Australian Government
Australian Institute of Health and Welfare

National Bowel Cancer Screening Program

Monitoring report 2016

Australian Government
Australian Institute of
Health and Welfare

*Authoritative information and statistics
to promote better health and wellbeing*

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National Bowel Cancer Screening Program

Monitoring report 2016

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Contents

Summary vi

Data at a glance vii

1 Introduction 1

- 1.1 Purpose of this report 1
- 1.2 Changes in monitoring the NBCSP 1
- 1.3 Bowel cancer facts 2
- 1.4 Bowel cancer screening 4

2 A picture of bowel cancer in Australia 7

- 2.1 Number of new cases 7
- 2.2 Number of deaths 8
- 2.3 Survival 9
- 2.4 The burden of bowel cancer 11

3 Performance indicators 14

- 3.1 Summary 14
- 3.2 Recruitment 16
- 3.3 Screening 19
- 3.4 Assessment 22
- 3.5 Diagnosis 30
- 3.6 Outcomes 31

4 Bowel abnormality detection results 38

- 4.1 Bowel abnormality detection using available assessment and histopathology data 38

5 Spotlight on population groups 39

Appendix A: Data tables 46

Appendix B: Overall NBCSP outcomes 76

Appendix C: National Bowel Cancer Screening Program information 77

Appendix D: Data sources 78

Appendix E: Classifications 81

Glossary 84

References 87

List of tables 89

List of figures 91

Related publications 93

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Abbreviations

AACR	Australasian Association of Cancer Registries
ABS	Australian Bureau of Statistics
ACD	Australian Cancer Database
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ASR	Age-standardised rate
FOBT	Faecal occult blood test
ICD	International Classification of Diseases and Related Health Problems
NBCSP	National Bowel Cancer Screening Program
NDI	National Death Index
NMD	National Mortality Database
NSW	New South Wales
NT	Northern Territory
PI	Performance indicator
PHCP	Primary health-care practitioner (general practitioner or other primary health-care provider)
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

Summary

The National Bowel Cancer Screening Program (NBCSP) began in 2006 and aims to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the eligible target population aged between 50 and 74 for early detection or prevention of the disease.

This monitoring report is the first to examine the NBCSP using new key performance indicators.

Participation

Of the 2.2 million people invited between January 2013 and December 2014, 37% participated in the program. The national participation rate was slightly higher than the previous rolling 2-year period (2012–2013) (36%). The re-participation rate for people who had taken part in an earlier invitation round and were receiving a subsequent screening invitation was 74%.

Screening results

In 2014, about 35,000 Australians returned a positive screening test, giving a 7% screening positivity rate. Of the people who received a positive screening test, 73% had reported a follow-up diagnostic assessment. The median time from positive screening test result to diagnostic assessment was 55 days.

Cancers and adenomas detected

Cancer and adenoma diagnosis data were not considered complete enough to allow formal performance indicator reporting. However, of the data available for participants who had a diagnostic assessment in 2014, 1 in 32 were diagnosed with a confirmed or suspected cancer (181 and 638 respectively) and adenomas were diagnosed in a further 3,655 participants (1 in 7 participants assessed). Adenomas are benign growths that have the potential to become cancerous, and their removal lowers the risk of future bowel cancers in these participants.

Population groups

Participants who self-identified as Indigenous, participants who lived in *Very remote* areas and participants who lived in low socioeconomic areas had higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate and a longer median time between a positive screen and assessment.

Since the NBCSP began

Since the program began in August 2006, 2.8 million Australians have participated in the NBCSP, with about 150,000 having a diagnostic assessment to follow up a positive screening result. From the data available for participants who have had diagnostic assessment, 1 in 33 have been diagnosed with a confirmed or suspected cancer and 1 in 6 have had an adenoma detected. A previous data linkage study that the AIHW conducted using NBCSP data found that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

Data at a glance

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

Indicator		Definition	Value
PI 1	Participation rate	The percentage of people invited to screen through the NBCSP between **1 January 2013 and 31 December 2014** who returned a completed screening test within that period or by **30 June 2015**.	37%
PI 2	Screening positivity rate	The percentage of people who returned a valid NBCSP screening test and received a positive screening result in between **1 January 2014 and 31 December 2014**.	7%
PI 3	Diagnostic assessment rate	The percentage of people who returned a positive NBCSP screening test from **1 January 2014 to 31 December 2014** and had follow-up diagnostic assessment within that period or by **31 December 2015**.	73%
PI 4	Time between positive screen and diagnostic assessment	For those who received a positive NBCSP screening test from **1 January 2014 to 31 December 2014,** the median time between the positive screen and a follow-up diagnostic assessment, within that period or by **31 December 2015**.	55 days
PI 9	Adverse events—hospital admission	The rate at which people who had a diagnostic assessment between **1 January 2014 and 31 December 2014** were admitted to hospital within 30 days of their assessment.	7 per 10,000 assessments
PI 10	Incidence of colorectal cancer	The (estimated) incidence of colorectal cancer per 100,000 estimated resident population in **2016**(b).	62 cases per 100,000
PI 11	Mortality from colorectal cancer	The (estimated) mortality of colorectal cancer per 100,000 estimated resident population in **2016**(b).	14 deaths per 100,000

(a) NBCSP performance indicators presented here are different from the performance measures reported in earlier monitoring reports. See '1.2 Changes in monitoring the NBCSP' on page 1 for further details.

(b) Rates for 2016 are estimated.

Notes

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

1 Introduction

1.1 Purpose of this report

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

1.2 Changes in monitoring the NBCSP

Regular users of annual NBCSP monitoring reports will notice that the *National Bowel Cancer Screening Program: monitoring report 2016* is different from previous monitoring reports. Therefore, this section has been provided to explain the major changes.

Development of performance indicators

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

Due to the changes to report against performance indicators, previous results cannot be readily compared with this report. However, trend data, using the performance indicators on 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 *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* (ACN 2005) recommended a biennial screening interval for colorectal cancer screening in Australia, which is currently being implemented. Therefore, the participation indicator now reports a 2-year period. Additionally, to mirror the program invitation schedule, the performance indicators are now reported by calendar year rather than financial year. This is also 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 therefore, for different cohorts. Where possible, indicator reporting periods include the time frame 1 January 2014 to 31 December 2014.

Changes to the structure

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

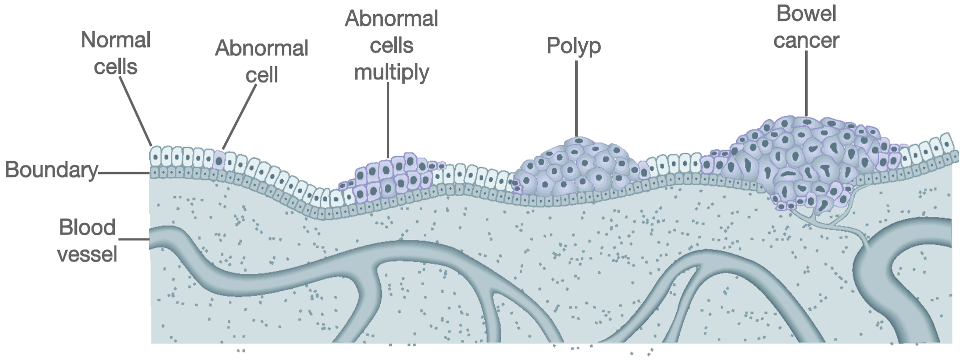
Changes to incidence and mortality numbers

This report includes 2016 estimates for bowel cancer incidence and mortality rather than actual numbers, which are not yet available for 2016. Estimates for 2016 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 and socioeconomic areas, and Indigenous status analyses, as 2016 estimates for these disaggregations are not yet available.

1.3 Bowel cancer facts

Defining bowel cancer

Bowel cancer (or colorectal cancer) generally occurs through a multistage process in which a series of cellular mutations occur over time. Most bowel cancers start in the epithelial cells, which form part of the inner lining of the large bowel (intestinal mucosa layer). Early stages of these mutations result in benign polyps. However, polyps may undergo additional mutations and become 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.



© Cancer Council Victoria 2013.

Source: Cancer Council Victoria 2013.

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Figure 1.1: The beginnings of bowel cancer

Stage

Bowel cancer stage describes the extent or spread of cancer in the body at the time of diagnosis. Staging is usually based on the size of the tumour, whether lymph nodes contain cancer, and whether the cancer has spread from the original site to other parts of the body (Sobin et al. 2010). Bowel cancer stages are generally defined using the Australian clinico-pathological stage (ACPS) 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 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; however, as of December 2015 several risk factors have been identified that may increase the chance of a person developing bowel cancer (Bouvard et al. 2015; IARC 2008; WCRF & AICR 2007).

Personal and lifestyle factors

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

- obesity 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 cancer being passed from parent to child. About 20% of colorectal cancers can be attributed to a hereditary component (Weitz et al. 2005).

Bowel cancer treatment

The aim of bowel cancer treatment is to remove the cancer and any cancer cells that may be left in the bowel or other parts of the body. 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 additional chemotherapy or radiation therapy.

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

1.4 Bowel cancer screening

Bowel cancer may be present for many years before showing symptoms such as visible rectal bleeding, change in bowel habit, bowel obstruction or anaemia. Often, symptoms such as these are not exhibited until the cancer has reached a relatively advanced stage. However, non-visible bleeding of the bowel may have been occurring in the pre-cancerous stages (Figure 1.1) for some time. The relatively slow development of bowel cancer, meaning pre-cancerous and early stage cancers can potentially be screened for and treated, makes it a valid candidate for population screening (APHDPCSS 2008).

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

The National Bowel Cancer Screening Program

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

The AIHW recently conducted a study of people diagnosed with bowel cancer in 2006–2008. This demonstrated 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 bowel cancers when diagnosed, than non-invitees. These findings demonstrate that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

The *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer*, endorsed by the National Health and Medical Research Council (ACN 2005), recommended bowel cancer screening for the asymptomatic Australian population begin at age 50. The program's approach to invite eligible persons aged between 50 and 74 to screen is consistent with other international bowel cancer screening programs. The upper age of 74 years is based on consideration of the relative risk of bowel cancer in people aged 75 and older who are asymptomatic, the risk to these individuals who undertake screening (in particular from follow-up diagnostic assessment procedures), and the existence of comorbidities. Currently, the Australian Government is rolling out biennial screening for those in the target age group, which will be completed by 2020 (see Appendix C). The staged rollout is to help ensure that health services, such as diagnostic assessment and treatment options, are able to meet an increased demand.

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

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

Monitoring the NBCSP

NBCSP participant data come from a variety of sources throughout the screening pathway. Data are collected from forms completed and returned to the NBCSP Register by participants, PHCPs, colonoscopists, pathologists and other medical staff. However, form return is not mandatory which may mean monitoring data are not fully complete.

This report is the first 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, the Community Care and Population Health Principal Committee, the National Health Information Standards and Statistics Committee and the National Health Information and Performance Principal Committee. The indicators are consistent with the 5 Australian Population-Based Screening Framework (PBSF) steps of recruitment, screening, assessment, diagnosis and outcomes (AIHW 2014b).

Current reporting limitations

While the NBCSP targets Australians aged 50–74, due to the program rollout schedule, screening data for this report only include people aged 50–69.

Except for participation and FOBT results, completion of other NBCSP forms by practitioners is not mandatory and therefore data—and results—for indicators 3 to 9 are not complete. Additionally, 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 availability of population subgroup identification. Identification of participants as Aboriginal and/or Torres Strait Islander, having a disability or speaking a language other than English at home is by self-identification through their return of a completed participant details form along with their FOBT for analysis. As membership of these subgroups is only known 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.

Some 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, indicator 5a (adenoma detection rate), indicator 5b (the positive predictive value of diagnostic assessment for detecting adenoma), indicator 6a (colorectal cancer detection rate) and indicator 6b (the positive predictive value of diagnostic assessment for detecting colorectal cancer) are not formally reported due to data incompleteness. These indicators require improved data return from histopathology. Additionally, indicator 7 (interval cancer rate) and indicator 8 (cancer clinico-pathological stage) are not formally reported due to data unavailability. These indicators require data linkage of NBCSP records to the Australian Cancer Database (ACD) once it contains cancer staging data. Lastly, indicator 9 (adverse events—hospital admission) requires linkage with complete national hospital admissions data, which is not currently performed. However, the NBCSP Register currently has incomplete information on adverse events, and this will be used until a more complete adverse event data source becomes available.

Expenditure on the NBCSP in 2013–14

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 2013–14, an estimated $45.7 million was spent on the NBCSP (Table A1.1). As the rollout of biennial screening for those aged 50–74 expands (due to be completed by 2020), this amount is expected to increase.

2 A picture of bowel cancer in Australia

2.1 Number of new cases

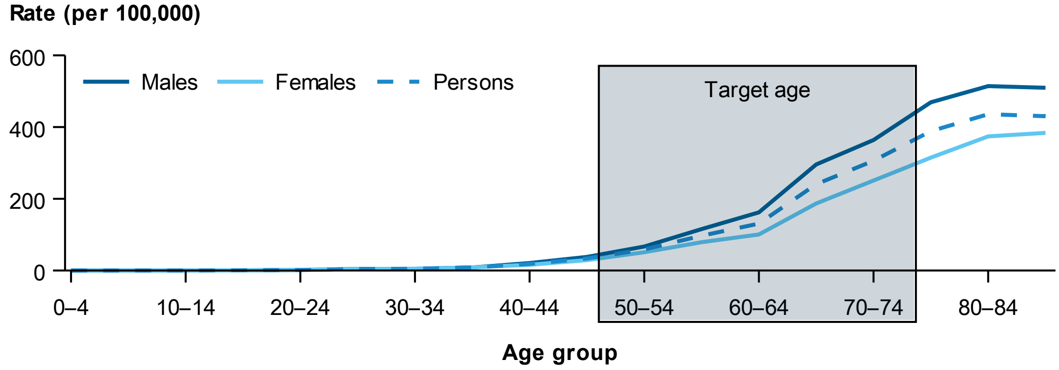
In 2016, it is estimated that 17,520 people will be diagnosed with bowel cancer, which is an age-standardised rate of 62 cases diagnosed per 100,000 Australians. Of these, 9,688 (55%) will be in the NBCSP target age group (50–74). It is estimated that bowel cancer will remain the second most commonly diagnosed cancer in Australia.

9,815 new cases estimated for 2016

7,705 new cases estimated for 2016

Target age group (50–74)	All ages
9,688 new cases estimated for 2016 150 new cases per 100,000 target-age Australians	17,520 new cases estimated for 2016 62 new cases per 100,000 Australians

Bowel cancer risk increases with age. In 2016, the incidence rate is expected to remain higher for people aged 45 and older than for younger people (Figure 2.1).



Notes

1. The 2016 estimates are based on 2002–2011 incidence data.
2. Age-specific rates are expressed per 100,000 people.
3. Data for this figure are in Table A3.22.

Source: AIHW ACD 2011.

Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2016

In 2016, it is estimated that 41 of every 1,000 people in the target age (50–74) will be diagnosed with bowel cancer (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 (ACN 2005).

Figure 2.2: Age-specific incidence risk of bowel cancer, Australia, 2016

2.2 Number of deaths

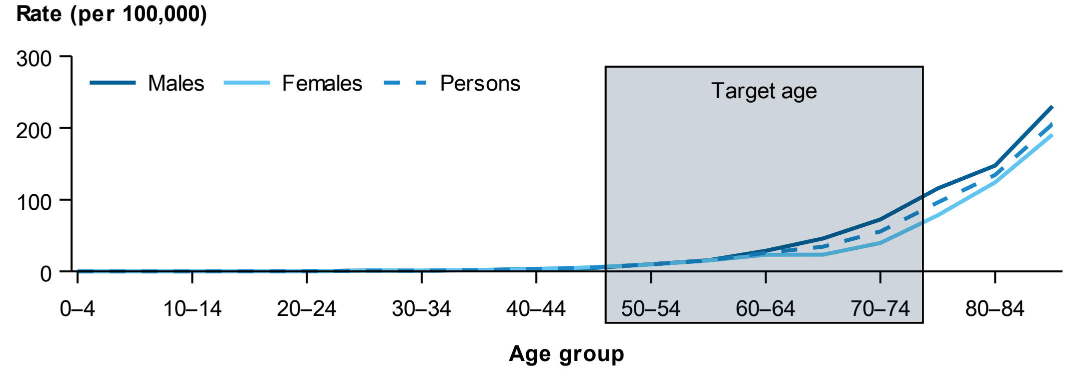
In 2016, it is estimated that there will be about 4,094 bowel cancer deaths, which is equivalent to 14 deaths for every 100,000 Australians. Of these, 1,633 (40%) will be in the NBCSP target age group (50–74). It is estimated that bowel cancer will remain the second leading cause of cancer death in Australia.

2,144 deaths estimated for 2016

1,950 deaths estimated for 2016

Target age group (50–74)	All ages
1,633 deaths estimated in 2016 25 deaths per 100,000 target-age Australians	4,094 deaths estimated in 2016 14 deaths per 100,000 Australians

In 2016, it is estimated the mortality rate will continue to be higher for people aged 50 and older than for younger people (Figure 2.3).



Notes

1. The 2016 estimates are based on 2002–2013 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.
3. Data for this figure are in Table A3.26.

Source: AIHW NMD.

Figure 2.3: Age-specific mortality rates of bowel cancer, by sex, Australia, 2016

The risk of dying from bowel cancer increases with age. In 2016, it is estimated that 7 in 1,000 people in the target age (50–74) will die from bowel cancer (Figure 2.4). The risk of dying from bowel cancer before 50 is estimated to be 1 in 1,000 people. It is expected that once biennial screening for those aged 50–74 has been in place for a number of years, the risk of diagnosis and death for those aged 75 and older will also be reduced, as those people will have been consistently invited to screen for abnormalities over the preceding 25 years.

Figure 2.4: Age-specific mortality risk of bowel cancer, Australia, 2016

2.3 Survival

Information on survival provides 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.

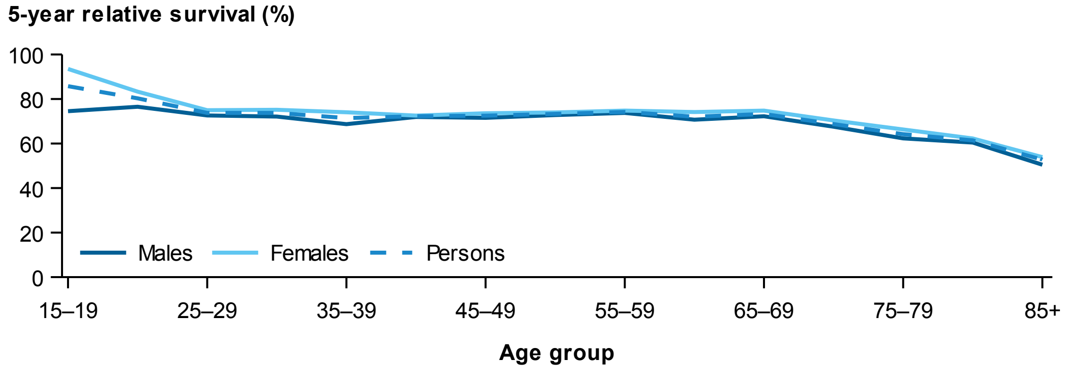
In 2008–2012, Australians diagnosed with bowel cancer had a 68% chance of surviving for 5 years compared with their counterparts in the general population not diagnosed with bowel cancer. For the NBCSP target age group (50–74), 5-year relative survival was 72%.

67% 5-year relative survival

69% 5-year relative survival

Target age group (50–74)	All ages
72% 5-year relative survival (2008–2012)	68% 5-year relative survival (2008–2012)

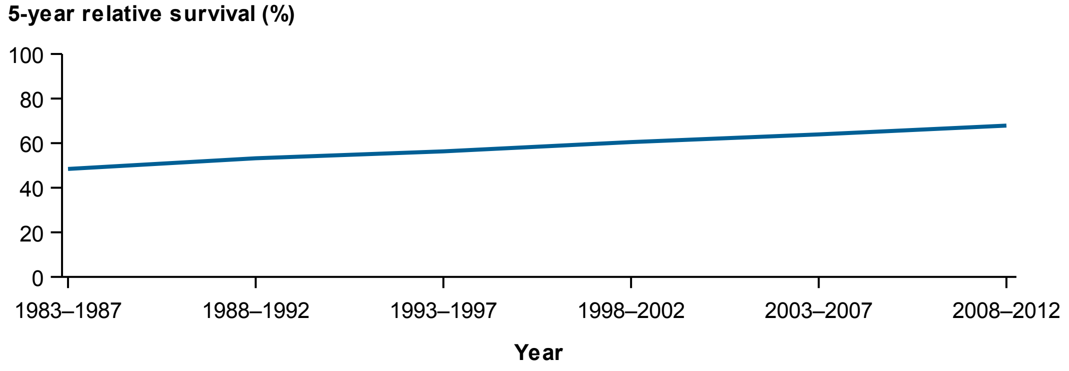
In 2008–2012, 5-year survival was lower for people over the age of 70 than for younger people (Figure 2.5 and Table A2.1).



Note: Data for this figure are in Table A2.1.
Source: AIHW ACD 2012.

Figure 2.5: Five-year relative survival from bowel cancer, by age group, Australia, 2008–2012

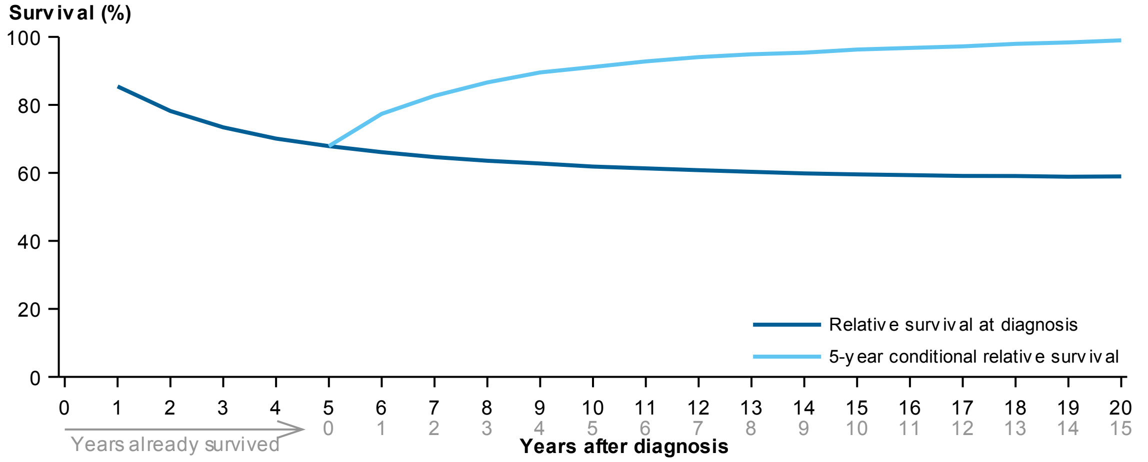
Between 1983–1987 and 2008–2012, the 5-year relative survival rate increased from 48% to 68% (Figure 2.6 and Table A2.2).



Note: Data for this figure are in Table A2.2.
Source: AIHW ACD 2012.

Figure 2.6: Trends in 5-year relative survival from bowel cancer, all ages, Australia, 1983–1987 to 2008–2012

People diagnosed with bowel cancer had a lower (68%) chance of surviving for at least 5 years after diagnosis compared with their counterparts in the general population. Among people who had already survived 5 years past their bowel cancer diagnosis, the chance of surviving for at least another 5 years (5-year conditional survival) was 91% (Figure 2.7 and Table A2.3).



Notes

1. 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.
2. Data for this figure are in Table A2.3.

Source: AIHW ACD 2012.

Figure 2.7: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, all ages, Australia, 2008–2012

Survivorship experience

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

At the end of 2010, there were 50,615 Australians alive who had been diagnosed with bowel cancer in the previous 5 years and 79,944 who had been diagnosed in the previous 10 years (Table 2.1).

Table 2.1: Prevalence of bowel cancer, by sex, Australia, end of 2010

	5-year prevalence		10-year prevalence	
Sex	**Number**	**Rate per 100,000**	**Number**	**Rate per 100,000**
Males	27,875	252.6	43,483	394.0
Females	22,740	204.2	36,461	327.4
Persons	**50,615**	**228.3**	**79,944**	**360.6**

Source: AIHW ACD 2012.

2.4 The burden of bowel cancer

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

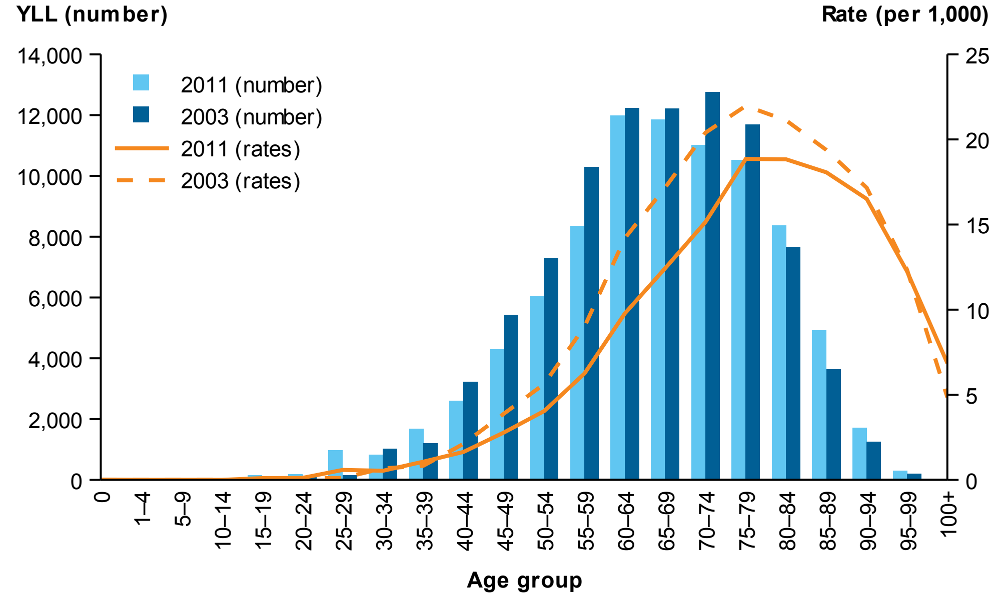
The recent Australian Burden of Disease Study 2011 that the AIHW undertook found that there were over 90,000 years of healthy life lost (from fatal and non-fatal outcomes) due to bowel cancer in 2011 (AIHW 2016). This meant bowel cancer accounted for 2.1% of the total disease burden in Australia, making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

Bowel cancer was the 2nd most burdensome cancer in 2011 behind lung cancer, accounting for 11% of the total cancer burden (11% of the fatal cancer burden and 13% of the non-fatal cancer burden).

Changes in burden since 2003

As the NBCSP was introduced in 2006, comparisons of the burden before and after this date are of interest. Burden of disease estimates for 2003 from the previous Australian burden of disease study (Begg et al. 2007) cannot be compared with estimates from this recent study due to major methodological differences (see AIHW 2016 for further information). 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 DALY per 1,000 people. This reduction was primarily due to a drop in fatal burden from 4.5 to 3.5 YLL per 1,000 people. This reduction in YLL age-standardised rates was driven by a shift towards people dying from bowel cancer at older ages, with 2011 rates similar to 2003 rates for people 5–10 years younger (particularly for people aged 60–79) (Figure 2.8).



Source: AIHW 2016.

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 Australian Burden of Disease Study 2011 also calculated the proportion of the bowel cancer burden in 2011 that was attributable to a number of preventable risk factors. Note that as a person can have more than one risk factor, and many risk factors are inter-related, the burden attributable to different risk factors cannot be simply added together (AIHW 2016).

After analysis to adjust for inter-related risk factors following methods used in previous global burden of disease studies (Ezzati et al. 2004), the study estimated that about 43% of bowel cancer burden in 2011 was attributable to 8 risk factors combined: alcohol use, diet low in fibre, diet low in milk, diet high in processed meat, diet high in red meat, high body mass, physical inactivity and tobacco use (AIHW unpublished). Of these risk factors, physical inactivity and high body mass (likely to be inter-related) contributed the most to bowel cancer burden in 2011 (31% and 12% of the bowel cancer burden respectively). A greater proportion of bowel cancer burden in males was due to high body mass than in females (16% compared with 6%) (Table 2.2).

See Chapter 6 of the *Australian Burden of Disease Study: Impact and causes of illness and deaths in Australia 2011* (AIHW 2016) for more information on risk factors and the methods used.

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

	Males		Females		Persons	
Risk factor	**Attributable DALY**	**Proportion of bowel cancer burden (%)**	**Attributable DALY**	**Proportion of bowel cancer burden (%)**	**Attributable DALY**	**Proportion of bowel cancer burden (%)**
Physical inactivity	16,057	30.2	12,513	31.8	28,570	30.9
High body mass	8,509	16.0	2,526	6.4	11,035	11.9
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	2,465	4.6	2,365	6.0	4,830	5.2
Diet high in red meat	2,518	4.7	1,081	2.7	3,600	3.9

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 2016; unpublished AIHW data.

3 Performance indicators

3.1 Summary

The Population Based Screening Framework (AHMAC 2008) uses 5 incremental stages to describe a population screening pathway. The performance indicator data in this monitoring report have been applied to these stages in Figure 3.1 to illustrate how the indicators relate to the framework. For further information on these indicator outcomes over the life of the NBCSP see Appendix B.

Please note that data for diagnostic assessments, adenomas and cancers detected and hospital admissions (performance indicators 3–9) rely on information being reported back to the Register which is not mandatory and is known to be incomplete.

Recruitment

Of those invited in the 2013–2014 2-year period, 37% participated in the NBCSP (Table A3.2). This was up slightly from 36% in the previous rolling 2-year period (2012–2013) (Table A3.5). The participation rate was higher for people receiving a subsequent screening invitation (41% for those receiving their second, third or later screening invitation) than for those receiving their initial invitation to screen (35%) (Figure 3.2 and Table A3.3). For those invitees who had participated in an earlier round, the re-participation rate was 74%.

Screening and assessment

In 2014, about 35,000 participants returned a positive screening test, giving a 7% screening positivity rate (Table A3.6). People who receive a positive screening result are encouraged to visit their PHCP for referral to diagnostic assessment. Of the people who received a positive screening test, 73% had a diagnostic assessment recorded (Table A3.10). Of those who had a diagnostic assessment, the median time between positive screening result and a diagnostic assessment was 55 days (Table A3.18).

Diagnosis

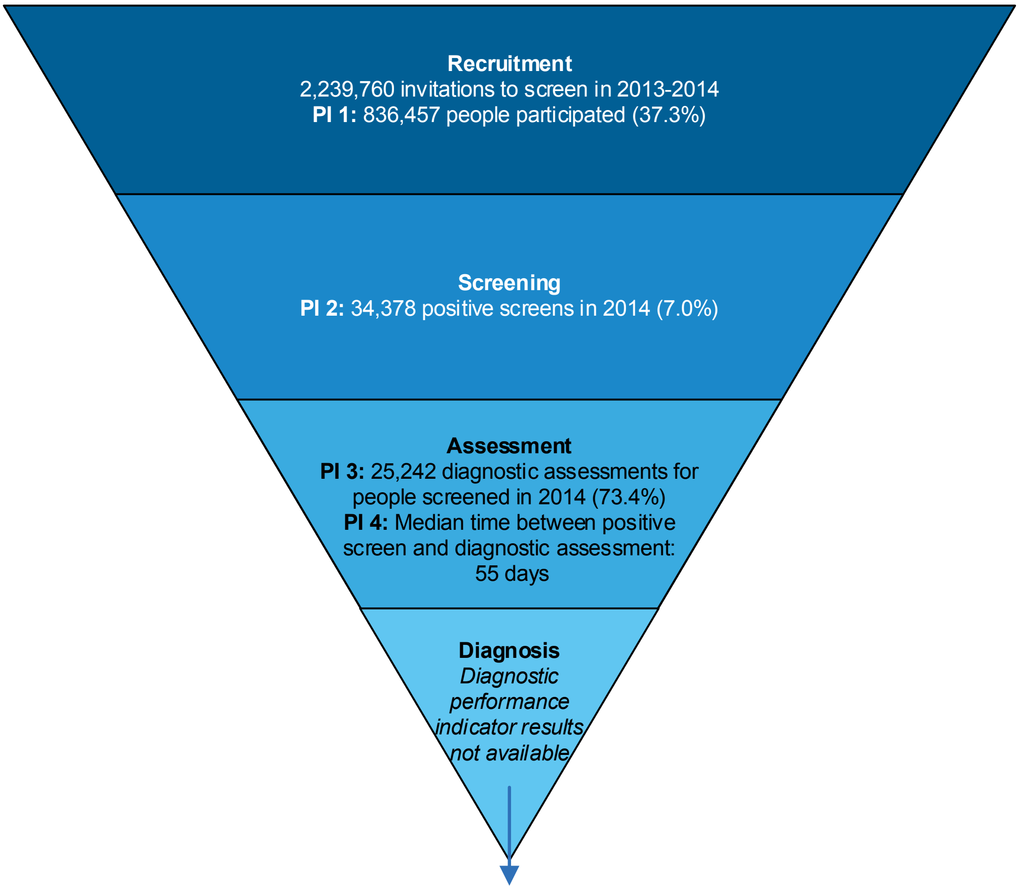
Diagnosis data were not considered complete enough to allow formal performance indicator reporting. However, using the available data for those assessed in 2014, there were 181 confirmed cancers, 638 suspected cancers and 3,655 adenomas detected (Table A4.1).

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

Outcomes

In 2014, 17 people who underwent a diagnostic assessment were admitted to hospital within 30 days of this procedure, giving a hospital admission rate after assessment of 7 per 10,000 assessments (Table A3.21).

In 2016, it is estimated that 17,520 people will be diagnosed with bowel cancer (Table A3.22) and that 4,094 people will die from bowel cancer (Table A3.26).



Recruitment
2,239,760 invitations to screen in 2013-2014
PI 1: 836,457 people participated (37.3%)

Screening
PI 2: 34,378 positive screens in 2014 (7.0%)

Assessment
PI 3: 25,242 diagnostic assessments for people screened in 2014 (73.4%)
PI 4: Median time between positive screen and diagnostic assessment: 55 days

Diagnosis
Diagnostic performance indicator results not available

Assessment details
Those assessed in 2014 [(a)]

No cancer or adenoma	15,612	(59.7%)
Polyp awaiting histopathology	6,057	(23.2%)
Non-advanced adenomas	1,859	(7.1%)
Advanced adenomas	1,796	(6.9%)
Suspected cancer	638	(2.4%)
Confirmed cancer	181	(0.7%)

Outcomes
For morbidity and mortality

PI 9: Adverse events	7 per 10,000	(2014)
PI 10: Incidence	62 per 100,000	(2016)
PI 11: Mortality	14 per 100,000	(2016)

(a) Based on available data.

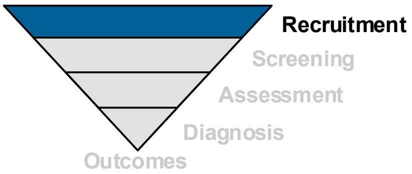
Notes

1. The recruitment indicator is reported against the 24-month calendar period 2013–2014 with follow-up to June 2015. The screening indicator is reported against the year 2014. The assessment and adverse events indicators are reported against the year 2014 with follow-up to December 2015. Incidence and mortality are estimated rates for 2016.
2. Assessment, diagnosis and outcomes (PIs 3 to 9) rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at December 2015.

Figure 3.1: Summary of NBCSP performance indicators, Australia

3.2 Recruitment



PI 1—Participation rate

Definition: The percentage of people invited to screen through the NBCSP from **1 January 2013 to 31 December 2014** who returned a completed screening test within that period or by **30 June 2015** (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 FOBT kits returned are recorded in the Register.

Guide to interpretation: The number of individuals who were sent a screening invitation excludes those who suspended or opted off without completing their screening test. Details about the number of invitees who suspended or opted off can be found in Appendix A.

Participation by Indigenous status, language spoken at home or disability status are not currently available due to the lack of denominators 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: 37%.

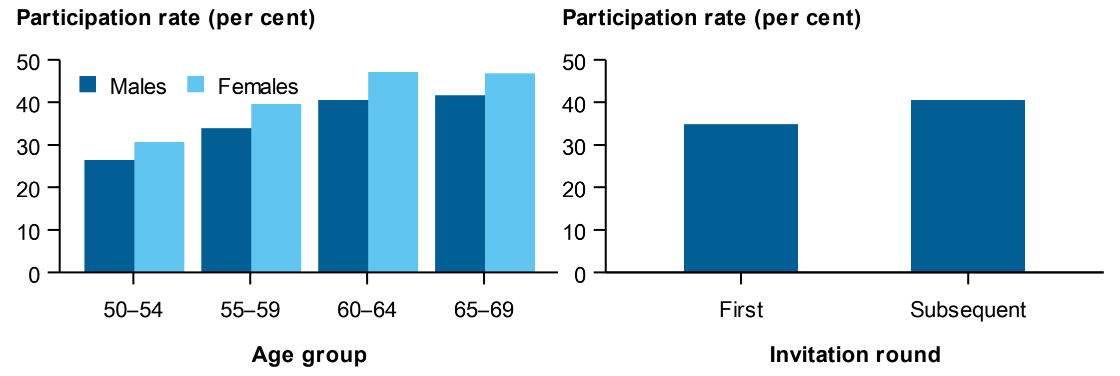
Of the 2,239,760 eligible people invited from 1 January 2013 to 31 December 2014:

Australia-wide: 836,457 participated in the NBCSP, giving an overall Australia-wide participation rate of 37% (Table A3.2).

Sex: Male (35%) invitees had a lower participation rate than females (40%) (Figure 3.2).

Age: The participation rate increased with each invitation age group, from 29% for people aged 50–54 to 44% for people aged 65–69 (Figure 3.2).

Invitation round: The participation rate was higher for people receiving their second or later (subsequent) screening invitation (41% compared with 35%) (Figure 3.2). The re-participation rate for those who had participated previously and were receiving a subsequent invitation was 74%.



Notes

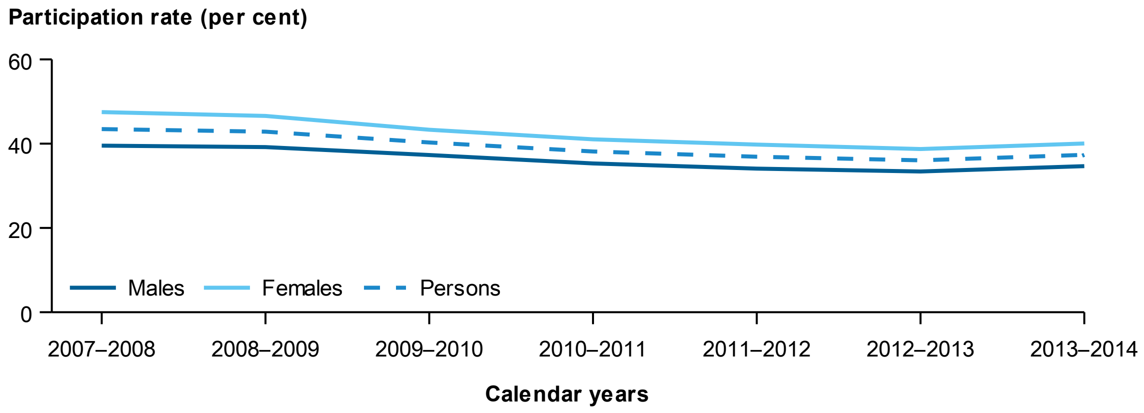
1. Subsequent invitation round includes second, third and subsequent invitation rounds.
2. Data for this figure are in tables A3.2 and A3.3.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.2: Participation, by sex and age and by invitation round, people aged 50–74, 2013–2014

Trend: Previous monitoring reports analysed participation differently from the indicator used in this report, meaning trend comparisons between this and earlier reports cannot be made. To allow a trend comparison over time, the new participation indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.3 and Table A3.5).

Using this indicator across all program data to date, the participation rate decreased from 44% in 2007–2008 to 36% in 2012–2013 then increased slightly to 37% in 2013–14 (Figure 3.3).



Notes

1. Data presented are for rolling 24-month 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: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.3: Participation, by sex, people aged 50–74, 1 January 2007–31 December 2008 to 1 January 2013–31 December 2014

State and territory: The participation rate was highest for people living in South Australia (44%) and lowest for people living in the Northern Territory (28%) (Figure 3.4).

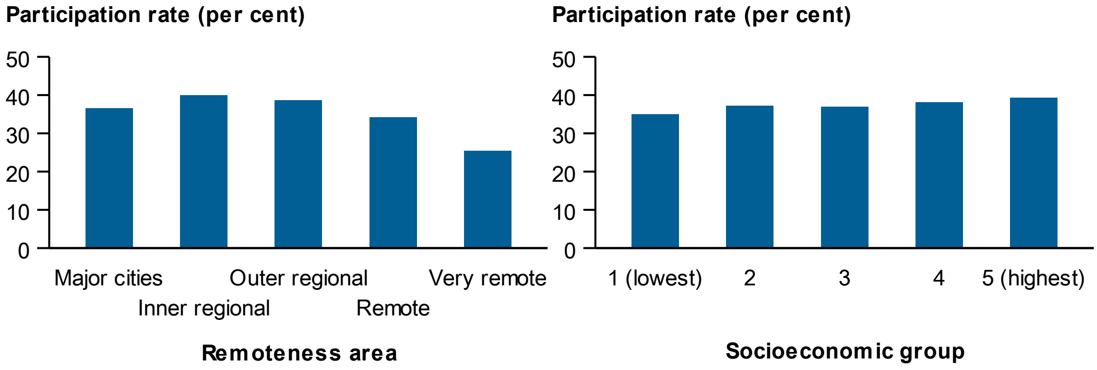
Note: Data for this figure are in Table A3.4.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.4: Participation, by state and territory, people aged 50–74, 2013–2014

Remoteness area: The participation rate was highest for people living in *Inner regional* areas (40%) and lowest for people living in *Very remote* areas (25%) (Figure 3.5).

Socioeconomic group: The participation rate was highest for people living in the highest socioeconomic areas (39%) and lowest for people living in the lowest socioeconomic areas (35%) (Figure 3.5).

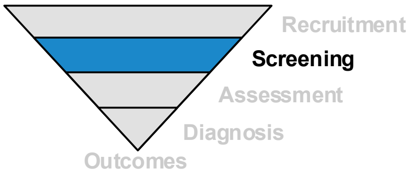


Note: Data for this figure are in Table A3.4.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.5: Participation, by remoteness area and socioeconomic group, people aged 50–74, 2013–2014

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) from **1 January 2014 to 31 December 2014** (AIHW 2014b).

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

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

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

National screening positivity rate: 7%.

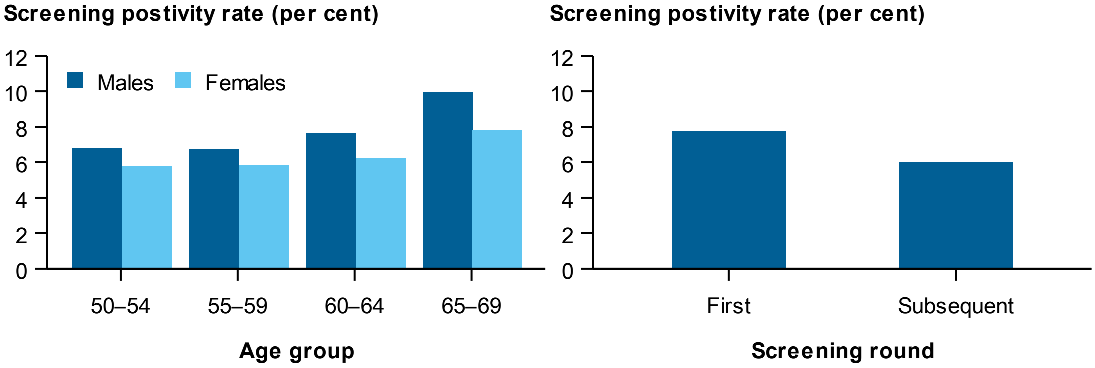
Of the 487,670 invitees who had a screening test analysed in 2014:

Australia-wide: 34,378 received a positive screening test result, giving an overall Australia-wide screening positivity rate of 7% (Table A3.6).

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

Age: The screening positivity rate increased with each age group, from 6% for people aged 50–54 to 9% for people aged 65–69 (Figure 3.6).

Screening round: The screening positivity rate was highest for people during their first round of screening (8% compared with 6%) (Figure 3.6).



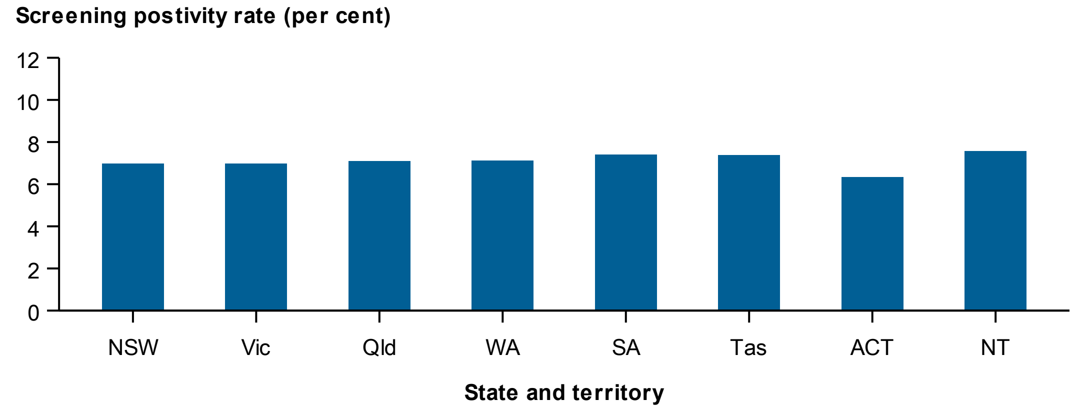
Notes

1. Subsequent includes subsequent screens both <=2 years and >2 years after their first NBCSP screening round.
2. Data for this figure are in tables A3.6 and A3.7.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.6: Screening positivity rate, by sex and age and by screening round, people aged 50–74, 2014

State and territory: The screening positivity rate was highest for people living in the Northern Territory (8%) and lowest for people living in the Australian Capital Territory (6%) (Figure 3.7).



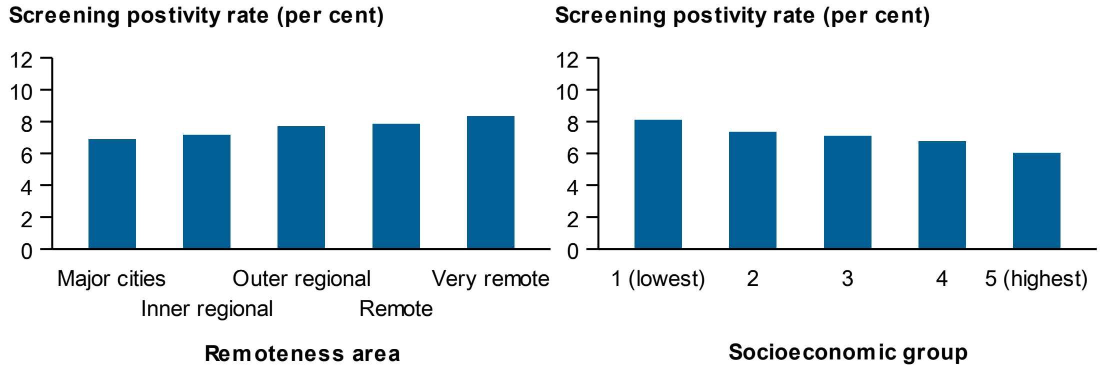
Note: Data for this figure are in Table A3.8.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.7: Screening positivity rate, by state and territory, people aged 50–74, 2014

Remoteness area: The screening positivity rate was highest for people living in *Very remote* areas (8%) and lowest for people living in *Major cities* (7%) (Figure 3.8).

Socioeconomic group: The screening positivity rate was highest for people living in the lowest socioeconomic areas (8%) and lowest for people living in the highest socioeconomic areas (6%) (Figure 3.8).



Note: Data for this figure are in Table A3.8.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

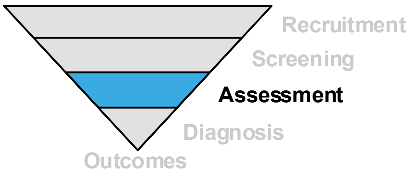
Figure 3.8: Screening positivity rate, by remoteness area and socioeconomic group, people aged 50–74, 2014

Indigenous status: Indigenous Australians had a higher screening positivity rate than non-Indigenous Australians (11% compared with 7%) (Table A3.9).

Main language spoken at home: Those who speak a language other than English at home had a similar screening positivity rate to those who speak English at home (both 7%) (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 limitations (11% compared with 7%) (Table A3.9). Reasons for this difference are not well understood, but may include a lower level of physical activity (Wolin et al. 2011) or comorbidities and medications that increase the likelihood of a positive FOBT 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) from **1 January 2014 to 31 December 2014**, and who had a follow-up diagnostic assessment within that period or by **31 December 2015** (AIHW 2014b).

Rationale: The appropriate movement of people from participation to diagnostic assessment is a key indicator of the efficiency and the impact of the program in reducing morbidity and mortality from colorectal cancer. While not all participants with a positive screen will necessarily undergo assessment, according to the Population Based Screening Framework (APHDPCSS 2008), systems should be in place to ensure timely follow-up to diagnostic assessment for individuals with a positive screening test.

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

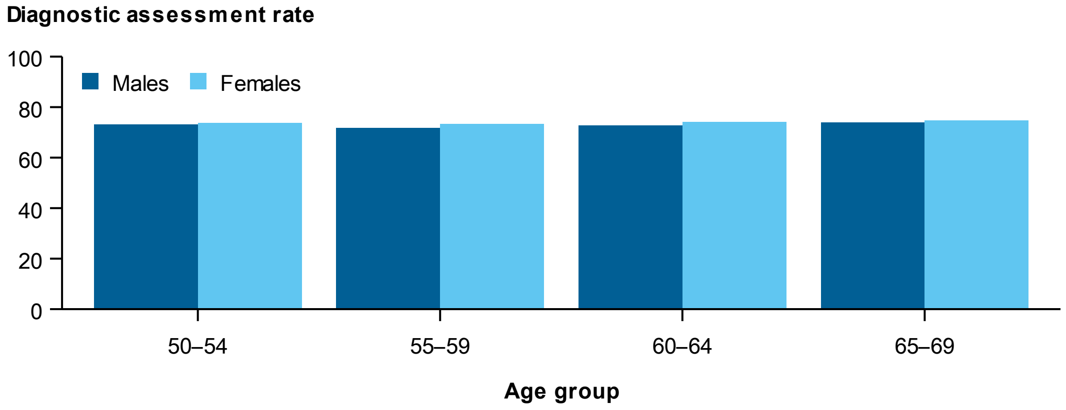
Guide to interpretation: This indicator includes all those with a positive screen in the defined period, not all those invited in the defined period.

National diagnostic assessment rate: 73%.

Of the 34,378 participants with a positive screening test in 2014:

Australia-wide: 25,242 reported a follow-up diagnostic assessment (colonoscopy) giving an overall Australia-wide diagnostic assessment rate of 73% (Table A3.10).

Sex and age: Diagnostic assessment rates did not vary by sex or age (Figure 3.9).



Notes

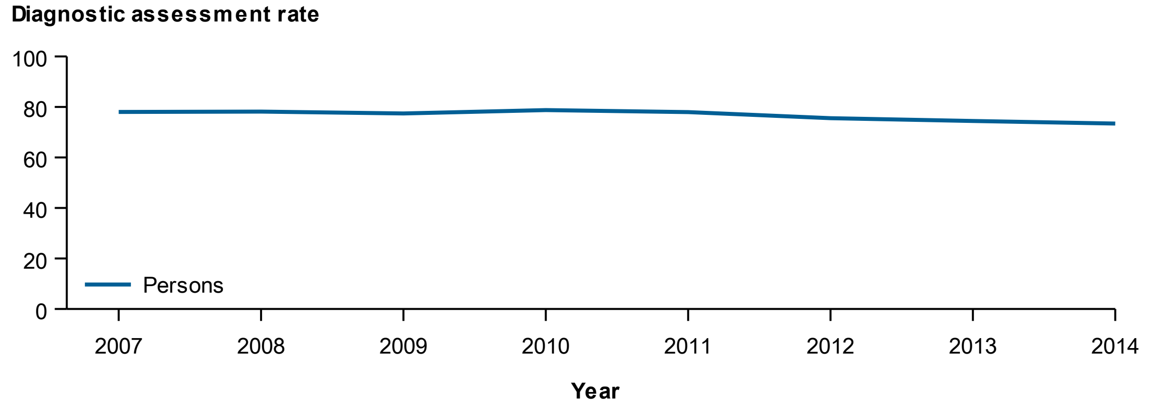
1. Diagnostic assessment rate is calculated based on the screening test date. This is different from the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic test date.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. Data for this figure are in Table A3.10.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.9: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, 2014

Trend: Previous monitoring reports analysed the diagnostic assessment rate differently from the indicator used in this report, meaning trend comparisons between this and earlier reports cannot be made. To allow a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.10 and Table A3.13).

Using this diagnostic assessment rate indicator across all program data to date, the follow-up diagnostic assessment rate has decreased slightly from 78% in 2007 to 73% in 2014 (Figure 3.10). Differences in form return and diagnostic assessment pathway practices between years may be contributing factors to this outcome.



Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different from the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic test date.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. Trend data uses the performance indicator specifications retrospectively on previous years' data.
4. Data for this figure are in Table A3.13.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.10: Diagnostic assessment rate (colonoscopy), people aged 50–74, 2007 to 2014

State and territory: The follow-up diagnostic assessment rate was highest for people living in Tasmania and Queensland (both 82%) and lowest for people living in the Northern Territory (49%) (Figure 3.11). Note that differences in form return and varying diagnostic assessment pathway practices may affect the results across jurisdictions.

Notes

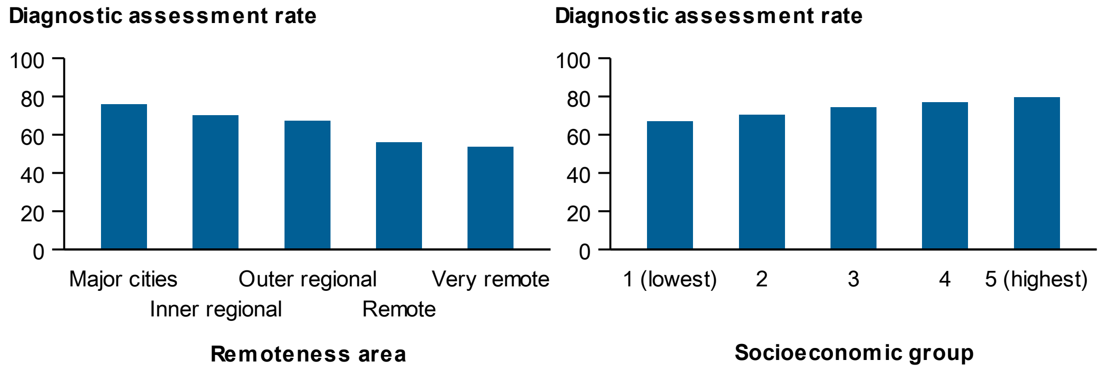
1. Diagnostic assessment rate is calculated based on the screening test date. This is different from the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic test date.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details
3. Differences across jurisdictions may involve differences in form return and varying diagnostic assessment pathway practices.
4. Data for this figure are in Table A3.11.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.11: Diagnostic assessment rate (colonoscopy), by state and territory, people aged 50–74, 2014

Remoteness area: The follow-up diagnostic assessment rate was highest for people living in *Major cities* (76%) and lowest for people living in *Very remote* areas (54%) (Figure 3.12).

Socioeconomic group: The follow-up diagnostic assessment rate was highest for people living in the highest socioeconomic areas (80%) and lowest for people living in the lowest socioeconomic areas (67%) (Figure 3.12).



Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different from the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic test date.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. Data for this figure are in Table A3.11.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.12: Diagnostic assessment rate (colonoscopy), by remoteness area and socioeconomic group, people aged 50–74, 2014

Indigenous status: Indigenous Australians had a lower follow-up diagnostic assessment rate than non-Indigenous Australians (59% compared with 74%) (Table A3.12).

Main language spoken at home: Those who speak a language other than English at home had a lower follow-up diagnostic assessment rate than those who speak English at home (70% compared with 74%) (Table A3.12).

Disability status: Those reporting a severe or profound activity limitation had a lower follow-up diagnostic assessment rate than those who did not report such limitations (63% compared with 75%) (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) from **1 January 2014 to 31 December 2014**, the median time between the positive screening test and a follow-up diagnostic assessment, within that period or by **31 December 2015** (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 colorectal cancer in those with a positive screening test—and any harms (such as anxiety) from a positive screen should be minimised.

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

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

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

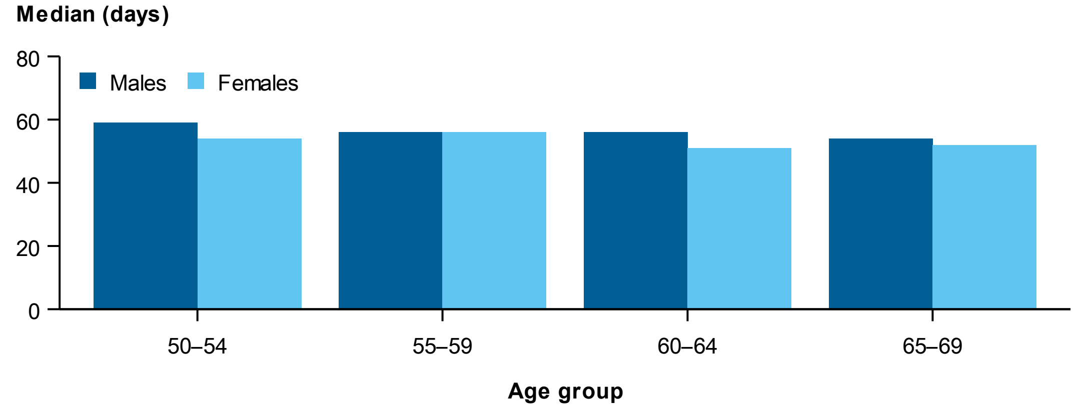
National median time between positive screen and diagnostic assessment: 55 days.

Of the 34,378 participants who had a positive screening test in 2014 with a diagnostic assessment recorded:

Australia-wide: The median time between positive screen and assessment was 55 days (Table A3.18).

Sex: Males and females had a similar median time between a positive screen and assessment (56 days and 53 days respectively) (Figure 3.13).

Age: The median time between a positive screen and diagnostic assessment was similar for each age group (53 days to 56 days) (Figure 3.13).



Notes

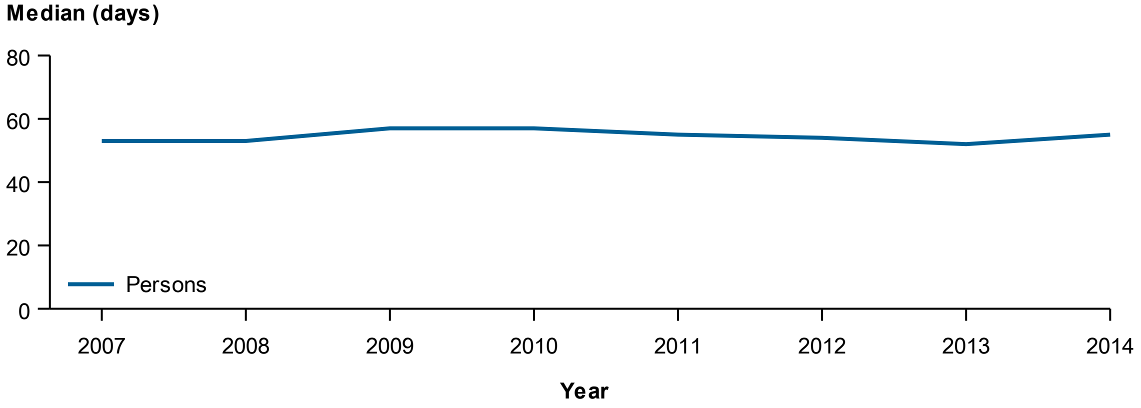
1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
2. Data for this figure are in Table A3.17.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.13: Median time (in days) between positive screen and diagnostic assessment, by sex and age, people aged 50–74, 2014

Trend: Previous monitoring reports did not include this analysis, meaning trend comparisons between this and earlier reports cannot be made. To allow a trend comparison over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.14 and 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 has fluctuated between 52 and 57 days from 2007 to 2014 (Figure 3.14). Differences in form return and diagnostic assessment pathway practices between years may be contributing factors to this outcome



Notes

1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
2. Trend data uses the performance indicator specifications retrospectively on previous years' data.
3. Data for this figure are in Table A3.20.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.14: Median time (in days) between positive screen and diagnostic assessment, people aged 50–74, 2007 to 2014

State and territory: The median time between a positive screen and diagnostic assessment was highest for people living in the Northern Territory (71 days) and lowest for people living in Victoria (37 days) (Figure 3.15 and Table A3.18). Note that differences in form return and varying diagnostic assessment pathway practices may affect the results across jurisdictions.

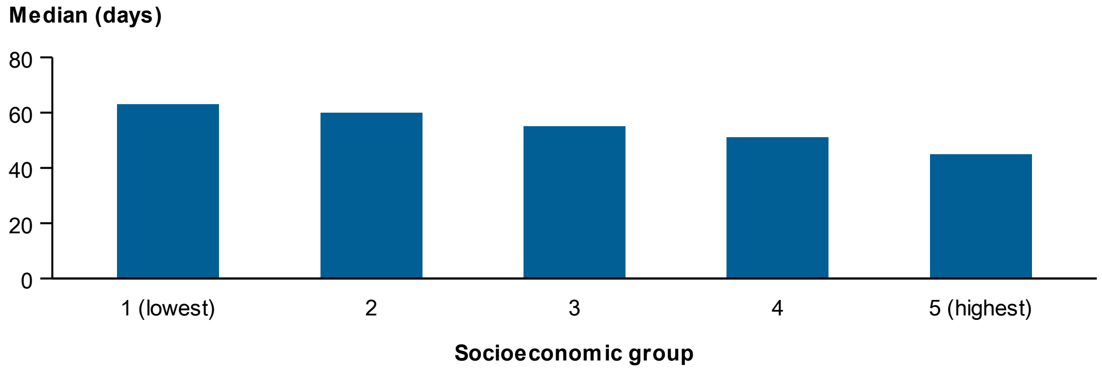
Notes

1. Differences across jurisdictions may involve differences in form return and varying diagnostic assessment pathway practices.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.
3. Data for this figure are in Table A3.18.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 3.15: Median time (in days) between positive screen and diagnostic assessment, by state and territory, people aged 50–74, 2014

Socioeconomic group: The median time between a positive screen and assessment was highest for people living in the lowest socioeconomic areas (63 days) and lowest for people in the highest socioeconomic areas (45 days) (Figure 3.16 and Table A3.18).



Notes

1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.
2. Data for this figure are in Table A3.18.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

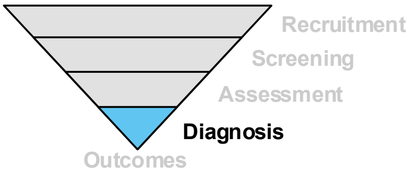
Figure 3.16: Median time (in days) between positive screen and diagnostic assessment, by socioeconomic group, people aged 50–74, 2014

Indigenous status: There was a longer median time between positive screen and assessment for Indigenous Australians (83 days) than for non-Indigenous Australians (54 days) (Table A3.19).

Main language spoken at home: There was a similar median time between a positive screen and assessment for those who speak a language other than English at home (57 days) and those who speak English at home (54 days) (Table A3.19).

Disability status: Participants reporting a severe or profound activity limitation experienced a longer median time between a positive screen and assessment (70 days) than participants who did not report such limitations (53 days) (Table A3.19).

3.5 Diagnosis

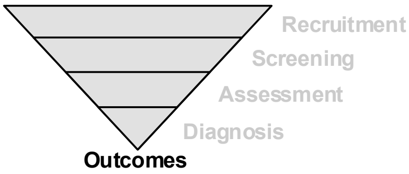


Diagnosis data available were not considered complete enough to allow formal performance indicator reporting for indicators:

- PI5a—Adenoma detection rate
- PI5b—The positive predictive value of diagnostic assessment for detecting adenoma
- PI6a—Colorectal cancer detection rate
- PI6b— The positive predictive value of diagnostic assessment for detecting colorectal cancer. See the *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program* report (AIHW 2014a) for the most recent accurate positive predictive value 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 from **1 January 2014 to 31 December 2014** were then admitted to hospital within 30 days of that assessment (AIHW 2014b).

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

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

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

National hospital admission rate: 7 per 10,000 assessments.

Of the 26,143 people who had a diagnostic assessment in 2014:

Australia-wide: 17 were admitted to hospital within 30 days of assessment, giving an overall Australia-wide hospital admission rate after assessment of 7 per 10,000 assessments (Table A3.21). Reporting of adverse events after a NBCSP colonoscopy is not mandatory and therefore this rate may be an underestimate.

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

PI 10—Colorectal cancer incidence rate

Definition: The (estimated) incidence rate for colorectal cancer per 100,000 estimated resident population from **1 January 2016 to 31 December 2016** (AIHW 2014b).

Rationale: Incidence data provide contextual information about the number of new cases of colorectal 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 2012—although the 2011 and 2012 incidence counts for New South Wales and the Australian Capital Territory are estimates because the actual data were not available.

Guide to interpretation: The latest estimated incidence results (for 2016) are provided where possible. However, estimated incidence numbers are not available for analysis by state and territory, remoteness and socioeconomic areas, and Indigenous status, therefore for these stratifications the latest actual data to 2010 are used.

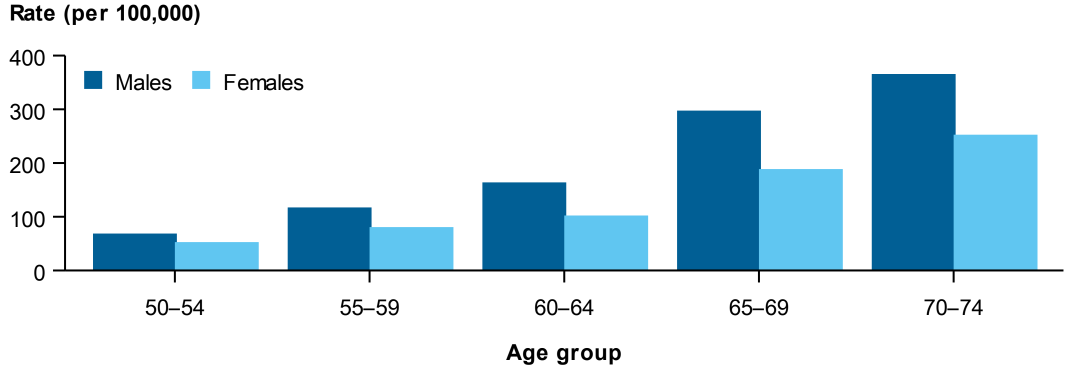
National colorectal cancer incidence rate: 62 cases per 100,000 people.

In 2016, it is estimated that:

Australia-wide: 17,520 people will be diagnosed with bowel cancer, giving an age-standardised rate of 62 cases per 100,000 people (Table A3.22).

Sex: Males will be more likely to be diagnosed with bowel cancer than females (74 cases per 100,000 males compared with 51 cases per 100,000 females) (Table A3.22). This pattern is similar for people in the target age range (181 cases per 100,000 males aged 50–74 and 121 cases per 100,000 females aged 50–74) (Figure 3.17).

Age: Bowel cancer incidence rate will be higher for older age groups. For people in the target age, the estimated bowel cancer incidence rate will increase with increasing age from 59 per 100,000 for people aged 50–54 to 306 per 100,000 for people aged 70–74 (Figure 3.17 and Table A3.22).



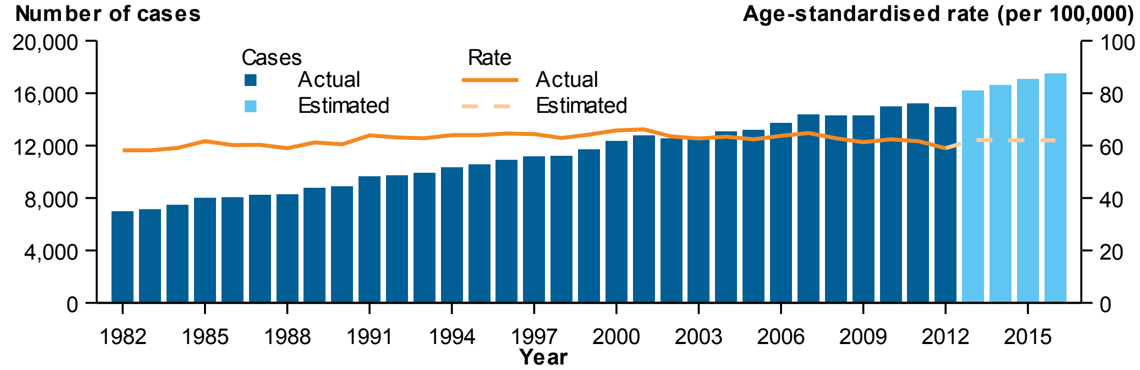
Notes

1. The 2013–2016 estimates are based on 2002–2011 incidence data.
2. Age-specific rates are expressed per 100,000.
3. Data for this figure are in Table A3.22.

Source: AIHW ACD 2011.

Figure 3.17: Incidence rate, by sex and age, people aged 50–74, 2016

Trend: The number of bowel cancer cases has increased from 6,982 in 1982 to an estimated 17,520 in 2016; the age-standardised rate fluctuated between 58 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 is falling, the actual number of cases in increasing. The introduction of the NBCSP may have contributed to increases in the bowel cancer incidence count because prevalent cases of cancer are diagnosed earlier than may have been the case without screening.



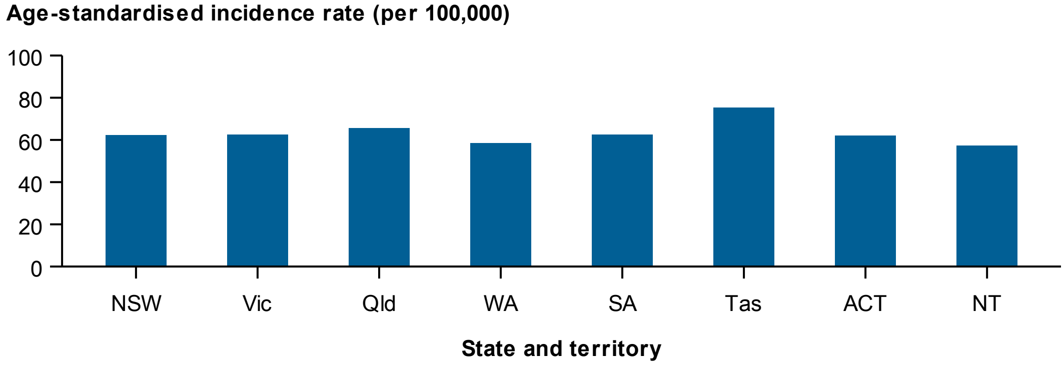
Notes

1. Estimated incidence data for 2013–2016 are based on 2002–2011 incidence data. Actual incidence data for 2013–2016 may differ from these estimated incidence data due to current and ongoing program or practice changes.
2. Age-standardised rates are expressed per 100,000 people.
3. Data for this figure are in Table A3.25.

Source: AIHW ACD 2011 and AIHW ACD 2012.

Figure 3.18: Trends in new cases of bowel cancer, all ages combined, Australia, 1982–2016

State and territory: In 2006–2010, the age-standardised incidence rate was highest in Tasmania (75 cases per 100,000 people) and lowest in the Northern Territory (57 per 100,000) (Figure 3.19).



Notes

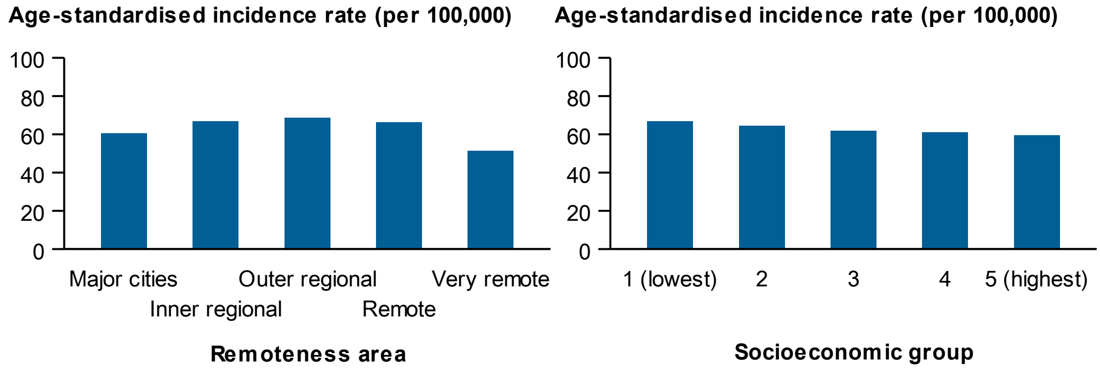
1. Rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
2. State and territory refers to the state or territory of usual residence.
3. Data for this figure are in Table A3.23.

Source: AIHW ACD 2012.

Figure 3.19: Incidence rate, by state and territory, all ages combined, 2006–2010

Remoteness area: In 2006–2010, the age-standardised incidence rate was highest for people living in *Outer regional* areas (69 cases per 100,000 people) and lowest for people living in *Very remote* areas (51 cases per 100,000) (Figure 3.20).

Socioeconomic group: In 2006–2010, the age-standardised incidence rate was highest for people living in the lowest socioeconomic areas (67 cases per 100,000 people) and lowest for people living in the highest socioeconomic areas (59 cases per 100,000) (Figure 3.20).



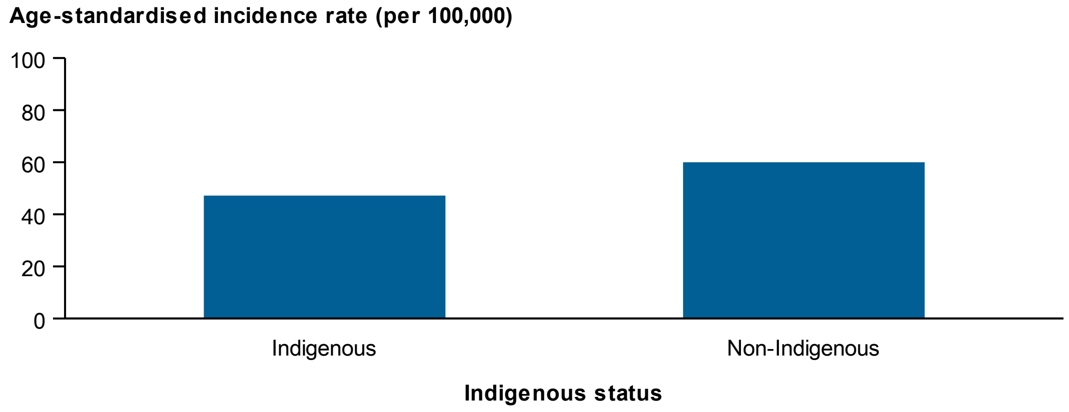
Notes

1. Rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
2. Remoteness was classified according to the Australian Statistical Geography Standard (ASGS) Remoteness Areas (see Appendix E). Incidence cells may not sum to the total due to non-concordance of some remoteness categories.
3. Socioeconomic areas were classified using the ABS Index of Relative Socio-Economic Disadvantage (see Appendix E).
4. Data for this figure are in Table A3.23.

Source: AIHW ACD 2012.

Figure 3.20: Incidence rate, by remoteness area and socioeconomic group, all ages combined, 2006–2010

Indigenous status: Only incidence data from New South Wales, Queensland, Western Australia and the Northern Territory are considered adequate for reporting by Indigenous status. In these jurisdictions, Indigenous Australians had a lower age-standardised incidence rate than non-Indigenous Australians (47 cases per 100,000 people compared with 60 cases per 100,000) (Figure 3.21).



Notes

1. The rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
2. Data for this figure are in Table A3.24.

Source: AIHW ACD 2012.

Figure 3.21: Incidence rate, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, Northern Territory, 2006–2010

PI 11—Colorectal cancer mortality rate

Definition: The (estimated) mortality rate for colorectal cancer per 100,000 estimated resident population from **1 January 2016 to 31 December 2016** (AIHW 2014b).

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

Data quality: Cause of Death Unit Record File data are provided to the AIHW by the Registries of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include causes of death coded by the Australian Bureau of Statistics (ABS).

Guide to interpretation: The latest estimated mortality results (for 2016) are provided where possible. However, estimated mortality numbers are not available for analysis by state and territory, remoteness, socioeconomic areas and Indigenous status, and for these stratifications in latest actual data to 2013 are used.

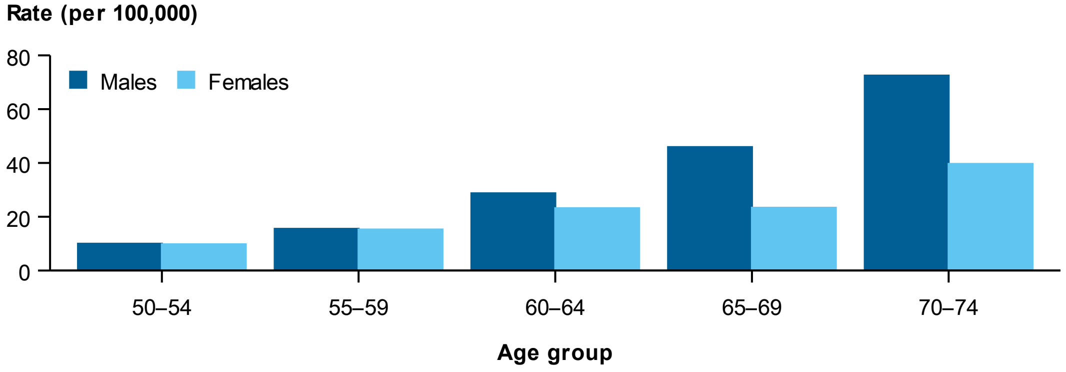
National colorectal cancer mortality rate: 14 deaths per 100,000 people.

In 2016, it is estimated that:

Australia-wide: 4,094 people will die from bowel cancer, giving 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 (16 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 (30 deaths per 100,000 males aged 50–74 and 21 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, the estimated bowel cancer mortality rate will increase from 10 deaths per 100,000 people aged 50–54 to 56 deaths per 100,000 people aged 70–74 (Figure 3.22 and Table A3.26).



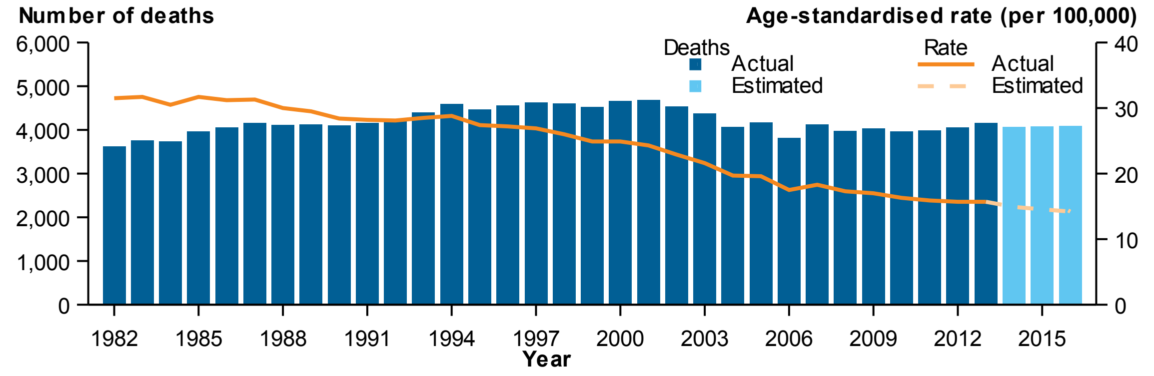
Notes

1. The 2016 estimates are based on 2002–2013 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed by 100,000.
3. Data for this figure are in Table A3.26.

Source: AIHW NMD 2013.

Figure 3.22: Mortality rate, by sex and age, people aged 50–74, 2016

Trend: Between 1982 and 2016, the age-standardised mortality rate decreased from 32 deaths per 100,000 people to an estimated 14 deaths per 100,000 (Figure 3.23).



Notes

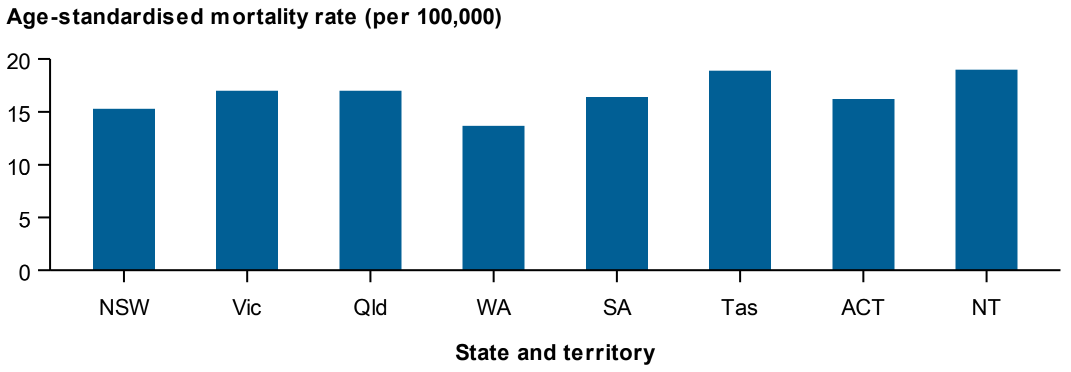
1. Estimated mortality data for 2014–2016 are based on 2002–2013 mortality data. Actual incidence data for 2014–2016 may differ from these estimated mortality data due to current and ongoing program or practice changes See Appendix D for further information.
2. Rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
3. Data for this figure are in Table A3.29.

Source: AIHW NMD 2013.

Figure 3.23: Trend in deaths from bowel cancer, all ages combined, Australia, 1982–2016

The NBCSP started in 2006 and until now has only invited a subset of people in its 50–74 target age range, making its impact on bowel cancer mortality harder to quantify. Instead, a study that the AIHW conducted of people diagnosed with bowel cancer in 2006–2008 demonstrated that NBCSP invitees (particularly those who participated) 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 demonstrate that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a).

State and territory: In 2009–2013, the age-standardised mortality rate was highest in the Northern Territory and Tasmania (19 deaths per 100,000 people) and lowest in Western Australia (14 deaths per 100,000) (Figure 3.24).



Notes

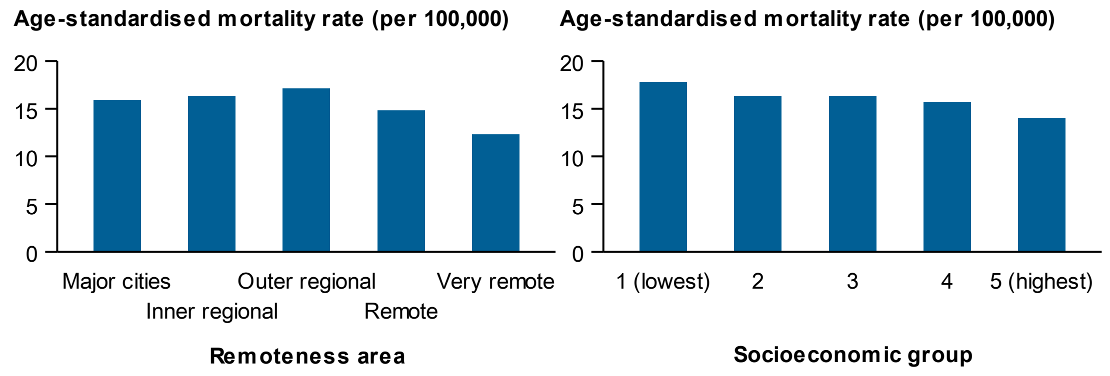
1. Rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
2. Data for this figure are in Table A3.27.

Source: AIHW NMD 2013.

Figure 3.24: Mortality rate, by state and territory, all ages combined, 2009–2013

Remoteness area: In 2009–2013, the age-standardised mortality rate was highest for people living in *Outer regional* areas (17 deaths per 100,000 people) and lowest for people living in *Very Remote* areas (12 deaths per 100,000) (Figure 3.25).

Socioeconomic group: In 2009–2013, the age-standardised mortality rate was highest for people living in the lowest socioeconomic areas (18 deaths per 100,000 people) and lowest for people living in the highest socioeconomic areas (14 deaths per 100,000) (Figure 3.25).



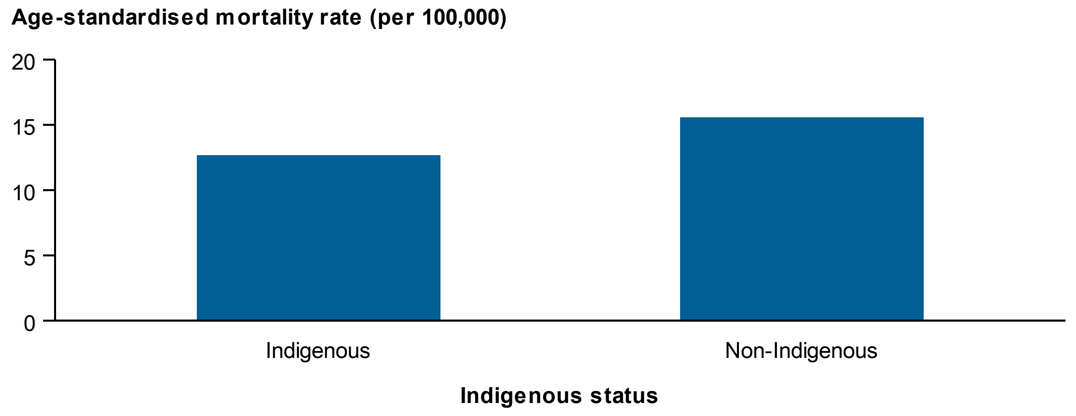
Notes

1. Rates were age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.
2. Remoteness was classified according to the Australian Statistical Geography Standard (ASGS) Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS Index of Relative Socio-Economic Disadvantage (see Appendix E).
4. Data for this figure are in Table A3.27.

Source: AIHW NMD 2013.

Figure 3.25: Mortality rate, by remoteness area and socioeconomic group, all ages combined, 2009–2013

Indigenous status: Only mortality data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered adequate for reporting by Indigenous status. In these jurisdictions, Indigenous Australians had a slightly lower age-standardised bowel cancer mortality rate than non-Indigenous Australians (13 deaths per 100,000 people compared with 16 deaths per 100,000) (Figure 3.26).



Note: Data for this figure are in Table A3.28.

Source: AIHW NMD 2013.

Figure 3.26: Mortality rate, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, South Australia and Northern Territory, 2009–2013

4 Bowel abnormality detection results

Diagnosis data were not considered complete enough to allow for formal performance indicator reporting of NBCSP diagnostic outcomes in Chapter 3. Instead, a summary of bowel abnormality detection results for those assessed in 2014 are presented here for information, using the available data.

4.1 Bowel abnormality detection using available assessment and histopathology data

Of the 26,143 participants who had a diagnostic assessment, Australia-wide, in 2014:

- 181 (0.7%) had a bowel cancer detected and confirmed by histopathology
- 638 (2.4%) had a suspected bowel cancer that was still awaiting histopathological diagnosis
- 3,655 (14.0%) had an adenoma diagnosed by histopathology
- 15,612 (59.7%) were found to have no adenoma or cancer
- 6,057 (23.2%) were still awaiting histopathology outcomes for a polyp biopsy sample (that was not suspected of being bowel cancer) (Table A4.1).

5 Spotlight on population groups

The NBCSP is monitored in relation to equity of access to relevant services for different population groups including by geographical location, socioeconomic area or Indigenous status. Annual monitoring of rates by various stratifications may reveal emerging trends for further investigation. This chapter provides a summary of all indicators for 3 population subgroups, together with additional analysis about variation in distance to diagnostic assessment (colonoscopy). It should be noted that there is significant overlap of the Indigenous population with the other 2 population subgroups presented here, due to higher proportions of Indigenous Australian participants living in the lowest socioeconomic areas and in *Very remote* areas.

Distance to diagnostic assessment

The NBCSP Register includes a level of geographic address information for participants and colonoscopy providers, though not all have this information available. For those with applicable data, the estimated participant distances by road to get to their diagnostic assessment (that is, one way) can be calculated (using specialist drive time software, assuming standard conditions). See Appendix E for further information on these calculations.

This may be of interest to gain an understanding of differences in diagnostic experience across participant subgroups. The estimated individual driving distances have been grouped and reported in the following remoteness area and socioeconomic area subsections, and also reported by participant state and territory of residence.

5.1 Low socioeconomic areas

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

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

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

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

Indicator		Summary	Lowest socioeconomic areas	Highest socioeconomic areas
PI 1	Participation rate	Lower participation rate	35.1%	39.4%
PI 2	Screening positivity rate	Higher screening positivity rate	8.1%	6.0%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	67.1%	79.6%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	63 days	45 days
PI 9	Adverse events – hospital admission	Comparison not published	n.p.	n.p.
PI 10	Colorectal cancer incidence rate	Higher age-standardised incidence rate	67 per 100,000	59 per 100,000
PI 11	Colorectal cancer mortality rate	Higher age-standardised mortality rate	18 per 100,000	14 per 100,000

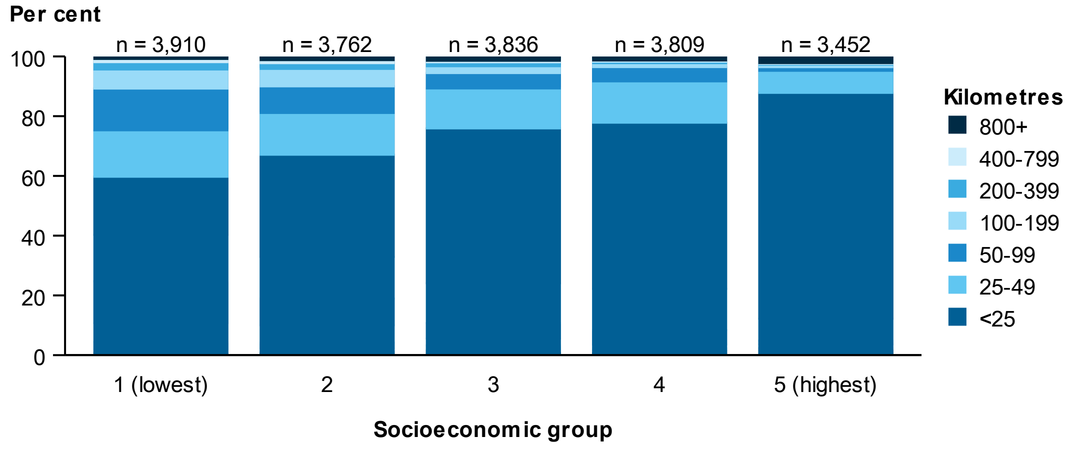
Notes

1. The participation indicator is reported against the period 2013–2014 with follow-up to June 2015. The screening indicator is reported against the period 2014. The assessment and adverse events indicators are reported against the period 2014 with follow-up to December 2015. Incidence is reported for 2006–2010. Mortality is reported for 2009–2013.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Distance to assessment by socioeconomic areas

The distance travelled to a colonoscopy provider was lower for people living in high socioeconomic areas and higher for people living in low socioeconomic areas (Figure 5.1). Almost 11% of participants in the lowest socioeconomic areas travelled 100km or more to obtain a colonoscopy compared with 3.6% of those in the highest socioeconomic areas. Some variables included in the socioeconomic index (for example, lower rent and no internet connection) used to determine the socioeconomic area for participants may be biased by remoteness.



Notes

1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.
2. Data for this figure are in Table A5.1.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 5.1: Driving distance (kilometres) between participant and colonoscopy provider, by socioeconomic group, people aged 50–74, Australia, 2014

5.2 Very remote Australia

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

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

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

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

Indicator		Summary	Very remote	Major cities
PI 1	Participation rate	Lower participation rate	25.4%	36.6%
PI 2	Screening positivity rate	Higher screening positivity rate	8.3%	6.9%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	53.6%	76.0%
PI 4	Time between positive screen and diagnostic assessment	Comparison not published	n.p.	n.p.
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Colorectal cancer incidence rate	Lower age-standardised incidence rate	51 per 100,000	61 per 100,000
PI 11	Colorectal cancer mortality rate	Lower age-standardised mortality rate	12 per 100,000	16 per 100,000

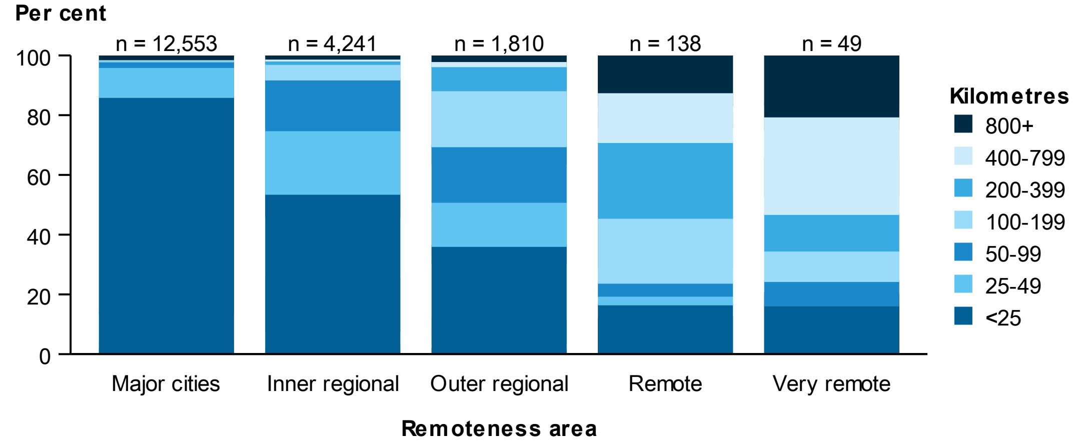
Notes

1. The participation indicator is reported against the period 2013–2014 with follow-up to June 2015. The screening indicator is reported against the period 2014. The assessment and adverse events indicators are reported against the period 2014 with follow-up to December 2015. Incidence is reported for 2006–2010. Mortality is reported for 2009–2013.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Distance to assessment by remoteness area

As would be expected, the distance travelled to a colonoscopy provider increased with increasing remoteness. Over 50% of *Very remote* participants travelled 400 or more kilometres to their colonoscopy compared with 1.5% of participants in *Major cities* (Figure 5.2).



Notes

1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
2. Data for this figure are in Table A5.1.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 5.2: Driving distance (kilometres) between participant and colonoscopy provider, by remoteness area, people aged 50–74, Australia, 2014

5.3 Indigenous Australians

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

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

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

Indicator		Summary	Indigenous	Non-Indigenous
PI 1	Participation rate	n.a.	n.a.	n.a.
PI 2	Screening positivity rate	Higher screening positivity rate	10.5%	7.0%
PI 3	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	58.7%	74.0%
PI 4	Time between positive screen and diagnostic assessment	Longer median time	83 days	54 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Colorectal cancer incidence rate(a)	Lower age-standardised incidence rate	47 per 100,000	60 per 100,000
PI 11	Colorectal cancer mortality rate(b)	Lower age-standardised mortality rate	13 per 100,000	16 per 100,000

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

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

Notes

1. The participation indicator is reported against the period 2013–2014 with follow-up to June 2015. The screening indicator is reported against the period 2014. The assessment and adverse events indicators are reported against the period 2014 with follow-up to December 2015. Incidence is reported for 2006–2010. Mortality is reported for 2009–2013.
2. Indicators 3 to 9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

5.4 Distance to assessment by state and territory

Almost 30% of Northern Territory participants travelled 50 or more kilometres to their colonoscopy provider, while only 3% of Australian Capital Territory participants travelled that far (Figure 5.3).

There are differences in the geographical size of jurisdictions that are not modifiable. Additionally, some participants may have travelled further for assessment than their nearest available colonoscopy provider (for example, to be closer to family members or to be seen in a shorter time frame). These factors should be considered when reviewing these results.

Notes

1. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.
2. Data for this figure are in Table A5.1.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Figure 5.3: Driving distance (kilometres) between participant and colonoscopy provider, by state and territory, people aged 50–74, Australia, 2014

Appendix A: Data tables

Tables for Chapter 1

Table A1.1: Government funding for cancer screening programs, 2013–14, $ million

Screening program	Expenditure
BreastScreen Australia(a)	235.2
National Cervical Screening Program(b)	82.6
National Bowel Cancer Screening Program(c)	45.7
Total	**363.5**

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

(b) Excludes the proportion of the costs associated with GP, specialist and nurse attendances that would have been for Pap smears.

(c) Excludes MBS flow-on costs as well as bowel screening that occurs outside the National Bowel Cancer Screening Program.

Note: These expenditure data only include 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, Australia, 2008–2012

	Male		Female		Person	
Age group	**5-year relative survival**	**95% confidence interval**	**5-year relative survival**	**95% confidence interval**	**5-year relative survival**	**95% confidence interval**
0–4	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
5–9	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
10–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–19	74.5	55.3–86.5	93.5	81.0–97.9	85.8	75.7–91.9
20–24	76.5	64.8–84.8	83.3	72.9–90.0	80.3	73.0–85.8
25–29	72.6	63.9–79.6	75.0	66.2–81.8	73.8	67.8–78.8
30–34	72.1	65.0–78.1	75.2	68.4–80.7	73.7	69.0–77.9
35–39	68.7	63.4–73.4	74.0	69.0–78.4	71.4	67.9–74.7
40–44	71.9	68.2–75.4	72.5	68.8–75.9	72.3	69.6–74.7
45–49	71.5	68.9–74.1	73.6	70.8–76.2	72.5	70.6–74.3
50–54	72.8	70.8–74.7	74.0	71.8–76.0	73.3	71.8–74.7
55–59	73.7	72.2–75.3	74.8	73.0–76.5	74.2	73.0–75.3
60–64	70.7	69.3–72.1	74.1	72.5–75.8	72.1	71.0–73.1
65–69	72.3	70.9–73.6	74.8	73.2–76.3	73.3	72.2–74.3
70–74	67.6	66.1–69.0	70.4	68.7–72.0	68.7	67.6–69.8
75–79	62.3	60.6–64.0	66.3	64.6–68.0	64.2	63.0–65.4
80–84	60.4	58.1–62.7	62.3	60.2–64.3	61.4	59.9–63.0
85+	50.5	46.9–54.2	53.9	51.1–56.7	52.7	50.6–55.0
50–74	*71.0*	*70.3–71.7*	*73.4*	*72.6–74.1*	*72.0*	71.5–72.5
All ages	**67.3**	**66.7–67.9**	**68.5**	**67.9–69.2**	**67.9**	**67.4–68.3**

Source: ACD 2012.

Table A2.2: Trend in 5-year relative survival from bowel cancer, Australia, 1983–1987 to 2008–2012

Year	5-year relative survival (%)	95% confidence interval
1983–1987	48.4	47.6–49.2
1988–1992	53.2	52.6–53.8
1993–1997	56.3	55.8–56.8
1998–2002	60.5	60.0–61.0
2003–2007	63.9	63.5–64.4
2008–2012	67.9	67.4–68.3

Source: ACD 2012.

Table A2.3: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, Australia, 2008–2012

	Relative survival		Conditional survival		
Years after diagnosis	Relative survival (%)	95% confidence interval	Years already survived	5-year conditional relative survival (%)	95% confidence interval
1	85.4	85.1–85.7	. .	. .	. .
2	78.2	77.8–78.6	. .	. .	. .
3	73.4	73.0–73.8	. .	. .	. .
4	70.1	69.7–70.5	. .	. .	. .
5	67.9	67.4–68.3	0	67.9	67.4–68.3
6	66.1	65.6–66.6	1	77.4	76.9–77.8
7	64.6	64.2–65.1	2	82.7	82.2–83.2
8	63.6	63.1–64.1	3	86.6	86.1–87.1
9	62.8	62.2–63.3	4	89.5	89.0–90.1
10	61.9	61.3–62.4	5	91.1	90.6–91.7
11	61.3	60.8–61.9	6	92.8	92.2–93.4
12	60.8	60.2–61.4	7	94.1	93.4–94.7
13	60.3	59.7–60.9	8	94.9	94.2–95.5
14	59.8	59.2–60.5	9	95.4	94.7–96.0
15	59.6	58.9–60.3	10	96.3	95.6–97.0
16	59.3	58.6–60.1	11	96.8	96.0–97.5
17	59.1	58.3–59.9	12	97.2	96.4–98.0
18	59.1	58.3–59.9	13	98.0	97.1–98.8
19	58.9	58.0–59.7	14	98.4	97.4–99.3
20	59.0	58.1–59.9	15	99.0	98–99.9

Source: ACD 2012.

Tables for Chapter 3

Recruitment

Table A3.1: Screening invitations including opt off and suspended status, by sex and age, people aged 50–74, Australia, 2013–2014

Sex	Age	Invitations issued to eligible population (N)	Persons suspended (N)	Persons opting off (N)	Persons suspended and opted off (N)	Persons suspended and opted off (%)	Invitations (minus opted off and suspended) (N)
Males	50–54	353,267	2,178	6,461	8,639	2.4	344,973
	55–59	312,797	2,504	5,442	7,946	2.5	305,278
	60–64	234,399	2,133	5,325	7,458	3.2	227,248
	65–69	263,047	4,245	15,854	20,099	7.6	243,984
	70–74	. .	. .	. .	. .	. .	. .
	50–74	*1,163,510*	*11,060*	*33,082*	*44,142*	*3.8*	*1,121,483*
Females	50–54	351,647	3,051	8,003	11,054	3.1	341,181
	55–59	314,468	3,575	6,819	10,394	3.3	304,761
	60–64	238,305	3,008	6,406	9,414	4.0	229,433
	65–69	266,312	5,731	19,236	24,967	9.4	242,902
	70–74	. .	. .	. .	. .	. .	. .
	50–74	*1,170,732*	*15,365*	*40,464*	*55,829*	*4.8*	*1,118,277*
Persons	50–54	704,914	5,229	14,464	19,693	2.8	686,154
	55–59	627,265	6,079	12,261	18,340	2.9	610,039
	60–64	472,704	5,141	11,731	16,872	3.6	456,681
	65–69	529,359	9,976	35,090	45,066	8.5	486,886
	70–74	. .	. .	. .	. .	. .	. .
	50–74	**2,334,242**	**26,425**	**73,546**	**99,971**	**4.3**	**2,239,760**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.2: Participation, by sex and age, people aged 50–74, Australia, 2013–2014

Sex	Age	Returned completed screening test (N)	Invitations (minus opted off and suspended) (N)	Participation (%)
Males	50–54	91,348	344,973	26.5
	55–59	103,561	305,278	33.9
	60–64	92,221	227,248	40.6
	65–69	101,588	243,984	41.6
	70–74	. .	. .	. .
	50–74	*388,718*	*1,121,483*	*34.7*
Females	50–54	104,914	341,181	30.8
	55–59	120,946	304,761	39.7
	60–64	108,221	229,433	47.2
	65–69	113,658	242,902	46.8
	70–74	. .	. .	. .
	50–74	*447,739*	*1,118,277*	*40.0*
Persons	50–54	196,262	686,154	28.6
	55–59	224,507	610,039	36.8
	60–64	200,442	456,681	43.9
	65–69	215,246	486,886	44.2
	70–74	. .	. .	. .
	50–74	**836,457**	**2,239,760**	**37.3**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.3: Participation, by invitation round, people aged 50–74, Australia, 2013–2014

Round	Screened in previous round	Returned completed screening test (N)	Invitations (minus opted off and suspended) (N)	Participation (%)
First	n.a.	439,265	1,260,112	34.9
Subsequent	No	112,894	595,758	18.9
	Yes	284,298	383,890	74.1
	All	*397,192*	*979,648*	*40.5*
All rounds	**No**[(a)]	**552,159**	**1,855,870**	**29.8**
	Yes	**284,298**	**383,890**	**74.1**
	All	**836,457**	**2,239,760**	**37.3**

(a) Includes all first-round invitations.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.4: Participation, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2013–2014

Area		Returned completed screening test (N)	Invitations (minus opted off and suspended) (N)	Participation rate (%)
State and territory	NSW	257,607	745,921	34.5
	Vic	210,383	548,370	38.4
	Qld	162,775	444,781	36.6
	WA	90,028	225,804	39.9
	SA	73,705	167,951	43.9
	Tas	22,972	53,994	42.5
	ACT	13,794	34,141	40.4
	NT	5,193	18,798	27.6
Remoteness area	Major cities	556,081	1,520,527	36.6
	Inner regional	177,628	444,167	40.0
	Outer regional	81,687	211,340	38.7
	Remote	9,441	27,617	34.2
	Very remote	3,201	12,590	25.4
	Unknown	8,419	23,519	35.8
Socioeconomic group	1 (lowest)	154,819	441,473	35.1
	2	166,139	445,499	37.3
	3	162,373	439,702	36.9
	4	166,375	436,796	38.1
	5 (highest)	177,325	450,306	39.4
	Unknown	9,426	25,984	36.3
Total		**836,457**	**2,239,760**	**37.3**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.5: Participation, by sex and age, people aged 50–74, Australia, 2007–2008 to 2013–2014

Sex	Age	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014
Males	50–54	30.9	33.5	31.7	29.7	27.9	26.9	26.5
	55–59	37.1	37.5	36.1	34.0	32.2	32.6	33.9
	60–64	. .	. .	. .	. .	. .	. .	40.6
	65–69	48.5	50.4	48.6	46.4	45.4	43.5	41.6
	70–74	. .	. .	. .	. .	. .	. .	. .
	50–74	*39.5*	*39.2*	*37.3*	*35.3*	*34.1*	*33.4*	*34.7*
Females	50–54	37.3	39.9	36.8	34.3	32.5	31.2	30.8
	55–59	46.6	46.4	43.7	41.2	39.3	38.9	39.7
	60–64	. .	. .	. .	. .	. .	. .	47.2
	65–69	55.4	57.3	54.3	52.0	51.2	49.1	46.8
	70–74	. .	. .	. .	. .	. .	. .	. .
	50–74	*47.5*	*46.6*	*43.3*	*41.0*	*39.8*	*38.7*	*40.0*
Persons	50–54	34.1	36.7	34.2	32.0	30.2	29.0	28.6
	55–59	41.8	41.9	39.9	37.6	35.7	35.8	36.8
	60–64	. .	. .	. .	. .	. .	. .	43.9
	65–69	51.8	53.8	51.4	49.2	48.2	46.3	44.2
	70–74	. .	. .	. .	. .	. .	. .	. .
	50–74	**43.5**	**42.8**	**40.3**	**38.1**	**36.9**	**36.0**	**37.3**

Note: Data presented are for a 24-month period.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Screening

Table A3.6: FOBT positivity rate, by sex and age, people aged 50–74, Australia, 2014

Sex	Age at screen	Positive result (N)	Valid screening test (N)	Screening positivity (%)
Males	50–54	3,264	48,202	6.8
	55–59	3,767	55,817	6.7
	60–64	5,273	68,902	7.7
	65–69	5,354	53,927	9.9
	70–74	. .	. .	. .
	50–74	*17,658*	*226,848*	*7.8*
Females	50–54	3,206	55,327	5.8
	55–59	3,789	64,766	5.9
	60–64	5,005	80,325	6.2
	65–69	4,720	60,404	7.8
	70–74	. .	. .	. .
	50–74	*16,720*	*260,822*	*6.4*
Persons	50–54	6,470	103,529	6.2
	55–59	7,556	120,583	6.3
	60–64	10,278	149,227	6.9
	65–69	10,074	114,331	8.8
	70–74	. .	. .	. .
	50–74	**34,378**	**487,670**	**7.0**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.7: FOBT positivity rate, by screening round, people aged 50–74, Australia, 2014

Screening round	Positive result (N)	Valid screening test (N)	Screening positivity (%)
First	22,703	293,621	7.7
Subsequent	11,675	194,049	6.0
All rounds	**34,378**	**487,670**	**7.0**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.8: FOBT positivity rate, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014

Area		Positive result (N)	Valid screening test (N)	Screening positivity (%)
State and territory	NSW	10,430	149,605	7.0
	Vic	8,558	122,893	7.0
	Qld	6,736	95,063	7.1
	WA	3,556	50,036	7.1
	SA	3,331	45,022	7.4
	Tas	1,006	13,622	7.4
	ACT	533	8,420	6.3
	NT	228	3,009	7.6
Remoteness area	Major cities	22,461	325,695	6.9
	Inner regional	7,445	103,703	7.2
	Outer regional	3,565	46,199	7.7
	Remote	424	5,392	7.9
	Very remote	152	1,821	8.3
	Unknown	330	4,860	6.8
Socioeconomic group	1 (lowest)	7,319	90,054	8.1
	2	7,070	95,878	7.4
	3	6,719	94,612	7.1
	4	6,636	97,949	6.8
	5 (highest)	6,269	103,737	6.0
	Unknown	365	5,440	6.7
Total		**34,378**	**487,670**	**7.0**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.9: FOBT positivity rate, by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014

Population group		Positive result (N)	Valid screening test (N)	Screening positivity (%)
Indigenous status	Indigenous	407	3,888	10.5
	Non-Indigenous	33,007	473,702	7.0
	Not stated	964	10,080	9.6
Language spoken at home	Language other than English	5,210	70,552	7.4
	English	29,168	417,118	7.0
Disability status	Severe or profound activity limitation	2,727	24,225	11.3
	No severe or profound activity limitation	30,064	445,710	6.7
	Not stated	1,587	17,735	8.9
Total		**34,378**	**487,670**	**7.0**

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Assessment

Table A3.10: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, Australia, 2014

Sex	Age at first positive screen	Assessments (N)	Positive FOBT result (N)	Diagnostic assessment rate (%)
Males	50–54	2,383	3,264	73.0
	55–59	2,702	3,767	71.7
	60–64	3,835	5,273	72.7
	65–69	3,960	5,354	74.0
	70–74	. .	. .	. .
	50–74	*12,880*	*17,658*	*72.9*
Females	50–54	2,361	3,206	73.6
	55–59	2,775	3,789	73.2
	60–64	3,705	5,005	74.0
	65–69	3,521	4,720	74.6
	70–74	. .	. .	. .
	50–74	*12,362*	*16,720*	*73.9*
Persons	50–54	4,744	6,470	73.3
	55–59	5,477	7,556	72.5
	60–64	7,540	10,278	73.4
	65–69	7,481	10,074	74.3
	70–74	. .	. .	. .
	50–74	**25,242**	**34,378**	**73.4**

Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different to the PPV rate for adenoma, and PPV rate for carcinoma and hospital admission, which is based on the diagnostic assessment date. Therefore, number of assessments may be different across indicators.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.11: Diagnostic assessment rate (colonoscopy), by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014

Area		Assessments (N)	Positive FOBT result (N)	Diagnostic assessment rate (%)
State and territory	NSW	7,318	10,430	70.2
	Vic	6,141	8,558	71.8
	Qld	5,538	6,736	82.2
	WA	2,352	3,556	66.1
	SA	2,534	3,331	76.1
	Tas	829	1,006	82.4
	ACT	418	533	78.4
	NT	112	228	49.1
Remoteness area	Major cities	17,081	22,461	76.0
	Inner regional	5,219	7,445	70.1
	Outer regional	2,403	3,565	67.4
	Remote	238	424	56.0
	Very remote	81	152	53.6
	Unknown	220	330	66.7
Socioeconomic group	1 (lowest)	4,909	7,319	67.1
	2	4,981	7,070	70.5
	3	4,997	6,719	74.4
	4	5,116	6,636	77.1
	5 (highest)	4,993	6,269	79.6
	Unknown	246	365	67.4
Total		**25,242**	**34,378**	**73.4**

Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different to the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic assessment date. Therefore, number of assessments may be different across indicators.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.12: Diagnostic assessment rate (colonoscopy), by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014

Population group		Assessments (N)	Positive FOBT result (N)	Diagnostic assessment rate (%)
Indigenous status	Indigenous	239	407	58.7
	Non-Indigenous	24,438	33,007	74.0
	Not stated	565	964	58.6
Language spoken at home	Language other than English	3,625	5,210	69.6
	English	21,617	29,168	74.1
Disability status	Severe or profound activity limitation	1,717	2,727	63.0
	No severe or profound activity limitation	22,594	30,064	75.2
	Not stated	931	1,587	58.7
Total		**25,242**	**34,378**	**73.4**

Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different to the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic assessment date. Therefore, number of assessments may be different across indicators.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.13: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, Australia, 2007 to 2014

Sex	Age at first positive screen	2007	2008	2009	2010	2011	2012	2013	2014
Males	50–54	. .	75.9	77.3	77.8	75.4	74.6	72.0	73.0
	55–59	78.2	78.6	76.6	78.6	77.5	74.6	74.2	71.7
	60–64	. .	. .	. .	. .	. .	. .	74.8	72.7
	65–69	76.9	77.1	77.4	78.7	78.7	75.3	74.6	74.0
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*77.5*	*77.4*	*77.1*	*78.4*	*77.4*	*74.9*	*73.9*	*72.9*
Females	50–54	. .	77.9	77.0	79.1	78.2	75.8	74.5	73.6
	55–59	78.9	80.2	81.3	78.7	78.0	75.9	75.1	73.2
	60–64	. .	. .	. .	. .	. .	. .	76.4	74.0
	65–69	78.4	78.4	75.7	79.6	79.3	76.8	74.9	74.6
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*78.6*	*79.0*	*77.7*	*79.2*	*78.5*	*76.3*	*75.0*	*73.9*
Persons	50–54	. .	76.9	77.1	78.4	76.8	75.2	73.3	73.3
	55–59	78.5	79.4	78.9	78.7	77.7	75.2	74.6	72.5
	60–64	. .	. .	. .	. .	. .	. .	75.6	73.4
	65–69	77.5	77.6	76.6	79.1	79.0	76.0	74.7	74.3
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	**78.0**	**78.2**	**77.4**	**78.8**	**78.0**	**75.6**	**74.4**	**73.4**

Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different to the PPV rate for adenoma, PPV rate for carcinoma and hospital admission, which is based on the diagnostic assessment date. Therefore, number of assessments may be different across indicators.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.14: Time between positive screen and diagnostic assessment, by sex and age, people aged 50–74, Australia, 2014

		No diagnostic assessment		<=30 days		<=60 days		<=90 days		<=180 days		<=360 days		>360 days		All
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Males	50–54	881	27.0	506	15.5	1,221	37.4	1,636	50.1	2,181	66.8	2,364	72.4	19	0.6	3,264
	55–59	1,065	28.3	592	15.7	1,460	38.8	1,905	50.6	2,463	65.4	2,691	71.4	11	0.3	3,767
	60–64	1,438	27.3	871	16.5	2,069	39.2	2,753	52.2	3,561	67.5	3,820	72.4	15	0.3	5,273
	65–69	1,394	26.0	921	17.2	2,191	40.9	2,915	54.4	3,700	69.1	3,935	73.5	25	0.5	5,354
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*4,778*	*27.1*	*2,890*	*16.4*	*6,941*	*39.3*	*9,209*	*52.2*	*11,905*	*67.4*	*12,810*	*72.5*	*70*	*0.4*	*17,658*
Females	50–54	845	26.4	573	17.9	1,302	40.6	1,725	53.8	2,195	68.5	2,352	73.4	9	0.3	3,206
	55–59	1,014	26.8	654	17.3	1,480	39.1	1,996	52.7	2,570	67.8	2,760	72.8	15	0.4	3,789
	60–64	1,300	26.0	968	19.3	2,135	42.7	2,776	55.5	3,502	70.0	3,695	73.8	10	0.2	5,005
	65–69	1,199	25.4	881	18.7	2,035	43.1	2,668	56.5	3,336	70.7	3,513	74.4	8	0.2	4,720
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*4,358*	*26.1*	*3,076*	*18.4*	*6,952*	*41.6*	*9,165*	*54.8*	*11,603*	*69.4*	*12,320*	*73.7*	*42*	*0.3*	*16,720*
Persons	50–54	1,726	26.7	1,079	16.7	2,523	39.0	3,361	51.9	4,376	67.6	4,716	72.9	28	0.4	6,470
	55–59	2,079	27.5	1,246	16.5	2,940	38.9	3,901	51.6	5,033	66.6	5,451	72.1	26	0.3	7,556
	60–64	2,738	26.6	1,839	17.9	4,204	40.9	5,529	53.8	7,063	68.7	7,515	73.1	25	0.2	10,278
	65–69	2,593	25.7	1,802	17.9	4,226	41.9	5,583	55.4	7,036	69.8	7,448	73.9	33	0.3	10,074
	70–74	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	**9,136**	**26.6**	**5,966**	**17.4**	**13,893**	**40.4**	**18,374**	**53.4**	**23,508**	**68.4**	**25,130**	**73.1**	**112**	**0.3**	**34,378**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.15: Time between positive screen and diagnostic assessment, by state and territory and socioeconomic group, people aged 50–74, Australia, 2014

		No diagnostic assessment		<=30 days		<=60 days		<=90 days		<=180 days		<=360 days		>360 days		All
Area		**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
State and territory	NSW	3,112	29.8	1,243	11.9	3,614	34.7	5,073	48.6	6,711	64.3	7,285	69.8	33	0.3	10,430
	Vic	2,417	28.2	2,500	29.2	4,321	50.5	5,090	59.5	5,898	68.9	6,124	71.6	17	0.2	8,558
	Qld	1,198	17.8	1,050	15.6	2,656	39.4	3,752	55.7	5,140	76.3	5,503	81.7	35	0.5	6,736
	WA	1,204	33.9	581	16.3	1,439	40.5	1,817	51.1	2,208	62.1	2,343	65.9	9	0.3	3,556
	SA	797	23.9	372	11.2	1,195	35.9	1,718	51.6	2,284	68.6	2,523	75.7	11	0.3	3,331
	Tas	177	17.6	156	15.5	421	41.8	572	56.9	782	77.7	828	82.3	1	0.1	1,006
	ACT	115	21.6	54	10.1	203	38.1	282	52.9	383	71.9	413	77.5	5	0.9	533
	NT	116	50.9	10	4.4	44	19.3	70	30.7	102	44.7	111	48.7	1	0.4	228
Socioeconomic group	1 (lowest)	2,410	32.9	888	12.1	2,369	32.4	3,303	45.1	4,487	61.3	4,888	66.8	21	0.3	7,319
	2	2,089	29.5	966	13.7	2,527	35.7	3,530	49.9	4,612	65.2	4,957	70.1	24	0.3	7,070
	3	1,722	25.6	1,187	17.7	2,733	40.7	3,603	53.6	4,652	69.2	4,981	74.1	16	0.2	6,719
	4	1,520	22.9	1,332	20.1	2,939	44.3	3,825	57.6	4,803	72.4	5,084	76.6	32	0.5	6,636
	5 (highest)	1,276	20.4	1,540	24.6	3,191	50.9	3,933	62.7	4,723	75.3	4,975	79.4	18	0.3	6,269
	Unknown	119	32.6	53	14.5	134	36.7	180	49.3	231	63.3	245	67.1	1	0.3	365
Total		**9,136**	**26.6**	**5,966**	**17.4**	**13,893**	**40.4**	**18,374**	**53.4**	**23,508**	**68.4**	**25,130**	**73.1**	**112**	**0.3**	**34,378**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.16: Time between positive screen and diagnostic assessment, by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014

		No diagnostic assessment		<=30 days		<=60 days		<=90 days		<=180 days		<=360 days		>360 days		All
Population group		**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Indigenous status	Indigenous	168	41.2	31	7.6	94	23.0	131	32.1	212	52.0	238	58.5	1	0.2	407
	Non-Indigenous	8,569	26.0	5,813	17.6	13,531	41.0	17,870	54.1	22,781	69.0	24,333	73.7	105	0.3	33,007
	Not stated	399	41.4	122	12.7	268	27.8	373	38.7	515	53.4	559	58.0	6	0.6	964
Language spoken at home	Language other than English	1,585	30.4	956	18.3	1,886	36.2	2,490	47.8	3,283	63.0	3,604	69.2	21	0.4	5,210
	English	7,551	25.9	5,010	17.2	12,007	41.2	15,884	54.5	20,225	69.3	21,526	73.8	91	0.3	29,168
Disability status	Severe or profound activity limitation	1,010	37.0	342	12.5	751	27.5	1,068	39.2	1,530	56.1	1,714	62.9	3	0.1	2,727
	No severe or profound activity limitation	7,470	24.8	5,438	18.1	12,715	42.3	16,716	55.6	21,155	70.4	22,493	74.8	101	0.3	30,064
	Not stated	656	41.3	186	11.7	427	26.9	590	37.2	823	51.9	923	58.2	8	0.5	1,587
Total		**9,136**	**26.6**	**5,966**	**17.4**	**13,893**	**40.4**	**18,374**	**53.4**	**23,508**	**68.4**	**25,130**	**73.1**	**112**	**0.3**	**34,378**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.17: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by sex and age, people aged 50–74, Australia, 2014

Sex	Age at first positive screen	Median	90th percentile
Males	50–54	59	169
	55–59	56	169
	60–64	56	161
	65–69	54	153
	70–74	. .	. .
	50–74	*56*	*162*
Females	50–54	54	156
	55–59	56	156
	60–64	51	141
	65–69	52	140
	70–74	. .	. .
	50–74	*53*	*148*
Persons	50–54	56	163
	55–59	56	162
	60–64	53	153
	65–69	53	146
	70–74	. .	. .
	50–74	**55**	**155**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.18: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by state and territory and socioeconomic group, people aged 50–74, Australia, 2014

Area		Median	90th percentile
State and territory	NSW	61	169
	Vic	37	120
	Qld	63	161
	WA	50	140
	SA	64	177
	Tas	60	147
	ACT	63	165
	NT	71	161
Socioeconomic group	1 (lowest)	63	171
	2	60	160
	3	55	155
	4	51	147
	5 (highest)	45	134
	Unknown	57	156
Total		**55**	**155**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.19: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014

Population group		Median	90th percentile
Indigenous status	Indigenous	83	196
	Non-Indigenous	54	154
	Not stated	63	173
Language spoken at home	Language other than English	57	177
	English	54	152
Disability status	Severe or profound activity limitation	70	186
	No severe or profound activity limitation	53	151
	Not stated	66	197
Total		**55**	**155**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.20: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by sex and age, people aged 50–74, Australia, 2007 to 2014

Sex	Age at first positive screen	2007	2008	2009	2010	2011	2012	2013	2014
Males	50–54	. .	58	62	61	57	57	58	59
	55–59	56	54	57	59	56	56	55	56
	60–64	. .	. .	. .	. .	. .	. .	58	56
	65–69	53	52	57	55	53	50	50	54
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*55*	*54*	*59*	*57*	*56*	*54*	*54*	*56*
Females	50–54	. .	53	59	60	58	56	53	54
	55–59	53	55	57	56	53	53	53	56
	60–64	. .	. .	. .	. .	. .	. .	57	51
	65–69	51	50	54	53	50	51	48	52
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*52*	*52*	*56*	*56*	*53*	*53*	*51*	*53*
Persons	50–54	. .	56	60	60	58	56	56	56
	55–59	55	55	57	57	55	55	54	56
	60–64	. .	. .	. .	. .	. .	. .	57	53
	65–69	52	51	55	54	52	51	49	53
	70–74	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	**53**	**53**	**57**	**57**	**55**	**54**	**52**	**55**

Note: This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Diagnosis

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

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

Outcomes

Table A3.21: Hospital admissions within 30 days of assessment, by sex and age, people aged 50–74, Australia, 2014

Sex	Age at assessment	Hospital admissions (N)	Assessments (N)	Hospital admission rate (per 10,000 assessments)
Males	50–54	n.p.	2,460	n.p.
	55–59	n.p.	2,700	n.p.
	60–64	5	3,960	12.6
	65–69	3	4,125	7.3
	70–74	. .	. .	. .
	50–74	*10*	*13,245*	*7.6*
Females	50–54	n.p.	2,571	n.p.
	55–59	n.p.	2,773	n.p.
	60–64	. .	3,943	. .
	65–69	3	3,611	8.3
	70–74	. .	. .	. .
	50–74	*7*	*12,898*	*5.4*
Persons	50–54	n.p.	5,031	n.p.
	55–59	n.p.	5,473	n.p.
	60–64	7	7,903	8.9
	65–69	6	7,736	7.8
	70–74	. .	. .	. .
	50–74	**17**	**26,143**	**6.5**

Notes

1. The hospital admission is calculated based on the diagnostic assessment date. This is the same as the PPV rate for adenoma and PPV rate for carcinoma. This is different to the diagnostic assessment rate, which is calculated based on the screening test date. Therefore, assessments may be different across indicators.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Table A3.22: Incidence of bowel cancer, by sex and age, Australia, 2016

	Male		Female		Persons	
Age group	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
0–4	—	—	—	—	—	—
5–9	—	—	—	—	—	—
10–14	1	0.1	1	0.2	2	0.1
15–19	3	0.4	5	0.7	8	0.6
20–24	12	1.4	12	1.5	25	1.5
25–29	39	4.3	40	4.4	79	4.4
30–34	43	4.7	44	4.8	87	4.8
35–39	70	8.5	73	8.9	142	8.7
40–44	172	20.9	132	15.9	304	18.4
45–49	306	37.9	238	28.9	544	33.4
50–54	515	66.9	401	51.0	915	58.8
55–59	848	115.5	596	78.9	1,444	96.9
60–64	1,051	162.1	672	100.5	1,723	130.8
65–69	1,730	295.7	1,123	186.9	2,854	240.6
70–74	1,598	363.8	1,153	250.9	2,751	306.1
75–79	1,468	469.1	1,075	314.8	2,543	388.5
80–84	1,043	514.2	961	374.0	2,003	435.8
85+	916	509.5	1,177	383.7	2,094	430.2
Ages 50–74 crude rate	*5,742*	*180.8*	*3,946*	*120.6*	*9,688*	*150.2*
All ages ASR	**9,815**	**73.7**	**7,705**	**51.4**	**17,520**	**62.0**

Notes

1. The 2013–2016 estimates are based on 2002–2011 incidence data.
2. Age-specific rates are expressed per 100,000. The total rate was age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.

Source: AIHW ACD 2011.

Table A3.23: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic group, all ages combined, Australia, 2006–2010

Area		Number	ASR
State and territory	NSW	23,915	62.3
	Vic	17,914	62.5
	Qld	14,016	65.6
	WA	6,330	58.6
	SA	6,041	62.6
	Tas	2,263	75.3
	ACT	946	62.1
	NT	354	57.4
Remoteness area	Major cities	45,880	60.6
	Inner regional	16,862	66.8
	Outer regional	7,670	68.7
	Remote	916	66.3
	Very remote	269	51.4
	Unknown	182	. .
Socioeconomic group	1 (lowest)	15,930	66.8
	2	15,922	64.4
	3	13,662	61.8
	4	12,694	61.0
	5 (highest)	13,382	59.4
	Unknown	189	. .
Total		**71,779**	**63.0**

Notes

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

Source: AIHW ACD 2012.

Table A3.24: Incidence of bowel cancer, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, Northern Territory, 2005–2010

Indigenous status	Number	ASR
Indigenous	442	46.8
Non-Indigenous	41,888	59.6
Not stated	2,285	. .
Total	**44,615**	**62.7**

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

Source: AIHW ACD 2012.

Table A3.25: Incidence of bowel cancer, by sex, all ages combined, Australia, 1982 to 2016

	Male		Female		Person	
Year	Number	ASR	Number	ASR	Number	ASR
1982	3,524	66.7	3,458	52.1	6,982	58.2
1983	3,723	68.2	3,433	50.6	7,156	58.2
1984	3,864	69.1	3,619	51.7	7,483	59.1
1985	4,181	72.5	3,829	53.7	8,010	61.7
1986	4,161	69.7	3,882	52.9	8,043	60.2
1987	4,329	70.8	3,936	52.2	8,265	60.3
1988	4,438	71.1	3,850	49.7	8,288	59.0
1989	4,740	74.2	4,052	51.2	8,792	61.2
1990	4,798	73.6	4,095	50.8	8,893	60.5
1991	5,181	76.5	4,469	53.8	9,650	63.9
1992	5,140	74.7	4,590	54.2	9,730	63.1
1993	5,342	74.9	4,569	52.8	9,911	62.8
1994	5,547	76.4	4,785	54.2	10,332	64.0
1995	5,750	77.4	4,812	53.1	10,562	64.0
1996	6,029	78.9	4,895	52.8	10,924	64.6
1997	6,112	77.8	5,071	53.3	11,183	64.4
1998	6,086	75.5	5,122	52.6	11,208	62.9
1999	6,280	75.9	5,446	54.3	11,726	64.2
2000	6,849	80.6	5,499	53.7	12,348	65.8
2001	6,922	79.1	5,844	55.4	12,766	66.2
2002	6,902	76.6	5,641	52.4	12,543	63.5
2003	6,891	74.6	5,758	52.5	12,649	62.7
2004	7,205	76.2	5,868	52.4	13,073	63.4
2005	7,227	74.4	5,957	51.9	13,184	62.4
2006	7,506	75.7	6,248	53.4	13,754	63.7
2007	7,878	76.7	6,515	54.6	14,393	64.8
2008	7,883	74.5	6,439	52.5	14,322	62.8
2009	7,906	73.2	6,406	51.0	14,312	61.3
2010	8,361	74.8	6,637	51.6	14,998	62.4
2011	8,367	73.0	6,847	51.9	15,214	61.7
2012	8,239	69.7	6,718	49.6	14,958	59.0
2013	9,046	74.0	7,167	51.6	16,213	62.2
2014	9,294	73.8	7,342	51.5	16,635	62.0
2015	9,550	73.8	7,520	51.5	17,071	62.0
2016	9,815	73.7	7,705	51.4	17,520	62.0

Notes

1. The 2013–2016 estimates are based on 2002–2011 incidence data.
2. Age-standardised rates are expressed per 100,000.

Sources: AIHW ACD 2011; AIHW ACD 2012.

Table A3.26: Mortality from bowel cancer, by sex and age, Australia, 2016

	Male		Female		Person	
Age group	**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	0.3	4	0.2
25–29	11	1.2	10	1.1	21	1.2
30–34	9	1.0	9	1.0	18	1.0
35–39	16	1.9	13	1.6	29	1.8
40–44	29	3.5	25	3.0	54	3.3
45–49	39	4.8	48	5.9	87	5.4
50–54	77	10.0	77	9.8	153	9.9
55–59	114	15.5	115	15.3	229	15.4
60–64	186	28.7	155	23.2	341	25.9
65–69	269	45.9	140	23.3	409	34.5
70–74	318	72.5	182	39.6	501	55.7
75–79	362	115.7	267	78.2	629	96.1
80–84	299	147.5	319	124.2	618	134.5
85+	414	230.3	585	190.8	999	205.4
Ages 50–74 crude rate	*964*	*30.3*	*670*	*20.5*	*1,633*	*25.3*
All ages ASR	**2,144**	**16.4**	**1,950**	**12.3**	**4,094**	**14.2**

Notes

1 The 2016 estimates are based on 2002–2013 mortality data. See Appendix D for further information.

2 Age-specific rates are expressed by 100,000. The total rate was age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.

Source: AIHW NMD 2013.

Table A3.27: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, all ages combined, Australia, 2009–2013

Area		Number	ASR
State and territory	NSW	6,489	15.3
	Vic	5,401	17.0
	Qld	3,959	17.0
	WA	1,618	13.7
	SA	1,746	16.4
	Tas	611	18.9
	ACT	266	16.2
	NT	109	19.0
Remoteness area	Major cities	13,418	15.9
	Inner regional	4,430	16.3
	Outer regional	2,042	17.1
	Remote	204	14.8
	Very remote	69	12.3
	Unknown	36	. .
Socioeconomic group	1 (lowest)	4,757	17.8
	2	4,416	16.3
	3	4,051	16.3
	4	3,583	15.7
	5 (highest)	3,355	14.0
	Unknown	37	. .
Total		**20,199**	**16.1**

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

Source: AIHW NMD 2013.

Table A3.28: Mortality from bowel cancer, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, South Australia, Northern Territory, 2009–2013

Indigenous status	Number	ASR
Indigenous	133	12.6
Non-Indigenous	13,650	15.5
Not stated(a)	138	. .
Total	**13,921**	**15.7**

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

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

Source: AIHW NMD 2013.

Table A3.29: Mortality from bowel cancer, by sex, all ages combined, Australia, 1982 to 2016

	Male		Female		Person	
Year	Number	ASR	Number	ASR	Number	ASR
1982	1,830	37.0	1,787	27.4	3,617	31.5
1983	1,933	38.1	1,825	27.2	3,758	31.7
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	2,254	19.5	1,800	12.6	4,054	15.7
2013	2,299	19.2	1,863	12.7	4,162	15.7
2014	2,167	17.6	1,900	12.6	4,067	14.9
2015	2,156	17.0	1,922	12.5	4,078	14.6
2016	2,144	16.4	1,950	12.3	4,094	14.2

Notes

1. The 2014–2016 estimates are based on 2002–2013 mortality data. See Appendix D for further information.
2. Age-standardised rates are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 population.

Source: AIHW NMD 2013.

Tables for Chapter 4

Table A4.1: Available assessment outcomes, by age and sex, people aged 50–74, Australia, assessed in 2014

Sex	Age at assessment		Assessments	Available assessment results						
				No cancer or adenoma[(a)]	Biopsy awaiting histopathology[(b)]	Confirmed diminutive adenoma[(c)]	Confirmed small adenoma[(c)]	Confirmed advanced adenoma[(c)]	Suspected cancer[(d)]	Confirmed cancer[(e)]
Males	50–54	Number	2,460	1,446	594	163	18	166	61	12
		Per cent	. .	58.8	24.1	6.6	0.7	6.7	2.5	0.5
	55–59	Number	2,700	1,501	700	191	28	206	61	13
		Per cent	. .	55.6	25.9	7.1	1.0	7.6	2.3	0.5
	60–64	Number	3,960	2,090	1,079	289	32	332	104	34
		Per cent	. .	52.8	27.2	7.3	0.8	8.4	2.6	0.9
	65–69	Number	4,125	2,001	1,112	328	40	424	156	64
		Per cent	. .	48.5	27.0	8.0	1.0	10.3	3.8	1.6
	70–74	Number	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*Number*	*13,245*	*7,038*	*3,485*	*971*	*118*	*1,128*	*382*	*123*
		Per cent	. .	*53.1*	*26.3*	*7.3*	*0.9*	*8.5*	*2.9*	*0.9*
Females	50–54	Number	2,571	1,821	452	114	16	118	39	11
		Per cent	. .	70.8	17.6	4.4	0.6	4.6	1.5	0.4
	55–59	Number	2,773	1,930	524	131	21	120	39	8
		Per cent	. .	69.6	18.9	4.7	0.8	4.3	1.4	0.3
	60–64	Number	3,943	2,616	788	231	21	193	77	17
		Per cent	. .	66.3	20.0	5.9	0.5	4.9	2.0	0.4
	65–69	Number	3,611	2,207	808	215	21	237	101	22
		Per cent	. .	61.1	22.4	6.0	0.6	6.6	2.8	0.6
	70–74	Number	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	*Number*	*12,898*	*8,574*	*2,572*	*691*	*79*	*668*	*256*	*58*
		Per cent	. .	*66.5*	*19.9*	*5.4*	*0.6*	*5.2*	*2.0*	*0.4*

(continued)

Table A4.1 (continued): Available assessment outcomes, by age and sex, people aged 50–74, Australia, assessed in 2014

				Available assessment results						
Sex	**Age at assessment**		**Assessments**	**No cancer or adenoma**(a)	**Biopsy awaiting histopathology**(b)	**Confirmed diminutive adenoma**(c)	**Confirmed small adenoma**(c)	**Confirmed advanced adenoma**(c)	**Suspected cancer**(d)	**Confirmed cancer**(e)
Persons	50–54	Number	5,031	3,267	1,046	277	34	284	100	23
		Per cent	. .	64.9	20.8	5.5	0.7	5.6	2.0	0.5
	55–59	Number	5,473	3,431	1,224	322	49	326	100	21
		Per cent	. .	62.7	22.4	5.9	0.9	6.0	1.8	0.4
	60–64	Number	7,903	4,706	1,867	520	53	525	181	51
		Per cent	. .	59.5	23.6	6.6	0.7	6.6	2.3	0.6
	65–69	Number	7,736	4,208	1,920	543	61	661	257	86
		Per cent	. .	54.4	24.8	7.0	0.8	8.5	3.3	1.1
	70–74	Number	. .	. .	. .	. .	. .	. .	. .	. .
	50–74	**Number**	**26,143**	**15,612**	**6,057**	**1,662**	**197**	**1,796**	**638**	**181**
		Per cent	**. .**	**59.7**	**23.2**	**6.4**	**0.8**	**6.9**	**2.4**	**0.7**

(a) No cancers were suspected at assessment or confirmed non-cancerous by histopathology; no polyps identified at assessment, or polyps confirmed as non-adenomatous at histopathology.

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

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

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

(e) Cancer confirmed by histopathology.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Tables for Chapter 5

Table A5.1: Driving time between participant and colonoscopy provider, kilometres, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014

		<25 km		<50 km		<100 km		<200 km		<400 km		<800 km		800+ km		All
Area		**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
State and territory	NSW	3,576	74.2	4,114	85.4	4,471	92.8	4,654	96.6	4,707	97.7	4,730	98.2	87	1.8	4,817
	Vic	3,794	73.7	4,574	88.9	4,926	95.7	5,057	98.3	5,107	99.3	5,120	99.5	25	0.5	5,145
	Qld	3,144	69.7	3,826	84.9	4,110	91.2	4,293	95.2	4,385	97.2	4,420	98.0	89	2.0	4,509
	WA	1,071	73.6	1,223	84.0	1,313	90.2	1,374	94.4	1,388	95.3	1,414	97.1	42	2.9	1,456
	SA	1,477	79.2	1,606	86.1	1,736	93.1	1,787	95.8	1,826	97.9	1,848	99.1	17	0.9	1,865
	Tas	443	62.4	580	81.7	674	94.9	704	99.2	707	99.6	710	100.0	. .	0.0	710
	ACT	320	93.3	334	97.4	334	97.4	337	98.3	338	98.5	339	98.8	4	1.2	343
	NT	62	64.6	69	71.9	73	76.0	74	77.1	83	86.5	84	87.5	12	12.5	96
Remoteness area	Major cities	10,810	86.1	12,068	96.1	12,307	98.0	12,352	98.4	12,369	98.5	12,394	98.7	159	1.3	12,553
	Inner regional	2,277	53.7	3,179	75.0	3,900	92.0	4,121	97.2	4,169	98.3	4,196	98.9	45	1.1	4,241
	Outer regional	656	36.2	923	51.0	1,260	69.6	1,599	88.3	1,745	96.4	1,776	98.1	34	1.9	1,810
	Remote	23	16.7	27	19.6	33	23.9	63	45.7	98	71.0	121	87.7	17	12.3	138
	Very remote	8	16.3	8	16.3	12	24.5	17	34.7	23	46.9	39	79.6	10	20.4	49
	Unknown	113	75.3	121	80.7	125	83.3	128	85.3	137	91.3	139	92.7	11	7.3	150

(continued)

Table A5.1 (continued): Driving time between participant and colonoscopy provider, kilometres, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014

		<25 km		<50 km		<100 km		<200 km		<400 km		<800 km		800+ km		All
Area		**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Socioeconomic group	1 (lowest)	2,335	59.7	2,943	75.3	3,489	89.2	3,739	95.6	3,835	98.1	3,877	99.2	33	0.8	3,910
	2	2,524	67.1	3,050	81.1	3,385	90.0	3,605	95.8	3,677	97.7	3,715	98.8	47	1.2	3,762
	3	2,912	75.9	3,425	89.3	3,622	94.4	3,710	96.7	3,761	98.0	3,780	98.5	56	1.5	3,836
	4	2,964	77.8	3,491	91.7	3,673	96.4	3,723	97.7	3,743	98.3	3,757	98.6	52	1.4	3,809
	5 (highest)	3,031	87.8	3,286	95.2	3,328	96.4	3,356	97.2	3,366	97.5	3,375	97.8	77	2.2	3,452
	Unknown	121	70.3	131	76.2	140	81.4	147	85.5	159	92.4	161	93.6	11	6.4	172
Total		**13,887**	**73.3**	**16,326**	**86.2**	**17,637**	**93.1**	**18,280**	**96.5**	**18,541**	**97.9**	**18,665**	**98.5**	**276**	**1.5**	**18,941**

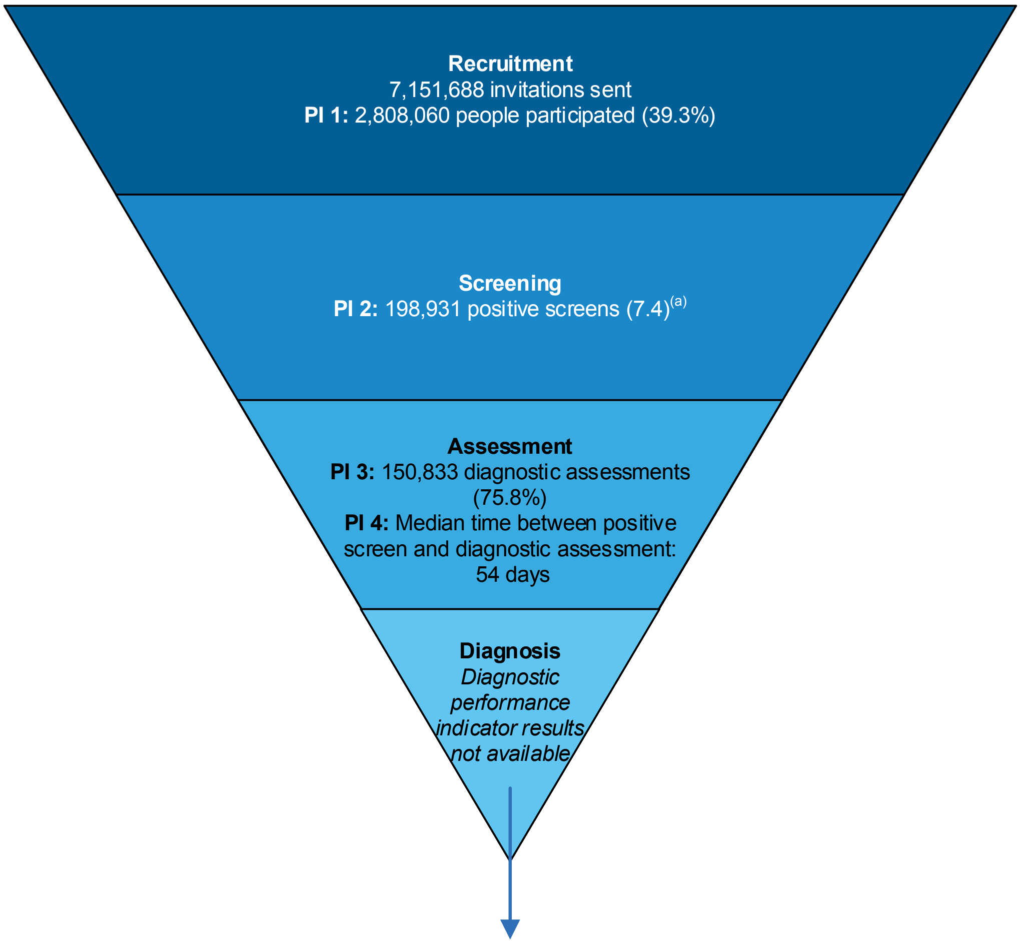
Notes

1. Diagnostic assessment rate is calculated based on the screening test date. This is different to the PPV rates for adenoma and carcinoma, and hospital admission, which are based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 5 for more details.

Source: National Bowel Cancer Screening Program Register as at 31 December 2015.

Appendix B: Overall NBCSP outcomes

Overall outcomes (August 2006–June 2015)



Assessment details[(b)]

No cancer or adenoma	87,226	(57.8%)
Polyp awaiting histopathology	35,870	(23.8%)
Non-advanced adenomas	10,269	(6.8%)
Advanced adenomas	13,035	(8.6%)
Suspected cancer	3,160	(2.1%)
Confirmed cancer	1,278	(0.8%)

(a) Based on the 2,689,738 participants who returned a valid FOBT.

(b) Based on available data.

Notes

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

Source: National Bowel Cancer Screening Program Register as at December 2015.

Figure B.1: Summary of NBCSP performance indicators, Australia, 2006–2015

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 C.1 outlines the start dates of each phase, and the target age groups.

Table C.1: NBCSP phases and target populations

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

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

(b) Ongoing NBCSP funding commenced.

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

Appendix D: Data sources

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

National Bowel Cancer Screening Program

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

The Data Quality Statement for the National Bowel Cancer Screening Program can be found on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/637181>.

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. These cancer registries annually supply an agreed subset of the data collected to the AIHW, where it is compiled into the ACD. The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2010 for all states and territories, and for 2011 and 2012 for all except New South Wales and the Australian Capital Territory.

The 2011 and 2012 incidence data for New South Wales and the Australian Capital Territory were not available for inclusion in the 2012 version of the ACD. The development of the new NSW Cancer Registry system has resulted in a delay in processing incidence data for 2011 onwards and therefore the most recent New South Wales data available for inclusion in the ACD are for 2010. As the coding of Australian Capital Territory cancer notifications is contracted to the NSW Cancer Registry, the most recent data available for the Australian Capital Territory are also for 2010.

The AIHW estimated 2011 and 2012 incidence data for New South Wales and the Australian Capital Territory. These estimates were combined with the actual data that the other 6 state and territory cancer registries supplied to form the 2012 ACD. Incidence estimates for 2013–16 were then calculated to provide estimates up to the current year. The detailed methodology by which data are estimated is available in *Cancer in Australia: an overview 2014* (AIHW 2014c).

The Data Quality Statement for the 2012 ACD can be found on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/624388>.

AIHW National Mortality Database

The AIHW National Mortality Database (NMD) contains information on deaths in Australia from 1964 to 2013. Cause of Death Unit Record File data are provided to the AIHW by the Registries of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include causes of death coded by the ABS. The AIHW maintains these data in the NMD.

In this report, deaths in 1982 to 2012 are based on year of occurrence of death. Deaths in 2013 are based on year of registration of death and deaths in 2014 to 2016 are estimates based on data for 2002 to 2013. Deaths registered in 2011 and earlier are based on the final version of cause of death data; deaths registered in 2012 and 2013 are based on revised and preliminary versions, respectively, and the ABS may make further revisions.

In this report, causes of death information are based on the *underlying cause of death*. Causes of death are classified according to the International Classification of Diseases and Related Health Problems (ICD), which is revised periodically. Deaths registered in 1979 to 1996 are classified according the 9th revision (ICD-9) and deaths registered in 1997 onwards are classified according to the 10th revision (ICD-10).

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

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

For more information on the AIHW NMD see *Deaths data at AIHW* <http://www.aihw.gov.au/deaths/aihw-deaths-data/>.

National Death Index

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

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

The Data Quality Statement for the NDI can be found at the AIHW website 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 their 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 Local Area and postcode of usual residence; overseas visitors are excluded.
- An adjustment is made for persons missed in the Census.
- Australians temporarily overseas on Census night are added to the usual residence Census count.

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

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

AIHW Disease Expenditure Database

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

For more information on the AIHW Disease Expenditure Database, see *Health system expenditures on cancer and other neoplasms in Australia: 2008–09* (AIHW 2013).

The Data Quality Statement for the Disease Expenditure Database can be found on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/512599>.

Appendix E: Classifications

Remoteness Area

The Remoteness Areas (RAs) 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 RA 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*. RAs are based on the Accessibility and Remoteness Index of Australia (ARIA) produced by the Australian Population and Migration Research Centre at the University of Adelaide.

Remoteness area for screening data

Residential address postcodes of participants were mapped to 2011 ASGS RAs. As some postcodes can span different RAs, a weighting for each RA 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 Australia Cancer Database contains the 2006 Statistical Local Area (SLA) and 2011 Statistical Area Level 2 (SA2) but not the RA. In order to calculate the cancer incidence rates by RA, a correspondence was used to map the 2006 SLA to the 2006. Similarly, the cancer mortality rates by RA were calculated by applying a correspondence from the 2011 SA2 to the 2011 RA.

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

Index of Relative Socio-economic Disadvantage

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

In this report, the first socioeconomic group (quintile 1) corresponds to geographical areas containing the 20% of the population with the greatest socioeconomic disadvantage according to the IRSD, and the fifth group (quintile 5) corresponds to the 20% of the population with the least socioeconomic disadvantage. Caution should always be taken when analysing the results of data that have been converted using correspondences, and the potential limitations of the data taken into account.

Socioeconomic group for screening data

Participants' areas of residence were assigned to socioeconomic groups using the participant's residential postcode according to the IRSD for 2011. Socioeconomic groupings (based on IRSD rankings) were calculated with a postal area correspondence using a population-based method at the Australia-wide level. Participants whose postcode was not available in the socioeconomic correspondence were included in an 'Unknown' column in the relevant tables.

Socioeconomic group for incidence and mortality

Socioeconomic disadvantage quintiles were assigned to cancer cases according to the IRSD of the SLA of residence at the time of diagnosis, and to deaths according to the SA2 of residence at the time of death.

International Classification of Diseases for Oncology

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

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

International Statistical Classification of Diseases and Related Health Problems

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

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

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

The Australian modification of the ICD-10, referred to as the ICD-10-AM (NCCH 2010), is based on the ICD-10. The ICD-10 was modified for the Australian setting by the National Centre for Classification in Health, with assistance from clinicians and clinical coders. Despite the modifications, compatibility with the ICD-10 at the higher levels of the classification (that is, up to 4 character codes) has been maintained. The ICD-10-AM has been used to classify diagnoses in hospital records in all states and territories since 1999–00 (AIHW 2000).

Distance to assessment analysis

Latitude and longitude coordinates of the residential address of the patient and the corresponding location of the health service undertaking the colonoscopy were obtained from the NBCSP Register, where available.

These data were then imported into *Drivetime (*an application within Mapinfo professional). One-way distance from residential address to the health service providing the colonoscopy was calculated according to the fastest available road network route for each participant.

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. 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 persons.

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

asymptomatic: Without symptoms.

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

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

cancer death: A death where the underlying cause of death is indicated as cancer. Persons 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 who participated in the NBCSP. This is because, at any point in time, there are members of the population who are eligible to proceed to the next point on the screening pathway, but who have not yet had time to do so. Similarly, there is a time lag between when a person with a positive FOBT result is referred for a colonoscopy and when they can actually have the colonoscopy.

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

false negative: A screening test result that incorrectly indicates a person does not have a marker for the condition being tested when they do have the condition. Not all screening tests are completely accurate, so false negative results cannot be discounted. Further, with an

FOBT test for bowel cancer, if a polyp, adenoma or cancer is not bleeding at the time of the test, it may be missed by the screening test.

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

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

Pathologists categorise completed NBCSP FOBTs into 1 of 3 groups:

1. correctly completed
2. incorrectly completed
3. unsatisfactory.

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

FOBT result: FOBT results are classified by pathologists into 1 of 3 groups:

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

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

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

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

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

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

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

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

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

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

opt off: Invitees who do not wish to participate in the National Bowel Cancer Screening Program (NBCSP) now or in the future may opt off the program. Invitees will not be contacted again. Invitees may elect to opt back on at a later date.

participant: A person who has agreed to participate in the NBCSP by returning a completed FOBT kit and participant details form.

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

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

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

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

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

prognosis: The likely outcome of an illness.

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

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

suspend: Invitees who would like to participate in the NBCSP but are unable to do so at this time. Invitees will be contacted once the nominated suspension period has elapsed.

target population: The target population comprises of 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: Only FOBT results that are either positive or negative are classified as valid results. Inconclusive results are excluded.

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List of tables

Table 1: Summary of NBCSP performance indicators, Australia vii

Table 1.1: Defined Australian clinico-pathological stages of bowel cancer 3

Table 2.1: Prevalence of bowel cancer, by sex, Australia, end of 2010 10

Table 2.2: Bowel cancer burden attributed to selected risk factors (DALY and proportion), 2011 13

Table 5.1: Summary of performance indicators for lowest and highest socioeconomic groups 40

Table 5.2: Summary of performance indicators for *Very remote* and *Major cities* areas 42

Table 5.3: Summary of performance indicators for Indigenous and non-Indigenous Australians 44

Table A1.1: Government funding for cancer screening programs, 2013–14, $ million 46

Table A2.1: Five-year relative survival from bowel cancer, by sex and age, Australia, 2008–2012 47

Table A2.2: Trend in 5-year relative survival from bowel cancer, Australia, 1983–1987 to 2008–2012 47

Table A2.3: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, Australia, 2008–2012 48

Table A3.1: Screening invitations including opt off and suspended status, by sex and age, people aged 50–74, Australia, 2013–2014 49

Table A3.2: Participation, by sex and age, people aged 50–74, Australia, 2013–2014 50

Table A3.3: Participation, by invitation round, people aged 50–74, Australia, 2013–2014 50

Table A3.4: Participation, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2013–2014 51

Table A3.5: Participation, by sex and age, people aged 50–74, Australia, 2007–2008 to 2013–2014 52

Table A3.6: FOBT positivity rate, by sex and age, people aged 50–74, Australia, 2014 53

Table A3.7: FOBT positivity rate, by screening round, people aged 50–74, Australia, 2014 53

Table A3.8: FOBT positivity rate, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014 54

Table A3.9: FOBT positivity rate, by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014 54

Table A3.10: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, Australia, 2014 55

Table A3.11: Diagnostic assessment rate (colonoscopy), by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014 56

Table A3.12: Diagnostic assessment rate (colonoscopy), by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014 57

Table A3.13: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, Australia, 2007 to 2014 58

Table A3.14: Time between positive screen and diagnostic assessment, by sex and age, people aged 50–74, Australia, 2014 59
Table A3.15: Time between positive screen and diagnostic assessment, by state and territory and socioeconomic group, people aged 50–74, Australia, 2014 60
Table A3.16: Time between positive screen and diagnostic assessment, by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014 61
Table A3.17: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by sex and age, people aged 50–74, Australia, 2014 62
Table A3.18: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by state and territory and socioeconomic group, people aged 50–74, Australia, 2014 63
Table A3.19: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by Indigenous status, language spoken at home and disability status, people aged 50–74, Australia, 2014 63
Table A3.20: Time between positive screen and diagnostic assessment, median and 90th percentile value (in days), by sex and age, people aged 50–74, Australia, 2007 to 2014 64
Table A3.21: Hospital admissions within 30 days of assessment, by sex and age, people aged 50–74, Australia, 2014 65
Table A3.22: Incidence of bowel cancer, by sex and age, Australia, 2016 66
Table A3.23: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic group, all ages combined, Australia, 2006–2010 67
Table A3.24: Incidence of bowel cancer, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, Northern Territory, 2005–2010 67
Table A3.25: Incidence of bowel cancer, by sex, all ages combined, Australia, 1982 to 2016 68
Table A3.26: Mortality from bowel cancer, by sex and age, Australia, 2016 69
Table A3.27: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, all ages combined, Australia, 2009–2013 70
Table A3.28: Mortality from bowel cancer, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, South Australia, Northern Territory, 2009–2013 70
Table A3.29: Mortality from bowel cancer, by sex, all ages combined, Australia, 1982 to 2016 71
Table A4.1: Available assessment outcomes, by age and sex, people aged 50–74, Australia, assessed in 2014 72
Table A5.1: Driving time between participant and colonoscopy provider, kilometres, by state and territory, remoteness area and socioeconomic group, people aged 50–74, Australia, 2014 74
Table C.1: NBCSP phases and target populations 77

List of figures

Figure 1.1: The beginnings of bowel cancer....2

Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2016....7

Figure 2.2: Age-specific incidence risk of bowel cancer, Australia, 2016....7

Figure 2.3: Age-specific mortality rates of bowel cancer, by sex, Australia, 2016....8

Figure 2.4: Age-specific mortality risk of bowel cancer, Australia, 2016....8

Figure 2.5: Five-year relative survival from bowel cancer, by age group, Australia, 2008–2012....9

Figure 2.6: Trends in 5-year relative survival from bowel cancer, all ages, Australia, 1983–1987 to 2008–2012....9

Figure 2.7: Relative survival at diagnosis and 5-year conditional survival from bowel cancer, all ages, Australia, 2008–2012....10

Figure 2.8: Change in fatal burden—YLL number and age-specific rate (per 1,000 people)—from bowel cancer, 2003 and 2011....12

Figure 3.1: Summary of NBCSP performance indicators, Australia....15

Figure 3.2: Participation, by sex and age and by invitation round, people aged 50–74, 2013–2014....17

Figure 3.3: Participation, by sex, people aged 50–74, 1 January 2007–31 December 2008 to 1 January 2013–31 December 2014....17

Figure 3.4: Participation, by state and territory, people aged 50–74, 2013–2014....18

Figure 3.5: Participation, by remoteness area and socioeconomic group, people aged 50–74, 2013–2014....18

Figure 3.6: Screening positivity rate, by sex and age and by screening round, people aged 50–74, 2014....19

Figure 3.7: Screening positivity rate, by state and territory, people aged 50–74, 2014....20

Figure 3.8: Screening positivity rate, by remoteness area and socioeconomic group, people aged 50–74, 2014....20

Figure 3.9: Diagnostic assessment rate (colonoscopy), by sex and age, people aged 50–74, 2014....22

Figure 3.10: Diagnostic assessment rate (colonoscopy), people aged 50–74, 2007 to 2014....23

Figure 3.11: Diagnostic assessment rate (colonoscopy), by state and territory, people aged 50–74, 2014....24

Figure 3.12: Diagnostic assessment rate (colonoscopy), by remoteness area and socioeconomic group, people aged 50–74, 2014....24

Figure 3.13: Median time (in days) between positive screen and diagnostic assessment, by sex and age, people aged 50–74, 2014....27

Figure 3.14: Median time (in days) between positive screen and diagnostic assessment, people aged 50–74, 2007 to 2014....27

Figure 3.15: Median time (in days) between positive screen and diagnostic assessment, by state and territory, people aged 50–74, 2014....28

Figure 3.16: Median time (in days) between positive screen and diagnostic assessment, by socioeconomic group, people aged 50–74, 2014 28

Figure 3.17: Incidence rate, by sex and age, people aged 50–74, 2016 32

Figure 3.18: Trends in new cases of bowel cancer, all ages combined, Australia, 1982–2016....33

Figure 3.19: Incidence rate, by state and territory, all ages combined, 2006–2010 33

Figure 3.20: Incidence rate, by remoteness area and socioeconomic group, all ages combined, 2006–2010 34

Figure 3.21: Incidence rate, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, Northern Territory, 2006–2010....34

Figure 3.22: Mortality rate, by sex and age, people aged 50–74, 2016....35

Figure 3.23: Trend in deaths from bowel cancer, all ages combined, Australia, 1982–2016 36

Figure 3.24: Mortality rate, by state and territory, all ages combined, 2009–2013 36

Figure 3.25: Mortality rate, by remoteness area and socioeconomic group, all ages combined, 2009–2013 37

Figure 3.26: Mortality rate, by Indigenous status, all ages combined, New South Wales, Queensland, Western Australia, South Australia and Northern Territory, 2009–2013 37

Figure 5.1: Driving distance (kilometres) between participant and colonoscopy provider, by socioeconomic group, people aged 50–74, Australia, 2014 41

Figure 5.2: Driving distance (kilometres) between participant and colonoscopy provider, by remoteness area, people aged 50–74, Australia, 2014 43

Figure 5.3: Driving distance (kilometres) between participant and colonoscopy provider, by state and territory, people aged 50–74, Australia, 2014....45

Figure B.1: Summary of NBCSP performance indicators, Australia, 2006–2015 76

Related publications

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

- AIHW 2015. National Bowel Cancer Screening Program: monitoring report 2013–14. Cancer series 94. Cat. no. CAN 92. 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.
- AIHW 2014. Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program. Cat. no. CAN 87. Canberra: AIHW.
- AIHW 2014. Cancer in Australia: an overview 2012. Cancer series no. 90. Cat. no. CAN 88. Canberra: AIHW.
- AIHW 2015. BreastScreen Australia monitoring report 2012–2013. Cancer series no. 95. Cat. no. CAN 93. Canberra: AIHW.
- AIHW 2016. Cervical screening in Australia 2013–2014. Cancer series no. 97. Cat. no. CAN 95. Canberra: AIHW.

This report presents statistics on the National Bowel Cancer Screening Program (NBCSP). This monitoring report is the first to measure the NBCSP using NBCSP key performance indicators. Of those who were invited to participate in the NBCSP between 1 January 2013 and 31 December 2014, 37% undertook screening. For those screened in 2014, 7% had a positive result warranting further assessment. One in 32 participants who underwent a follow-up diagnostic assessment was diagnosed with a confirmed or suspected cancer.