	59.2	5,310	64.1	26	0.3	8,288
	English	15,783	31.3	7,834	15.6	19,382	38.5	25,847	51.3	32,430	64.4	34,432	68.4	160	0.3	50,375
Disability status	Severe or profound activity limitation	2,203	44.8	525	10.7	1,255	25.5	1,747	35.5	2,428	49.3	2,698	54.8	19	0.4	4,920
	No severe or profound activity limitation	15,400	30.4	8,285	16.3	20,047	39.5	26,555	52.4	33,179	65.5	35,150	69.3	141	0.3	50,691
	Not stated	1,132	37.1	356	11.7	966	31.7	1,301	42.6	1,730	56.7	1,894	62.1	26	0.9	3,052
Total		**18,735**	**31.9**	**9,166**	**15.6**	**22,268**	**38.0**	**29,603**	**50.5**	**37,337**	**63.6**	**39,742**	**67.7**	**186**	**0.3**	**58,663**

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.17: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (days), by sex and age group, 2016

Sex	Age group at first positive screen (years)	Median	90th percentile
Males	50–54	55	162
	55–59	57	161
	60–64	56	155
	65–69	55	156
	70–74	53	149
	50–74	*55*	*154*
Females	50–54	55	154
	55–59	53	144
	60–64	53	144
	65–69	53	145
	70–74	53	141
	50–74	*53*	*144*
Persons	50–54	55	157
	55–59	55	151
	60–64	55	150
	65–69	54	152
	70–74	53	146
	50–74	**54**	**149**

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.18: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (days), by state and territory, remoteness area, and socioeconomic group, 2016

Area		Median	90th percentile
State or territory	NSW	59	160
	Vic	40	114
	Qld	61	154
	WA	53	142
	SA	63	182
	Tas	67	175
	ACT	62	149
	NT	63	197
Remoteness area[(a)]	Major cities	51	149
	Inner regional	55	148
	Outer regional	63	149
	Remote	72	165
	Very remote	71	168
	Unknown	72	197
Socioeconomic group	1 (lowest)	64	169
	2	57	149
	3	53	147
	4	49	138
	5 (highest)	47	138
	Unknown	53	161
Total		**54**	**149**

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

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.19: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (days), by Indigenous status, language spoken at home and disability status, 2016

Population group		Median	90th percentile
Indigenous status	Indigenous	76	170
	Non-Indigenous	54	148
	Not stated	62	178
Language spoken at home	Language other than English	55	164
	English	54	147
Disability status	Severe or profound activity limitation	65	184
	No severe or profound activity limitation	53	145
	Not stated	60	179
Total		**54**	**149**

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Table A3.20: Median time (days) between positive screen and diagnostic assessment of people aged 50–74, by sex and age group, 2007–2016

Sex	Age group at first positive screen (years)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Males	50–54	. .	58	63	62	58	58	59	60	57	55
	55–59	57	55	59	60	57	57	56	57	56	57
	60–64	. .	. .	. .	. .	. .	. .	59	57	55	56
	65–69	54	52	59	56	55	52	52	56	53	55
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	54	53
	50–74	*55*	*55*	*60*	*58*	*56*	*55*	*55*	*57*	*55*	*55*
Females	50–54	. .	54	60	60	59	56	55	55	55	55
	55–59	55	55	57	56	54	54	54	56	53	535
	60–64	. .	. .	. .	. .	. .	. .	58	52	52	53
	65–69	52	51	55	54	51	52	48	535	52	53
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	51	53
	50–74	*53*	*53*	*56*	*57*	*54*	*54*	*52*	*54*	*52*	*53*
Persons	50–54	. .	56	61	61	58	57	57	57	56	55
	55–59	56	55	58	58	56	56	55	57	55	55
	60–64	. .	. .	. .	. .	. .	. .	58	55	53	55
	65–69	53	52	56	55	53	52	50	54	53	54
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	53	53
	50–74	**55**	**54**	**58**	**57**	**55**	**55**	**54**	**56**	**54**	**54**

Note: This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Diagnosis

Diagnosis data were not considered complete enough for formal reporting of NBCSP diagnostic outcomes. As a result, 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 A3.21: Hospital admissions within 30 days of assessment of people aged 50–74, by sex and age group, 2016

Sex	Age group at assessment (years)	Hospital admissions (No.)	Assessments (No.)	Hospital admission rate (per 10,000 assessments)
Males	50–54	n.p.	1,807	n.p.
	55–59	n.p.	2,320	n.p.
	60–64	4	4,439	9.0
	65–69	n.p.	3,155	n.p.
	70–74	7	7,419	9.4
	50–74	*15*	*19,140*	*7.8*
Females	50–54	n.p.	1,924	n.p.
	55–59	n.p.	2,350	n.p.
	60–64	n.p.	4,170	n.p.
	65–69	n.p.	2,813	n.p.
	70–74	3	6,384	4.7
	50–74	*8*	*17,641*	*4.5*
Persons	50–54	n.p.	3,731	n.p.
	55–59	n.p.	4,670	n.p.
	60–64	6	8,609	7.0
	65–69	3	5,968	5.0
	70–74	10	13,803	7.2
	50–74	**23**	**36,781**	**6.3**

Notes

1. The hospital admission is calculated based on the diagnostic assessment date. This is the same as the PPV rate for adenoma and carcinoma. This is different from the diagnostic assessment rate, which is calculated based on the screening test date. As a result, assessment counts might be different across indicators.
2. This indicator relies on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 30 June 2017.

Table A3.22: Incidence of bowel cancer, by sex and age group, 2018

	Male		Female		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	—	—	1	0.1	1	0.1
10–14	2	0.3	5	0.6	7	0.5
15–19	8	1.0	11	1.5	18	1.2
20–24	17	2.0	21	2.5	38	2.3
25–29	61	6.5	63	6.9	123	6.7
30–34	75	7.9	86	9.1	161	8.5
35–39	120	13.5	112	12.7	232	13.1
40–44	183	22.5	135	16.5	318	19.5
45–49	282	33.4	258	30.0	540	31.6
50–54	506	66.1	389	49.7	894	57.8
55–59	701	92.2	609	77.7	1,310	84.8
60–64	988	146.3	676	96.4	1,664	120.9
65–69	1,195	202.5	860	140.1	2,055	170.7
70–74	1,552	310.8	1,110	212.4	2,662	260.5
75–79	1,561	462.3	1,163	315.4	2,724	385.6
80–84	1,062	482.7	1,009	374.3	2,070	423.0
85+	981	513.5	1,203	380.3	2,184	430.4
Ages 50–74 crude rate	*4,942*	*150.2*	*3,643*	*107.1*	*8,586*	*128.3*
All ages ASR	**9,294**	**66.7**	**7,709**	**49.2**	**17,004**	**57.5**

Notes

1. The 2018 estimates are based on 2004–2013 incidence data.
2. Age-specific rates are expressed per 100,000 people. The 'All ages ASRs' were age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Source: AIHW ACD 2014.

Table A3.23: Incidence of bowel cancer for all ages, by state and territory, remoteness area, and socioeconomic group, 2009–2013

Area		Number	ASR
State or territory	NSW	24,575	59.7
	Vic	18,478	59.6
	Qld	14,455	62.0
	WA	6,727	56.6
	SA	6,092	59.5
	Tas	2,304	71.9
	ACT	987	59.5
	NT	375	51.1
Remoteness area	Major cities	47,867	57.7
	Inner regional	16,828	64.5
	Outer regional	7,996	66.6
	Remote	891	61.4
	Very remote	345	53.1
	Unknown	66	. .
Socioeconomic group	1 (lowest)	17,015	64.6
	2	16,394	62.5
	3	14,766	59.7
	4	13,080	57.9
	5 (highest)	12,661	54.5
	Unknown	77	. .
Total		**73,993**	**60.1**

Notes

1. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.
3. Remoteness is classified according to the Australian Statistical Geography Standard remoteness areas (see Appendix E). Incidence cells might not sum to the total as some remoteness categories did not match.
4. Socioeconomic areas are classified using the ABS Index of Relative Socio-Economic Disadvantage (see Appendix E).

Source: AIHW ACD 2014.

Table A3.24: Incidence of bowel cancer, all ages, by Indigenous status, New South Wales, Victoria, Queensland, Western Australia, and the Northern Territory, 2009–2013

Indigenous status	Number	ASR
Indigenous	612	52.4
Non-Indigenous	59,650	55.9
Not stated	4,348	. .
Total	**64,610**	**60.0**

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

Source: AIHW ACD 2014.

Table A3.25: Incidence of bowel cancer, all ages, by sex, 1982–2018

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
1982	3,526	66.7	3,462	52.1	6,988	58.2
1983	3,724	68.2	3,436	50.6	7,160	58.2
1984	3,869	69.1	3,624	51.8	7,493	59.1
1985	4,181	72.5	3,826	53.7	8,007	61.7
1986	4,160	69.7	3,888	52.9	8,048	60.2
1987	4,336	70.9	3,935	52.2	8,271	60.3
1988	4,437	71.1	3,853	49.6	8,290	58.9
1989	4,741	74.2	4,051	51.2	8,792	61.2
1990	4,799	73.6	4,101	50.8	8,900	60.6
1991	5,181	76.5	4,466	53.8	9,647	63.9
1992	5,142	74.7	4,591	54.3	9,733	63.1
1993	5,340	74.9	4,573	52.8	9,913	62.8
1994	5,553	76.5	4,782	54.1	10,335	64.0
1995	5,754	77.4	4,817	53.2	10,571	64.1
1996	6,028	78.9	4,901	52.9	10,929	64.6
1997	6,112	77.8	5,072	53.3	11,184	64.4
1998	6,094	75.6	5,125	52.6	11,219	62.9
1999	6,281	76.0	5,452	54.4	11,733	64.2
2000	6,851	80.6	5,504	53.7	12,355	65.9
2001	6,926	79.2	5,849	55.4	12,775	66.3
2002	6,904	76.6	5,641	52.4	12,545	63.5
2003	6,897	74.7	5,766	52.6	12,663	62.8
2004	7,210	76.2	5,878	52.5	13,088	63.5
2005	7,232	74.5	5,962	51.9	13,194	62.4
2006	7,520	75.8	6,273	53.6	13,793	63.9
2007	7,919	77.1	6,545	54.9	14,464	65.1
2008	7,912	74.8	6,480	52.8	14,392	63.1
2009	7,927	73.4	6,450	51.3	14,377	61.6
2010	8,385	75.1	6,656	51.7	15,041	62.6
2011	8,259	72.2	6,827	51.9	15,086	61.4
2012	8,162	69.4	6,702	49.5	14,864	58.7
2013	7,918	65.3	6,707	48.7	14,625	56.5
2014	8,368	67.1	6,886	48.7	15,253	57.4
2015	8,785	68.6	7,246	49.9	16,031	58.7
2016	8,951	68.0	7,398	49.7	16,349	58.3
2017	9,127	67.3	7,555	49.4	16,682	57.9
2018	9,294	66.7	7,709	49.2	17,004	57.5

Notes

1. The 2015–2018 estimates are based on 2004–2013 incidence data.
2. Age-standardised rates are expressed per 100,000 people.

Source: AIHW ACD 2014.

Table A3.26: Mortality from bowel cancer, by sex and age group, 2018

	Males		Females		Persons	
Age group (years)	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	—	—	—	—	—	—
10–14	—	—	—	—	—	—
15–19	—	—	1	0.1	1	0.1
20–24	2	0.2	2	0.2	4	0.2
25–29	12	1.3	12	1.3	24	1.3
30–34	9	1.0	10	1.0	19	1.0
35–39	17	1.9	14	1.6	31	1.8
40–44	28	3.5	25	3.0	53	3.3
45–49	38	4.5	51	5.9	88	5.2
50–54	71	9.2	76	9.8	147	9.5
55–59	105	13.8	120	15.2	224	14.5
60–64	174	25.8	162	23.2	336	24.4
65–69	245	41.5	125	20.4	370	30.7
70–74	331	66.3	187	35.8	518	50.7
75–79	367	108.6	282	76.6	649	91.9
80–84	305	138.5	335	124.2	639	130.6
85+	421	220.4	604	190.8	1,025	201.9
Ages 50–74 crude rate	*925*	*28.1*	*670*	*19.7*	*1,596*	*23.8*
All ages ASR	**2,124**	**15.2**	**2,005**	**12.0**	**4,129**	**13.5**

Notes

1. The 2018 estimates are based on 1997–2013 mortality data for males, and 2006–2013 mortality data for females. See Appendix D for more information.
2. Bowel cancer deaths are likely underestimates (see ABS 2016).
3. Age-specific rates are expressed per 100,000 people. The 'All ages ASRs' were age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Source: AIHW NMD.

Table A3.27: Mortality from bowel cancer, all ages, by state and territory, remoteness area, and socioeconomic group, 2011–2015

Area		Number	ASR
State or territory	NSW	6,591	14.8
	Vic	5,469	16.2
	Qld	4,097	16.5
	WA	1,674	13.3
	SA	1,775	16.0
	Tas	630	18.4
	ACT	304	17.4
	NT	114	18.2
Remoteness area	Major cities	13,896	15.5
	Inner regional	4,433	15.6
	Outer regional	2,022	16.0
	Remote	206	14.4
	Very remote	69	10.9
	Unknown	28	. .
Socioeconomic group	1 (lowest)	4,864	17.2
	2	4,538	16.0
	3	4,122	15.5
	4	3,730	15.3
	5 (highest)	3,371	13.5
	Unknown	29	. .
Total		**20,654**	**15.6**

Notes

1. Bowel cancer deaths are likely underestimates (see ABS 2016).
2. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
3. Deaths registered in 2013 and earlier are based on the final version of cause of death data; deaths registered in 2014 and 2015 are based on the revised and preliminary versions, respectively and are subject to further revision by the ABS.

Source: AIHW NMD.

Table A3.28: Mortality from bowel cancer, all ages, by Indigenous status, New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory, 2011–2015

Indigenous status	Number	ASR
Indigenous	153	13.9
Non-Indigenous	14,004	15.1
Not stated[(a)]	94	. .
Total	**14,251**	**15.2**

(a) Deaths where Indigenous status was not stated were included in the total count and age-standardised rate calculation.

Notes

1. Bowel cancer deaths are likely underestimates (see ABS 2016).
2. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.
3. Deaths registered in 2013 and earlier are based on the final version of cause of death data; deaths registered in 2014 and 2015 are based on the revised and preliminary versions, respectively and are subject to further revision by the ABS.

Source: AIHW NMD.

Table A3.29: Mortality from bowel cancer, all ages, by sex, 1984–2018

	Males		Females		Persons	
Year	Number	ASR	Number	ASR	Number	ASR
1984	1,912	35.9	1,826	26.4	3,738	30.5
1985	2,035	37.7	1,934	27.3	3,969	31.7
1986	2,060	36.3	1,999	27.2	4,059	31.2
1987	2,151	37.5	2,004	26.6	4,155	31.3
1988	2,189	37.0	1,923	24.9	4,112	30.0
1989	2,198	36.5	1,929	24.4	4,127	29.5
1990	2,172	34.7	1,926	23.8	4,098	28.4
1991	2,198	34.2	1,964	23.5	4,162	28.2
1992	2,284	35.2	1,949	22.9	4,233	28.1
1993	2,322	34.7	2,076	23.8	4,398	28.5
1994	2,480	35.4	2,107	23.5	4,587	28.8
1995	2,400	33.9	2,068	22.5	4,468	27.4
1996	2,453	33.3	2,107	22.3	4,560	27.2
1997	2,526	33.5	2,104	21.7	4,630	26.9
1998	2,465	31.8	2,134	21.5	4,599	26.0
1999	2,463	31.0	2,064	20.1	4,527	24.9
2000	2,544	30.9	2,117	20.0	4,661	24.9
2001	2,570	30.3	2,117	19.5	4,687	24.3
2002	2,386	27.4	2,152	19.3	4,538	22.9
2003	2,383	26.6	1,990	17.5	4,373	21.6
2004	2,197	24.0	1,873	16.1	4,070	19.7
2005	2,322	24.7	1,843	15.4	4,165	19.6
2006	2,128	22.0	1,686	13.8	3,814	17.5
2007	2,242	22.5	1,877	14.9	4,119	18.3
2008	2,150	20.9	1,831	14.3	3,981	17.3
2009	2,245	21.1	1,783	13.5	4,028	17.0
2010	2,199	20.3	1,769	13.1	3,968	16.3
2011	2,213	19.7	1,774	12.6	3,987	15.9
2012	2,255	19.5	1,801	12.6	4,056	15.7
2013	2,293	19.2	1,856	12.6	4,149	15.7
2014	2,247	18.2	1,869	12.3	4,116	15.1
2015	2,358	18.6	1,988	13.0	4,346	15.6
2016	2,144	16.4	1,950	12.4	4,094	14.2
2017	2,136	15.8	1,978	12.2	4,114	13.9
2018	2,124	15.2	2,005	12.0	4,129	13.5

Notes

1. The 2016–2018 estimates are based on 1997–2013 mortality data for males, and 2006–2013 mortality data for females. See Appendix D for more information.
2. Bowel cancer deaths are likely underestimates (see ABS 2016).
3. Rates are age-standardised to the Australian population as at 30 June 2001, and are expressed per 100,000 people.

Source: AIHW NMD.

Additional table for Chapter 4

Table A4.1: Available assessment outcomes of people aged 50–74, by sex and age group, 2016

Sex	Age group at assessment		Assessments	Available assessment outcomes							
				No issue noted [a]	Other colonoscopy diagnosis[b]	Biopsy awaiting histopathology[c]	Other histopathology diagnosis[d]	Confirmed non-advanced adenoma[e]	Confirmed advanced adenoma[e]	Suspected cancer[f]	Confirmed cancer[g]
Males	50–54	No.	1,810	859	105	499	55	112	130	44	6
		%	. .	47.5	5.8	27.6	3.0	6.2	7.2	2.4	0.3
	55–59	No.	2,318	1,095	126	649	60	153	148	71	16
		%	. .	47.2	5.4	28.0	2.6	6.6	6.4	3.1	0.7
	60–64	No.	4,445	1,961	247	1,345	97	282	309	177	27
		%	. .	44.1	5.6	30.3	2.2	6.3	7.0	4.0	0.6
	65–69	No.	3,159	1,318	201	970	51	207	233	160	19
		%	. .	41.7	6.4	30.7	1.6	6.6	7.4	5.1	0.6
	70–74	No.	7,440	3,206	459	2,299	125	508	515	277	51
		%	. .	43.1	6.2	30.9	1.7	6.8	6.9	3.7	0.7
	50–74	No.	*19,172*	*8,439*	*1,138*	*5,762*	*388*	*1,262*	*1,335*	*729*	*119*
		%	. .	*44.0*	*5.9*	*30.1*	*2.0*	*6.6*	*7.0*	*3.8*	*0.6*
Females	50–54	No.	1,924	1,133	128	393	52	79	80	50	9
		%	. .	58.9	6.7	20.4	2.7	4.1	4.2	2.6	0.5
	55–59	No.	2,356	1,384	139	495	67	124	96	41	10
		%	. .	58.7	5.9	21.0	2.8	5.3	4.1	1.7	0.4
	60–64	No.	4,182	2,352	259	943	90	236	195	90	17
		%	. .	56.2	6.2	22.5	2.2	5.6	4.7	2.2	0.4
	65–69	No.	2,818	1,476	176	717	67	157	123	82	20
		%	. .	52.4	6.2	25.4	2.4	5.6	4.4	2.9	0.7
	70–74	No.	6,403	3,232	429	1,618	129	379	373	190	53
		%	. .	50.5	6.7	25.3	2.0	5.9	5.8	3.0	0.8
	50–74	No.	*17,683*	*9,577*	*1,131*	*4,166*	*405*	*975*	*867*	*453*	*109*
		%	. .	*54.2*	*6.4*	*23.6*	*2.3*	*5.5*	*4.9*	*2.6*	*0.6*

(continued)

Table A4.1 (continued): Available assessment outcomes of people aged 50–74, by sex and age group, 2016

Sex	Age group at assessment		Assessments	Available assessment results: No issue noted [a]	Other colonoscopy diagnosis[b]	Biopsy awaiting histopathology[c]	Other histopathology diagnosis[d]	Confirmed non-advanced adenoma[e]	Confirmed advanced adenoma[e]	Suspected cancer[f]	Confirmed cancer[g]
Persons	50–54	No.	3,734	1,992	233	892	107	191	210	94	15
		%	. .	53.3	6.2	23.9	2.9	5.1	5.6	2.5	0.4
	55–59	No.	4,674	2,479	265	1,144	127	277	244	112	26
		%	. .	53.0	5.7	24.5	2.7	5.9	5.2	2.4	0.6
	60–64	No.	8,627	4,313	506	2,288	187	518	504	267	44
		%	. .	50.0	5.9	26.5	2.2	6.0	5.8	3.1	0.5
	65–69	No.	5,977	2,794	377	1,687	118	364	356	242	39
		%	. .	46.7	6.3	28.2	2.0	6.1	6.0	4.0	0.7
	70–74	No.	13,843	6,438	888	3,917	254	887	888	467	104
		%	. .	46.5	6.4	28.3	1.8	6.4	6.4	3.4	0.8
	50–74	**No.**	**36,855**	**18,016**	**2,269**	**9,928**	**793**	**2,237**	**2,202**	**1,182**	**228**
		%	**. .**	**48.9**	**6.2**	**26.9**	**2.2**	**6.1**	**6.0**	**3.2**	**0.6**

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 8,105 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

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

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

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

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

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

(g) Cancer was confirmed by histopathology.

Source: NBCSP Register as at 31 December 2017.

Additional tables for Chapter 5

Table A5.1: Percentage of the population who identified as Indigenous in the 2016 Census, by sex and age group, 2016

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: ABS 2017.

Table A5.2: Percentage of the population who spoke English or another language at home in the 2016 Census, by sex and age group, 2016

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**

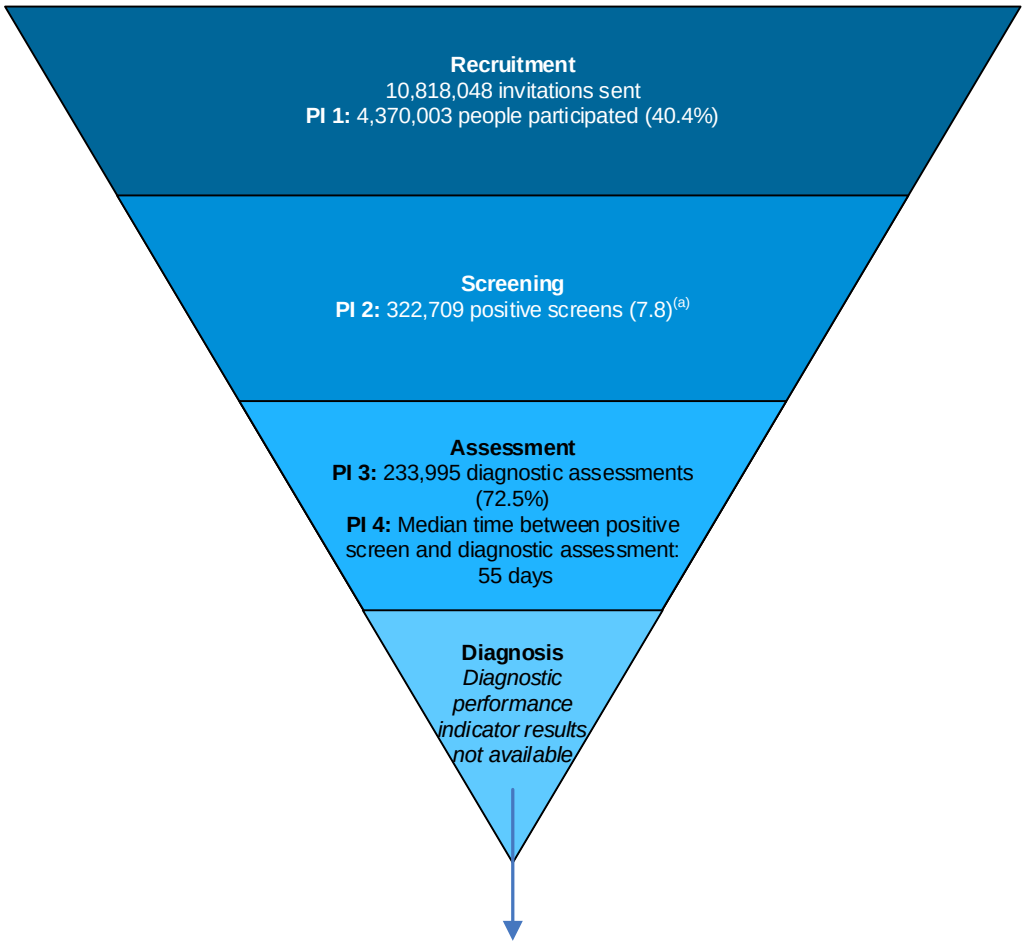
Source: ABS 2017.

Table A5.3: Percentage of the population who identified as having or not having a disability in the 2016 Census, by sex and age group, 2016

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

Source: ABS 2017.

Appendix B: Overall NBCSP outcomes



Assessment details[(b)]

No issue, or other diagnosis	134,085	(57.3%)
Polyp awaiting histopathology	58,789	(25.1%)
Non-advanced adenomas	15,109	(6.5%)
Advanced adenomas	18,280	(7.8%)
Suspected cancer	5,774	(2.5%)
Confirmed cancer	1,958	(0.8%)

(a) Based on the 4.1 million participants who returned a valid iFOBT.

(b) Based on available data. 'No issue, or other diagnosis' also includes 43,396 assessments with no record of outcome.

Notes

1. Assessment and diagnosis (PIs 3–9) rely on information being reported back to the register. As return of NBCSP forms is not mandatory, there might be incomplete form return and incomplete data. See 'Current reporting limitations' in Section 1.3 for more details.
2. The following performance indicators are not reported due to data incompleteness or unavailability: 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). See 'Current reporting limitations' in Section 1.3 for more details.

Source: NBCSP Register as at 31 December 2017.

Figure B1: Summary of NBCSP performance indicators, August 2006 to June 2017

Appendix C: National Bowel Cancer Screening Program information

Target population

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

Currently, the Australian Government is rolling out biennial screening for those in the target age group. Table C1 outlines the start 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, 65
2	1 July 2008	30 June 2011[(a)]	50, 55, 65
2[(b)]	1 July 2011	30 June 2013	50, 55, 65
3	1 July 2013	Ongoing	50, 55, 60, 65
4	1 January 2015		50, 55, 60, 65, 70, 74
4	1 January 2016		50, 55, 60, 64, 65, 70, 72, 74
4	1 January 2017		50, 54, 55, 58, 60, 64, 68, 70, 72, 74
4	1 January 2018		50, 54, 58, 60, 62, 64, 66, 68, 70, 72, 74
4	1 January 2019		50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74

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

(b) Ongoing NBCSP funding began.

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

Since the *National Bowel Cancer Screening Program: monitoring report 2016* (AIHW 2016c) onwards, the reports have been different from earlier monitoring reports. This section explains the major changes.

Development of performance indicators

This report presents data using performance indicators developed by the National Bowel Cancer Screening Program Report and Indicator Working Group, and endorsed by relevant multijurisdictional information and policy subcommittees of the Australian Health Ministers' Advisory Council.

Reports before 2016 presented data against performance measures that the Implementation Advisory Group agreed to in 2006 for phase 1 of the program (2006–2008). These were never formalised, and the NBCSP phase 2 review (2011) recommended that key performance indicators be developed to improve program monitoring and transparency.

Due to the changes to report against performance indicators, monitoring reports before 2016 cannot be readily compared with this report. But trend data, using the performance indicators with data for earlier reporting periods, are provided in this report. See *Key performance*

indicators for the National Bowel Cancer Screening Program: technical report (AIHW 2014b) for more information on the indicators.

Changes to reporting period

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

Changes to the cohort monitored

Each indicator uses the latest available data, rather than presenting results for the same invitation cohort across all indicators. This means that some indicators report results for different time periods than others, and so for different cohorts. Where possible, indicator reporting periods in this report include the timeframe of 1 January 2016 to 31 December 2016.

Changes to data

Colonoscopy trends have been revised with new data.

Changes to the structure

The introductory chapter and the performance indicator sections of the report are shorter and described differently, but all key information has been kept. Further, a ‘spotlight’ section has been included (see Chapter 5 in this report), which focuses on a topic of interest in each annual report. Although some data are not presented in the text, they are still important to monitor—all valid data available are analysed, monitored and reported in the tables in Appendix A.

Changes to incidence and mortality numbers

This report includes 2018 estimates for bowel cancer incidence and mortality, rather than actual numbers, which are not yet available for 2018. Estimates for 2018 provide data relevant to the timing of this monitoring report. The latest actual (non-estimated) incidence and mortality data are used by state and territory, remoteness area, socioeconomic area, and Indigenous status analyses, as 2018 estimates for these groups are not yet available.

Appendix D: Data sources

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

National Bowel Cancer Screening Program

This report uses NBCSP Register data to present statistics on the progression of eligible participants through the screening pathway, for those invited into the NBCSP.

It covers measures of participation, iFOBT results, follow-up investigations and outcomes. But data for follow-up investigations rely on non-mandatory form return from clinicians, so are incomplete. Analyses are presented by age, sex, state and territory, remoteness area, socioeconomic area, Indigenous status, language spoken at home and disability status.

The Data Quality Statement for the NBCSP can be found at <http://meteor.aihw.gov.au/content/index.phtml/itemId/668817>.

AIHW Australian Cancer Database

All forms of cancer, except basal and squamous cell carcinomas of the skin, are notifiable diseases in each Australian state and territory. This means there is legislation in each jurisdiction that requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry.

An agreed subset of the data collected by these cancer registries is supplied annually to the AIHW, where it is compiled into the ACD. The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2013 for all states and territories; for 2014, it contains data for all jurisdictions except New South Wales.

Cancer reporting and registration is a dynamic process, and records in the state and territory cancer registries may be modified if new information is received. As a result, the number of cancer cases reported by the AIHW for any particular year might change slightly over time, and might not always align with state and territory reporting for that same year.

The 2015–2018 estimates for incidence (plus 2014 estimates for New South Wales) used a method as described in Appendix D of *Cancer in Australia 2017* (AIHW 2017a).

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

AIHW Disease Expenditure Database

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

The Data Quality Statement for the Disease Expenditure Database 2015–16 can be found at <http://meteor.aihw.gov.au/content/index.phtml/itemId/662758>.

AIHW National Mortality Database

The AIHW NMD contains information supplied by the Registrars of Births, Deaths and Marriages and the National Coronial Information System—and coded by the ABS—for deaths from 1964 to 2015. Registration of deaths is the responsibility of each state and territory Registry of Births, Deaths and Marriages.

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 included in the analyses (2015), 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. But in some instances, deaths at the end of each calendar year might not be registered until the following year. As a result, 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 2013 and earlier are based on the final version of cause of death data; deaths registered in 2014 are based on revised versions, and deaths registered in 2015 are based on preliminary versions, and are subject to further revision by the ABS.

The 2016–2018 estimates for mortality were based on the 2013 NMD, and used joinpoint projections analyses that included 1997–2013 data for males and 2006–2013 data for females. See Appendix D of *Cancer in Australia 2017* (AIHW 2017a) for full details.

The data quality statements underpinning the AIHW NMD can be found on the following webpages:

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

For more information on the AIHW NMD see *Deaths data at AIHW* at:

<www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database>.

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). As a result, bowel (colorectal) cancer deaths reported in this report are likely to be underestimated.

Australian Burden of Disease Study

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

Other inputs for the ABDS were obtained from the 2010 or 2013 Global Burden of Disease studies, including:

- the standard life table for fatal burden
- health states and disability weights for the non-fatal burden and relative risks
- theoretical minimum risk exposure distributions for the risk factor attribution.

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

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

National Death Index

The National Death Index is a database, housed at the AIHW, that 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 support epidemiological studies, and its use is strictly confined to medical research.

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

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

Population data

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

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

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

Estimated resident populations are then updated each year from the Census data, using indicators of population change, such as births, deaths and net migration. More information is available at <www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3228.0.55.001Main+Features12009>.

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

Appendix E: Classifications

Remoteness areas

The remoteness areas divide Australia for statistical purposes into broad geographic regions that share common characteristics of remoteness. The remoteness structure divides each state and territory into several regions on the basis of their relative access to services.

There are 6 classes of remoteness area in the remoteness structure: *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote*, and *Migratory*.

The category *Major cities* includes Australia's capital cities, except for Hobart and Darwin, which are classified as *Inner regional*. Remoteness areas are based on the Accessibility and Remoteness Index of Australia, produced by the Australian Population and Migration Research Centre at the University of Adelaide.

Remoteness area for screening data

Postcodes of participants were mapped to 2011 Australian Statistical Geography Standard remoteness areas. Residential postcodes were used where available, but non-residential identifiers (such as post office boxes) were used otherwise.

As some postcodes can span different remoteness areas, a weighting for each remoteness area is attributed to the postcode. This can result in non-integer counts for remoteness classifications.

For example, the Northern Territory postal area 0822 is classified as 69.3% *Very remote*, 15.9% *Remote*, and 14.8% *Outer regional*. Participants with postcode 0822 have their counts apportioned accordingly.

Remoteness area for incidence and mortality

Each unit record in the ACD contains the 2006 statistical local areas and 2011 statistical area level 2, but not the remoteness area. To calculate the cancer incidence rates by remoteness area, a correspondence was used to map the 2011 statistical area level 2 to the 2011 remoteness area. Similarly, the cancer mortality rates by remoteness area were calculated by applying a correspondence from the 2011 statistical area level 2 to the 2011 remoteness area.

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

Index of Relative Socio-economic Disadvantage

The Index of Relative Socio-Economic Disadvantage is 1 of 4 Socio-Economic Indexes for Areas developed by the ABS. This index is based on factors such as average household income, education levels, and unemployment rates.

The Index of Relative Socio-Economic Disadvantage 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 might not be correct for each person in that area.

In this report, the first socioeconomic group (quintile 1) corresponds to geographical areas containing the 20% of the population with the lowest socioeconomic status according to the Index of Relative Socio-Economic Disadvantage, and the fifth group (quintile 5) corresponds to the 20% of the population with the highest socioeconomic status. Caution should always be taken when analysing the results of data that have been converted using correspondences, with the potential limitations of the data taken into account.

Socioeconomic group for screening data

For screening data, participants' areas of residence were assigned to socioeconomic groups, using the participant's residential postcode according to the Index of Relative Socio-Economic Disadvantage for 2011.

Socioeconomic groupings 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 group for incidence and mortality

For incidence and mortality, socioeconomic groupings were assigned to cancer cases according to the Index of Relative Socio-Economic Disadvantage of the statistical area level 2 of residence at the time of diagnosis, and to deaths according to the statistical area level 2 of residence at the time of death.

International Classification of Diseases for Oncology

Cancers were originally classified solely under the International Classification of Diseases and Related Health Problems (ICD) classification system, based on topographic site and behaviour.

But when the 9th Revision of the ICD was created in the late 1960s, working parties suggested creating a separate classification for cancers that included improved morphological information. The 1st edition of the International Classification of Diseases for Oncology was subsequently released in 1976, and, in this classification, cancers were coded by both morphology (histology type and behaviour) and topography (site).

Since the first edition of the International Classification of Diseases for Oncology, several revisions have been made, mainly in the area of lymphomas and leukaemias. The current edition (3rd edition), was released in 2000 and is used by most state and territory cancer registries in Australia, as well as by the AIHW for the ACD.

International Statistical Classification of Diseases and Related Health Problems

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

In 1903, Australia adopted the ICD to classify causes of death, and it was fully phased in by 1906. Since 1906, the ICD has been revised 9 times as new diseases were recognised (for example, acquired immunodeficiency syndrome, or AIDS), knowledge of diseases increased, and terminology describing diseases changed. The version currently in use, the 10th revision (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, but 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).

Glossary

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

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

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

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

asymptomatic: Without symptoms.

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

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

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

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

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

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

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

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

Immunochemical Faecal Occult Blood Test (iFOBT): A screening test used to detect tiny traces of blood in a person's faeces that might be a sign of bowel cancer. The iFOBT is a central part of Australia's National Bowel Cancer Screening Program.

Pathologists categorise completed NBCSP iFOBTs into 1 of 3 groups:

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

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

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

1. Positive—blood is detected in at least 1 of 2 samples.
2. Negative—blood is not detected.
3. Inconclusive—the participant is asked to complete another kit.

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

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

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

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

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

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

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

metastasis: The process by which cancerous cells are transferred (or spread) from 1 part of the body to another—for example, via the lymphatic system or the bloodstream.

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

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

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

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

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

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

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

primary health-care practitioner: A general practitioner or other primary health-care provider. This might include remote health clinics or specialists providing general practitioner services.

prognosis: The likely outcome of an illness.

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

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

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

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

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

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Related publications

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

- AIHW 2018. Cervical screening in Australia 2018. Cat. no. CAN 111. Canberra: AIHW.
- AIHW 2017. Cancer in Australia 2017. Cancer series no. 101. Cat. no. CAN 100. Canberra: AIHW.
- AIHW 2017. BreastScreen Australia monitoring report 2014–2015. Cancer series no. 106. Cat. no. CAN 105. Canberra: AIHW.
- AIHW 2017. National Bowel Cancer Screening Program: monitoring report 2017. Cancer series no. 104. Cat. no. CAN 103. 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 using key performance indicators. Of those who were invited to participate in the program between 1 January 2015 and 31 December 2016, 41% were screened. Of those, 8% had a positive result warranting further assessment, and 1 in 26 participants who had a follow-up diagnostic assessment was diagnosed with a confirmed or suspected cancer.

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