Australian Government

Australian Institute of
Health and Welfare

National Bowel Cancer Screening Program

Monitoring report 2013–14

CANCER SERIES NO. 94

Australian Government
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Australian Institute of Health and Welfare
Canberra
Cat. no. CAN 92

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ISSN 1039-3307
ISBN 978-1-74249-751-8 (PDF)
ISBN 978-1-74249-752-5 (Print)

Suggested citation

Australian Institute of Health and Welfare 2015. National Bowel Cancer Screening Program: monitoring report 2013–14. Cancer series no. 94. Cat. no. CAN 92. Canberra: AIHW.

Australian Institute of Health and Welfare

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Published by the Australian Institute of Health and Welfare

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Acknowledgments

This report was prepared by David Meere, Ellen Connell and Justin Harvey. The authors thank the Bowel Screening Section staff at the Department of Health, who helped produce this document.

Data were extracted from the National Bowel Cancer Screening Program Register and supplied by the Department of Human Services.

The financial support of the Bowel Screening section of the Department of Health is gratefully acknowledged.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ACD	Australian Cancer Database
ACT	Australian Capital Territory
ARIA	Accessibility/Remoteness Index of Australia
ASR	Age-standardised rate
DHS	Department of Human Services
DVA	Department of Veterans' Affairs
FOBT	Faecal occult blood test
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10th Revision
IRSD	Index of Relative Socio-economic Disadvantage
mm	millimetres
NBCSP	National Bowel Cancer Screening Program
NMD	National Mortality Database
NSW	New South Wales
NT	Northern Territory
PHCP	primary health-care practitioner (general practitioner or other primary health-care provider)
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) aims 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 NBCSP has been running since August 2006, and this report focuses on measures of program performance for people invited to participate in screening between July 2013 and June 2014 (those turning 50, 55, 60 or 65).

Program participation has increased

Of the 1.4 million people invited between July 2013 and June 2014, 36.0% returned a completed bowel cancer screening kit for analysis. This overall participation rate was higher than the participation rate of 33.4% in 2012–13 (Table 1). The increase was mainly due to the start of the second round of invitations to 55 and 60 year olds, who had higher rates of re-participation. For those receiving their second invitation after participating 5 years earlier, the re-participation rate was more than 70%.

How many positive screening results were there?

Of those participants who returned a valid screening test, about 37,700 (7.5%) had a positive screening result. These people were encouraged to follow up this result by visiting their primary health-care practitioner (PHCP) for referral to further investigative testing (colonoscopy). Sixty-eight per cent of those with a positive screening result were recorded as having had a follow-up colonoscopy at the time of this report.

The positivity rate (percentage of positive faecal occult test results) for those participating for the second time (6.3%) was lower than for initial screens (8.2%).

How many bowel cancers and adenomas were detected?

One participant in every 25 who underwent a colonoscopy to follow up a positive screening result was diagnosed with a confirmed or suspected cancer (149 and 599 participants respectively), while advanced adenomas were found in a further 1,691 participants (1 in 11 colonoscopies assessed). Adenomas are benign growths that have the potential to become cancerous, and their removal is likely to lower the risk of future bowel cancers in these patients.

Were there differences between subgroups participating in the NBCSP?

Women were more likely to participate in screening than men; conversely, men had higher rates of screen-detected bowel cancers, overall bowel cancer incidence and mortality.

Aboriginal and Torres Strait Islander participants, participants who lived in *Regional and remote* regions, and participants who lived in areas of lower socioeconomic status, continue to have higher rates of positive screening results, yet lower rates of follow-up colonoscopies than other participants.

2013–14 NBCSP data at a glance

Table 1 compares 2013–14 key performance measures for the NBCSP for the target ages of 50, 55, 60 and 65 with those from the previous monitoring report (2012–13 invitees).

Table 1: Performance measures for the NBCSP, people aged 50, 55, 60 and 65, 2012–13 and 2013–14

	2012–13[(a)]	**2013–14**
Performance measure	**Percentage of those invited to participate**	
Overall participation rate	33.4	36.0
50 years	*27.4*	*27.4*
55 years	*33.2*	*35.9*
60 years	. .[(b)]	*42.7*
65 years	*41.6*	*40.6*
	Percentage of those who screened	
Faecal occult blood test (FOBT) positivity rate	7.5	7.5
	Percentage of those with a positive screen	
Primary health-care practitioner (PHCP) follow-up rate	58.0	61.5
Colonoscopy follow-up rate	70.4	67.6
	Percentage of colonoscopy outcomes	
Suspected/confirmed cancers	3.2	4.0
Advanced adenomas	5.7	9.1
Small or diminutive adenomas	3.9	8.4
Polyps awaiting histopathology	41.2	31.2
No abnormality	46.0	47.3

(a) 2012–13 data relate to those presented in the previous monitoring report for those eligible for invitation between 1 July 2012 and 30 June 2013 (AIHW 2014e). See Table A6.1 in Appendix A for final data for those invited in 2012–13.

(b) Invitations to those aged 60 commenced in 2013–14. See Table S1.3.

Note: Definitions for these performance measures are in Section 2.

Source: National Bowel Cancer Screening Program Register.

Section 1 Introduction

Structure of this report

This report provides the most up-to-date national data available for the National Bowel Cancer Screening Program (NBCSP).

The first section presents an overview of bowel cancer in Australia, outlines the process of bowel cancer screening, and describes the development and management of the NBCSP. It also provides a brief overview of technical issues that should be considered when interpreting the information in this report.

The second section presents national data for the NBCSP from 1 July 2013 to 30 June 2014. Data are presented against a series of performance measures. A summary of each performance measure — including definition, rationale, information on data quality and a guide for interpretation — form the start of each chapter. This is followed by measure-specific background information and detailed analyses.

Additional data tables for some sections of this report are presented on the Australian Institute of Health and Welfare (AIHW) webpage for *National Bowel Cancer Screening Program monitoring report: 2013–14 supplementary tables*.

Changes in this latest report

Because some 2013–14 invitees are now starting their second invitation round (that is, those aged 55 and 60 in 2013–14 who were originally invited as 50 and 55 year olds in 2008–09), this report also includes participation and faecal occult blood test analyses by invitation round.

Additionally, summary data on NBCSP expenditure have been included in Chapter 8 of Section 2.

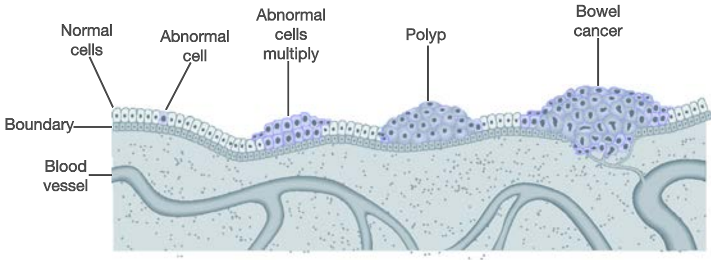
Overview of bowel cancer and bowel screening

What is bowel cancer?

Cancer is a group of several hundred diseases in which abnormal cells are not destroyed by normal processes within the body, but multiply and spread out of control. Cancers are distinguished from each other by the specific type of cell involved and the place in the body in which the disease began.

Bowel cancer refers specifically to cancer of the large intestine (that is, the colon or rectum). It is also known as colorectal cancer.

Generally, bowel cancer involves a multistage process in which a series of cellular mutations occur over time in epithelial cells (the protective layer of surface tissue on exposed bodily surfaces, which also forms the lining of some internal cavities, such as the large intestine). Early stages of these mutations result in benign polyps that are relatively common in old age. However, a polyp may then undergo additional mutations and become a benign adenoma and, ultimately, a malignant bowel cancer that can invade into deeper layers of bowel tissue and then spread to other sites in the body (Figure S1.1).



Source: Cancer Council Victoria (2013).

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Figure S1.1: The beginnings of bowel cancer

These mutations occur relatively slowly, making early detection and removal of small cancers—and adenomas and polyps that may become cancerous—effective in preventing ill health (morbidity) or death from bowel cancer.

How common is bowel cancer?

Bowel cancer is a disease predominantly seen in developed and affluent countries, with the highest rates occurring in Australia, New Zealand and Western Europe. It has been estimated that there were about 1.4 million new cases of bowel cancer diagnosed worldwide in 2012 (10% of worldwide cancer diagnoses), and 694,000 deaths attributed (8% of all worldwide cancer deaths). Worldwide, males have bowel cancer incidence rates that are 1.4 times higher than females (Ferlay et al. 2013).

Terminology

Incidence: the number of new cases of bowel cancer diagnosed in a year.

Morbidity*:* ill health.

Mortality: the number of deaths from bowel cancer in a year.

Prognosis: the likely outcome of an illness.

In Australia, the incidence of bowel cancer has been increasing since 1982 (the year national cancer data were first collected), with 15,151 new cases diagnosed in 2011 (13% of all cancers). The risk of being diagnosed by the age of 85 was 1 in 10 for males and 1 in 15 for females in 2011, with the risk increasing sharply from the age of 45. Bowel cancer accounts for over 9% of all deaths from invasive cancers in Australia, with 3,980 deaths in 2012, making it the second most common cause of cancer-related death after lung cancer (ABS 2014; AIHW 2014b).

What causes bowel cancer?

A proportion of bowel cancers (about 20%) are thought to be due to a hereditary component (Weitz et al. 2005). However, a larger proportion can be attributed to known and unknown environmental and lifestyle factors (WCRF & AICR 2011).

An evaluation of the evidence by the World Cancer Research Fund found there was sufficient evidence that tobacco smoking, obesity and the consumption of alcohol and red and processed meats were risk factors for bowel cancer, while consumption of foods containing dietary fibre and higher levels of physical activity provided a protective effect from bowel cancer (WCRF & AICR 2011).

The incidence rate of bowel cancer is also known to increase with age—about 93% of people diagnosed in Australia in 2011 were 50 or older (see 'Section 2, Chapter 6 Incidence of bowel cancer'). This is likely to be due to the accumulation of cellular mutations with increasing age.

How is bowel cancer treated?

Treatment for bowel cancer commonly involves surgery to remove the cancer, with or without additional chemotherapy or radiation therapy. Prognosis depends mainly on what stage of development the cancer has reached, with smaller, less-developed cancers having much better prognoses than advanced cancers (Table S1.1). Bowel cancer stages are generally defined using the Australian clinicopathological stage (ACPS) classification system shown in Table S1.1 (ACN 2005).

Table S1.1: Defined Australian clinicopathological stages of bowel cancer

Australian clinicopathological stage	Description	Survival estimates[(a)]
A	Submucosa or 'into-but-not-through' muscularis propria (cancer contained within superficial layers of bowel)	Bowel cancers diagnosed at this stage showed a 93% 5-year survival rate.
B	Through muscularis propria (deep invasion into bowel tissue)	Bowel cancers diagnosed at this stage showed an 82% 5-year survival rate.
C	Spread of cancer to lymph nodes (invasion through bowel tissue, and cancer found in lymph nodes)	Bowel cancers diagnosed at this stage showed a 59% 5-year survival rate.
D	Metastatic disease (cancer also discovered at other sites in the body)	Bowel cancers diagnosed at this stage showed an 8% 5-year survival rate. Palliative care is commonly used at this stage.

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

Improving treatment outcomes

Early diagnosis of bowel cancer can improve treatment outcomes and survival. Removal of non-benign polyps (polypectomy) and adenomas during a colonoscopy reduces the risk of them developing into bowel cancer. Studies have shown that 14% of patients who refuse polypectomy for adenomas will develop bowel cancer within 10 years (Stryker et al. 1987). The excision of adenomatous polyps, and regular surveillance thereafter, has been found to reduce bowel cancer risk by about 76–90% (Winawer et al. 1993).

A bowel cancer screening program that can highlight individuals with signs of a potential bowel abnormality, allowing earlier investigation by colonoscopy, can therefore reduce bowel cancer morbidity and mortality (AIHW 2014a).

How do we screen for bowel cancer?

Bowel cancer may be present for many years before showing symptoms such as visible rectal bleeding, change in bowel habits, 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 precancerous stages for some time. The relatively slow development of bowel cancer makes it a valid candidate for population screening (APHDPCSS 2008).

Screening tools and target populations for screening for bowel cancer vary around the world (Table S1.2). Evidence from clinical trials has shown that regular (biennial) screening using faecal occult blood testing—which can detect evidence of blood in the stool (faeces) not visible to the naked eye—can reduce mortality from bowel cancer by 15–33% (DoHA 2005).

A faecal occult blood test (FOBT) is a non-invasive test that detects microscopic amounts of blood in the bowel motion—a common sign of a bowel abnormality such as an adenoma or cancer. FOBTs are accepted as the primary screening tool for bowel cancer by a large number of countries, and some supplement the FOBT with flexible sigmoidoscopy (a thin flexible tube that is inserted into the rectum and guided around the lower part of the bowel where most bowel cancers develop) or colonoscopy (a thin flexible tube that is inserted into the rectum and guided around the entire length of the bowel). Table S1.2 summarises screening tools and target populations of screening programs for selected countries.

Table S1.2: Selected international bowel cancer screening programs—tools and target populations

Country	Primary screening tool	Frequency	Start year	Target population (age in years)	Notes
Australia	FOBT	5-yearly, see notes	2006	50–74	People turning the target ages are sent an FOBT kit. As noted in Table S1.3, the NBCSP is being expanded from 2015 to implement a biennial screening interval for those aged 50–74 by 2020.
Canada	FOBT	Varies between provinces	See notes	50–74	Ten provinces had started programs or pilots by 2010. FOBT is the primary screening tool; however, provinces are free to adopt other primary screening tools.
England	FOBT	Biennial	2006	60–69	FOBTs are supplemented by one-off flexible sigmoidoscopy in individuals aged 55–64.
Finland[(a)]	FOBT	Biennial	2004	60–67	Currently in a RCT ‘implementation’ phase, with screening and control arms. The control group will be offered screening when the implementation phase is complete.
France	FOBT	Biennial	2002	50–74	
Germany	FOBT	Annual	1971	50–54	Followed by
	FOBT	Biennial		55 and over	Or
	Colonoscopy	10-yearly		55 and over	
Italy	FOBT	Biennial	See notes	50–69, see notes	Regionally based programs began between 1982 and 2006. The target age ranges from 44 to 75, with all programs screening those aged 50 to 69.
Ireland[(b)]	FOBT	Biennial	2012	60–69	The program is being expanded over time until the full 55–74 age group is reached.

(continued)

Table S1.2 (continued): Selected international bowel cancer screening programs—tools and target populations

Country	Primary screening tool	Frequency	Start year	Target population (age in years)	Notes
Israel	FOBT	Annual	1993	50–74	
Japan	FOBT	Annual	1992	40 and over	
New Zealand(c)	FOBT	Biennial	2011	50–74	Four-year pilot program scheduled to start in late 2011 for residents of the Waitemata District.
Poland	Endoscopy	10-yearly	2000	40–46	
Scotland	FOBT	Biennial	2006	50–74	
South Korea(a)	FOBT	Annual	2004	50 and over	
United States	FOBT, sigmoidoscopy and colonoscopy	See notes		50–75	While no national organised program exists, screening with FOBT (annually), sigmoidoscopy (5-yearly) and colonoscopy (10-yearly), depending on individual risk factors are promoted through guideline dissemination and media campaigns.

(a) Bulliard et al. (2014).

(b) National Cancer Screening Service (2013).

(c) New Zealand Ministry of Health (2013).

Source: Benson et al. (2012) except where otherwise noted.

How is bowel cancer screening managed in Australia?

Population-based bowel cancer screening involves testing for signs of bowel cancer in people who do not have any obvious symptoms of the disease. People who do have symptoms, or a significant family history, are encouraged to discuss these with their primary health-care practitioner (PHCP). In accordance with the *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer*, approved by the National Health and Medical Research Council (ACN 2005), these people should be referred directly for diagnostic assessment (generally colonoscopy). However, it is recognised that some people at increased risk may not seek the assistance of a medical professional (for example, those who are symptomatic but reluctant to act on their symptoms). As a result, all people of the target ages are currently invited to screen, regardless of evidence of previous symptoms or significant family history.

These current guidelines, which will be revised by 2017, recommend organised screening with an FOBT, performed at least once every 2 years, for the Australian population aged 50 or over.

A variety of FOBT kits to aid the early detection of bowel cancer are available in Australia over the counter from pharmacies, through medical practitioners and through the following programs:

- BowelScreen Australia®—a pharmacy-based bowel cancer awareness, education and screening initiative for the Australian community, which advocates annual screening for all non-symptomatic Australians aged 50 and over (see <www.bowelscreenaustralia.org>).
- BowelScan—this is a community service project run by a number of Rotary clubs and districts in Australia. It has been operating since 1982, advocating annual screening for

men and women over the age of 40. It seeks to increase community knowledge of bowel cancer and its symptoms, and distributes subsidised FOBT kits to facilitate early diagnosis. About 150,000 kits are distributed annually across Australia (see <www.nationalbowelscan.org.au>).

The NBCSP is the national screening program implemented in 2006 by the Australian Government in partnership with the state and territory governments (see <www.cancerscreening.gov.au>). This report is based on data collected through the NBCSP.

The National Bowel Cancer Screening Program

Initial pilot

In 1996, the Australian Health Technology Advisory Committee systematically reviewed the literature on screening for bowel cancer against the World Health Organization principles for the assessment of a screening program. The committee concluded that, if the results of pilot testing were encouraging, the Australian Government should develop a bowel cancer screening program for the at-risk population—the 'well population aged over 50' (AHTAC 1997). The Bowel Cancer Screening Pilot Program was conducted from November 2002 to June 2004 to test the feasibility, acceptability and cost-effectiveness of bowel cancer screening in the Australian community.

The National Bowel Cancer Screening Program

After the success of this pilot, the Australian Government implemented Phase 1 of the NBCSP in late 2006 (Table S1.3). In July 2008, Phase 2 of the NBCSP began. Phase 2 was originally scheduled to end on 30 June 2011 (with most invitations ceasing on 31 December 2010); however, Phase 2 was continued from July 2011. The program was expanded from July 2013 to also invite participation by Australians turning 60. The rollout of biennial screening for those aged 50–74 began in 2015.

Table S1.3: 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.

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 NBCSP has been phased in gradually to help ensure that health services, such as colonoscopy and treatment options, are able to meet any increased demand. This is consistent with the introduction of other screening programs, such as the National Cervical Screening Program, which was also phased in over several years.

The National Bowel Cancer Screening Program Register, currently maintained by the Department of Human Services (DHS), is responsible for inviting people to participate in screening using an FOBT supplied with the invitation pack. To avoid the possibility of samples deteriorating due to exposure to heat and delays in processing (Grazzini et al. 2010; van Rossum et al. 2009), participants living in 'hot zone' postcodes are not sent kits during months where the average temperature has historically been greater than 30.5 degrees Celsius. They are sent their kit either before or after those hotter months.

Once an eligible person has received and completed their FOBT, they are asked to post it to a central pathology laboratory for analysis. Results are sent to the participant, to the participant's nominated PHCP and to the NBCSP Register. Participants with a positive result, indicating blood in their stool, are advised to consult their PHCP to discuss further diagnostic testing—in most cases, this will be a colonoscopy.

Responses to invitations, and the outcomes for participants who complete the screening test, are monitored to the point of definite diagnosis for those who are found to have bowel cancer (Health 2015b). Refer to Appendix B, Figure B.1 for a complete representation of the current screening pathway from invitation to diagnosis.

How is the National Bowel Cancer Screening Program monitored?

The AIHW produces these NBCSP monitoring reports for the Department of Health. These reports analyse data extracted from the NBCSP Register and provide an overview of screening participation and outcomes.

This current report presents statistics on the progression of eligible participants, invited between 1 July 2013 and 30 June 2014, through the screening pathway. It covers measures of participation, FOBT results, and follow-up investigations and outcomes. Analyses are presented by age, sex, state and territory, geographical region, socioeconomic status, Indigenous status, language spoken at home, and disability status.

In addition, the most recent incidence and mortality data for bowel cancer are presented as an indication of the current status of bowel cancer in Australia. As the NBCSP only began in late 2006 and currently targets a relatively small population, any influence NBCSP screening has on incidence and mortality rates may not be apparent for several years.

This is the last monitoring report in this format. Future NBCSP monitoring reports will be based on the newly approved NBCSP performance indicators (AIHW 2014d).

Terminology and concepts used in this report

Eligible population

The eligible population list is compiled from those registered as an Australian citizen or migrant in the Medicare enrolment file, or registered with a Department of Veterans' Affairs (DVA) gold card. Due to some variability between actual NBCSP invitation dates and invitee target-age birthdays, those who were the following ages when invited (from 1 January 2013 to 30 June 2014) were included in the target-age cohorts in this report:

- **50 year olds**: those aged 49–52 when invited
- **55 year olds**: those aged 54–57 when invited
- **60 year olds**: those aged 59–62 when invited
- **65 year olds**: those aged 64–67 when invited.

While all kits returned are analysed and processed by the NBCSP, invitees who were outside the target ages or did not live in Australia at the time of invitation were excluded from analyses in this report. There were 910 invitees excluded from the eligible population in 2013–14 (see Table A1.1). These people were mainly participants outside the target ages who independently requested a kit, or were involved in jurisdictional pilot projects (such as those aimed at improving Aboriginal and Torres Strait Islander participation).

Those people in the eligible population who had opted off the NBCSP (due to reasons such as already having regular colonoscopies), or who had suspended their participation as at 31 December 2014, were included in analyses, because many had progressed through the screening pathway before opting off or suspending their participation.

Participation

The term 'participation' is used to refer to participation in the screening program. Hence, the 'participation rate' is the proportion of the eligible population who were invited and who returned a completed FOBT.

FOBT positivity rate

The FOBT positivity rate refers to the proportion of participants with positive FOBT results out of all participants who returned a valid FOBT kit; participants who returned inconclusive kits were excluded from this rate.

Primary health-care practitioner and colonoscopy follow-up rates

The proportion of participants with a positive FOBT result who subsequently visited a PHCP is referred to as the 'primary health-care practitioner follow-up rate'. PHCPs are classified by DHS as a general practitioner or other primary health-care provider. This may include remote health clinics or specialists providing general practitioner services.

The proportion of participants with a positive FOBT, and who subsequently had a colonoscopy, is referred to as the 'colonoscopy follow-up rate'.

‘Crude’ versus estimated rates

Due to inherent time lag between invitation and completion of an FOBT, calculation of a crude participation rate for a period can result in an underestimate of the true (final) participation rate, especially if sufficient time to allow all invitees to participate has not passed when calculating the crude rate. To adjust for the time lag in participation, this report includes data up to 6 months after the invitation period being reported.

However, for later stages in the NBCSP pathway, such as PHCP and colonoscopy follow-up, modelled rates—based on the time it took each individual with a positive FOBT result to respond—were also calculated. The modelled response rates were calculated using the Kaplan–Meier method and provide a rate that adjusts for time lag in those who were invited later in the reported period and may not have yet had sufficient time to have a follow-up colonoscopy, for example. This method can only minimise the effect of the time lag—it cannot account for non-return of NBCSP forms (see ‘NBCSP data collection’ below). Details of the Kaplan–Meier method can be found in Appendix D. An additional update to the crude rates for the previous monitoring report (with an additional year of follow up time) is also included in Appendix A.

Data considerations

The analyses in this report are based on data recorded in the NBCSP Register for the eligible population invited between 1 July 2013 and 30 June 2014, and includes participation and follow-up activity until 31 December 2014.

NBCSP data collection

Data are collected about participants and their screening outcomes from a variety of sources throughout the screening pathway. The data are collected on forms completed by participants, PHCPs, colonoscopists, pathologists, nurses, medical administrative staff and/or other specialists, and are ultimately returned and stored in the NBCSP Register.

Completion of NBCSP forms by practitioners is not mandatory, and there is the possibility of inconsistent reporting. For example, assessment, colonoscopy and histopathology report forms are received from different sources and may be entered into the register in any sequence; however, each must have a positive FOBT result to be included. This means that there may be data for colonoscopies without an associated PHCP assessment form, and data for histopathology results without a completed colonoscopy report form. When inconsistencies occur, these are noted to provide an indication of the reliability of the data. Additionally, specific histopathology data collection projects have been undertaken in some states and territories that may distort comparisons of histopathologically confirmed outcomes between jurisdictions.

Because of time lags in reporting by clinicians, data on PHCP consultations, colonoscopies and histopathological outcomes in this report may understate the true performance of the NBCSP in this period and should be interpreted with caution.

Self-reported population subgroup identification

Information in the NBCSP Register on the Indigenous status of invitees may have been populated from data in other Medicare programs for which the invitee has provided this information; however, in practice, this information for invitees overall is considered to be of low quality. Therefore, identification of participants as 'Aboriginal and 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 invitees who participate, it is not possible to accurately determine NBCSP participation rates for these subgroups. Instead, the percentage of participants who identified as members of these subgroups is shown, and compared with the corresponding percentage of the population aged 50, 55, 60 and 65 who identified themselves as members of these subgroups in the 2011 Australian Census of Population and Housing. This allows an estimation of under-reporting or under-participation for these subgroups to be made.

Postcode-based subgroup identification

Subgroup analyses based on remoteness area and socioeconomic status (Index of Relative Socioeconomic Disadvantage) area are based on an invitee's postcode at the time of invitation. The correspondences (previously known as concordances) used in this report are based on 2011 postal area boundaries and classifications, which are defined only in census years. (See Appendix C for further details.)

The need to apply correspondences to determine subgroup identification introduces an unavoidable level of inaccuracy. For example, many postcodes may not have valid socioeconomic status or remoteness correspondence data available (such as for non-residential postcodes, or newly created postcodes), and some areas may have changed classification group since the time of the last census, either due to boundaries being redefined by Australia Post, or subsequent population changes. The Australian Bureau of Statistics advises that 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.

Colonoscopy follow-up

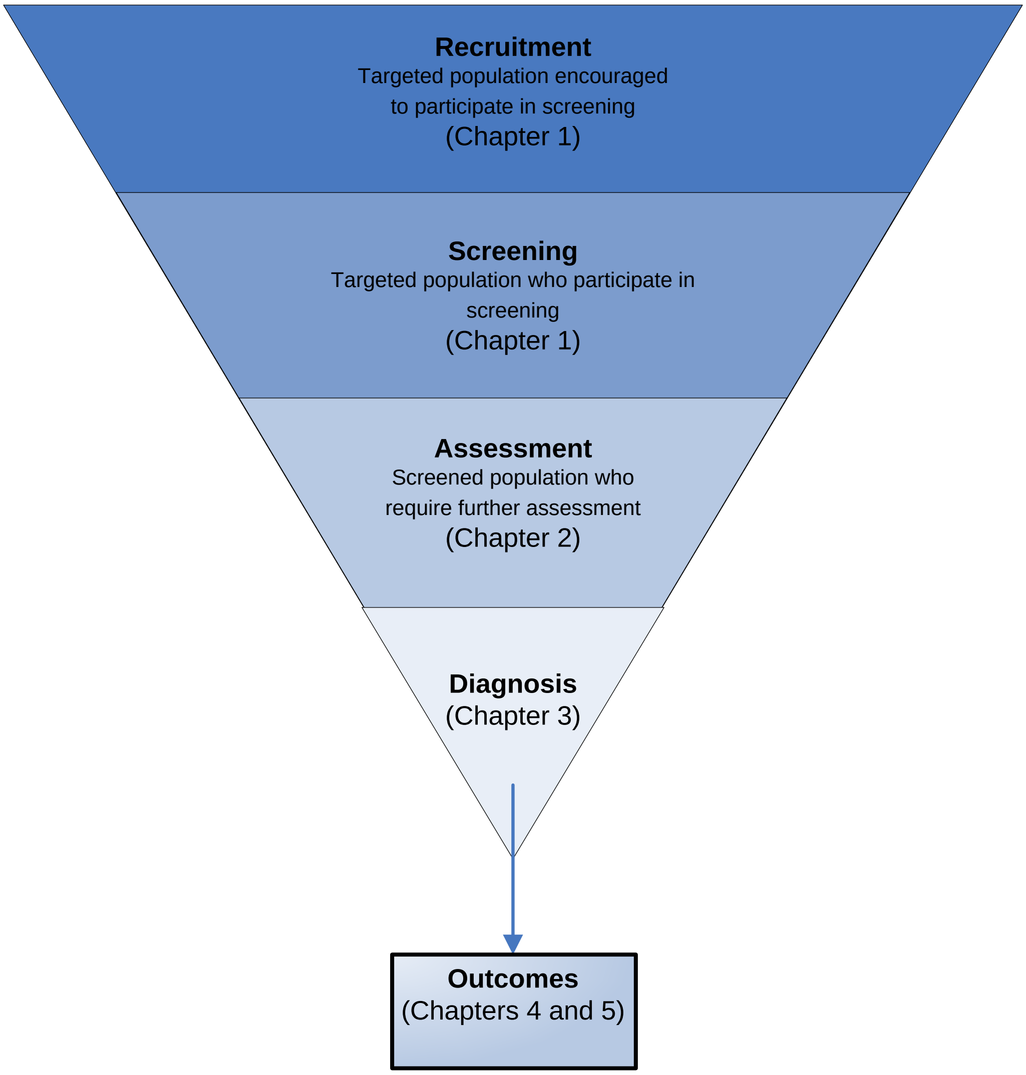
Theoretically, the denominator for the colonoscopy follow-up rate should be all positive FOBTs that were referred for colonoscopy by a PHCP. However, due to the time lag in visiting PHCPs and the low rate of PHCP assessment form return, this cannot be accurately estimated. Instead, the total number of positive FOBTs recorded in the NBCSP Register was used as the denominator.

As not all participants with a positive FOBT will be referred for a colonoscopy (see tables A3.9 and A3.11 for examples), this method may result in an underestimation of the true colonoscopy follow-up rate. The use of positive FOBTs as the denominator may also influence the rates shown in unexpected ways. For example, differences in age and sex population subgroups may be masked by differing referral rates—as tables A2.2 and A3.9 show, the rate of positive FOBTs (used as the denominator for colonoscopy follow-up) generally increases with age, yet referrals for colonoscopy do not.

Section 2 Performance measures

Structure of this section

The *Population based screening framework* (APHDPCSS 2008) uses 5 incremental stages to describe a screening pathway. Figure S2.1 shows these stages and details how the NBCSP performance measures shown in the following chapters relate. The 2 remaining chapters in this section ('Chapter 6 Incidence of bowel cancer', and 'Chapter 7 Mortality from bowel cancer') provide additional context about bowel cancer in Australia.



Source: APHDPCSS (2008).

Figure S2.1: The 5 population-based screening framework stages

1 Participation

What do we mean by ‘participation’?

Definition: The proportion of the eligible population invited who returned a completed FOBT kit for analysis.

Rationale: Through increased participation in bowel cancer screening, abnormalities that could otherwise develop into bowel cancer can be detected and treated. High participation is required for the NBCSP to achieve its major objectives of reducing bowel cancer incidence, morbidity and mortality.

Data source: National Bowel Cancer Screening Program Register

Data quality: As the number of invitations issued and FOBT kits returned is known, there are limited data quality issues. (See ‘Section 1 Data considerations’ for further details.)

Guide to interpretation: Participation data are based on the eligible population invited to screen from 1 July 2013 to 30 June 2014, as recorded in the register. Persons are counted only once in the reporting period, even if they were invited or screened more than once. (See ‘Section 1 Eligible population’ for further information.)

Participation rate calculations should, in principle, exclude people from the denominator who are unlikely to require screening, such as those who have a previous diagnosis of bowel cancer, those who have had a colonoscopy in the past 5 years, or those who have completed any FOBT kit within the past 2 years. In practice, none of these groups can be reliably identified, and so all invitees are included in the denominator, and in the numerator if applicable. Similarly, those who had opted off or suspended their participation are included in this chapter; this may cause a slight underestimation of the participation rate, but increases outcomes data for later chapters.

Kaplan–Meier rates (see Box 1.1) are presented to visually depict participation rates in terms of time (in weeks) since invitation.

Key results

- Of the 1,415,555 eligible people invited into the NBCSP in 2013–14, 509,736 (36.0%) had participated by 31 December 2014.
- Participation rates differed between the 4 target ages. The highest rate of participation was for people aged 60 (42.7%), followed by those aged 65 (40.6%). Those aged 55 had a participation rate of 35.9%, while 50 year olds had the lowest rate (27.4%). The start of the second screening invitation round for those aged 55 and 60 (after originally being invited 5 years earlier in 2008–09) increased the overall participation rates for these ages. This was mainly due to their re-participation rate being more than 70%.
- There was also a difference in participation between the sexes; the participation rate for women (38.5%) was higher than that for men (33.6%).
- Those people invited in *Remote* and (particularly) *Very Remote* regions had lower levels of participation than people invited from all other regions.
- People living in areas with the lowest socioeconomic status had the lowest level of participation.

Detailed analyses of 2013–14 invitee response

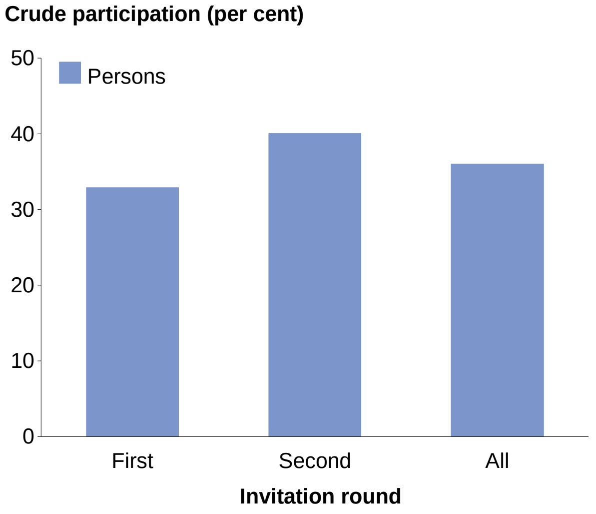
From 1 July 2013 to 30 June 2014, a total of 1,416,465 FOBT invitations were sent out (Table A1.1). Of these, 910 were sent to people outside the target ages, or to addresses that were not in Australia, and were considered not part of the eligible NBCSP population. To confirm that the NBCSP Register provided adequate invitation coverage of the target ages, the Australian Bureau of Statistics Estimated Resident Populations for those aged 50, 55, 60 and 65 in 2013 were compared with invitations where the eligible birthday occurred in 2013. Based on this comparison, invitation coverage for the eligible population was considered to be complete.

Of the 1,415,555 invitation kits issued to the eligible population, 509,736 people participated by returning a completed FOBT for analysis. This gave an overall Australia-wide crude participation rate of 36.0% (Table A1.2). A further 63,380 people did not return a kit but responded by opting off or suspending participation. This meant 573,116 people (40.5% of eligible invitees) responded in some form.

The 36.0% participation rate recorded in this report was higher than that reported in the previous monitoring report (33.4%), with all jurisdictions, both sexes, and all remoteness and socioeconomic status areas recording an increase. The main reason for these increases was the start of re-invitations for those aged 55 (who were previously invited as 50 year olds in 2008) and those aged 60 (who were previously invited as 55 year olds in 2008).

The effect of second-screen invitations

While the overall participation rate was 36.0%, for those receiving their second invitation the participation rate was 40.1%. For those receiving their first invitation (the majority of which were to 50 year olds), the rate was 32.9% (Figure 1.1).



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 1.1: Crude participation, by invitation round, 2013–14

Further analyses of participation by invitation round (that is, first or second invitation round) are presented in Table A1.8.

These data show that the participation rate for those receiving their first invitation was similar to the rate in the last monitoring report (which was 33.4%); however, the initiation of rescreening (second invitations sent to people 5 years after their first invitation in 2008–09) increased the overall 2013–14 participation rate to 36.0%. Also, those who did participate in their first invitation round had a much higher re-participation rate (73.5%) than those who didn't participate in the first round (17.7% participated at their second invitation).

Participation trends by time since invitation

This report allowed a 6-month window, between the period being reported and the cut-off for data analysis, to allow sufficient time for almost all invitees who are likely to participate to do so. Previous monitoring reports have determined that 6 months is sufficient for crude participation rates to be valid (AIHW 2013). However, Kaplan–Meier estimates are provided in addition to visually show the response time between invitation and participation.

The effect of invitation reminders 8 weeks after the original invitation can be seen (in figures A1.1, A1.2 and A1.3) as a second steep rise in participation between weeks 10 and 14. Participation rates generally plateaued 16 weeks after invitation.

Box 1.1: What are Kaplan–Meier estimates?

Kaplan–Meier estimates are statistical methods that calculate a modelled rate based on the time it takes each individual invited for screening to move between points on the screening pathway. For example, participation is calculated by following each invited person and, for those who respond (by returning a completed FOBT kit), recording the time (in weeks) it took them to do so. This allows the calculation of an overall response rate over time from the date of invitation, calculated as if all invitations sent throughout the particular period reported were sent on the same date.

Participation by population subgroups

Analysing the participation of subgroups in the eligible population can help us identify where additional initiatives may be of benefit. Kaplan–Meier estimates are provided for some subgroup analyses to show differences in participation over time since invitation.

Participation by state and territory

Participation rates varied by state and territory. Northern Territory (26.7% crude participation), New South Wales (33.2%) and Queensland (35.5%) had lower participation rates than other jurisdictions (Table A1.2). For all other jurisdictions, participation rates were higher than the overall Australian rate. These jurisdictional participation results showed the same general pattern as results in the previous annual monitoring report.

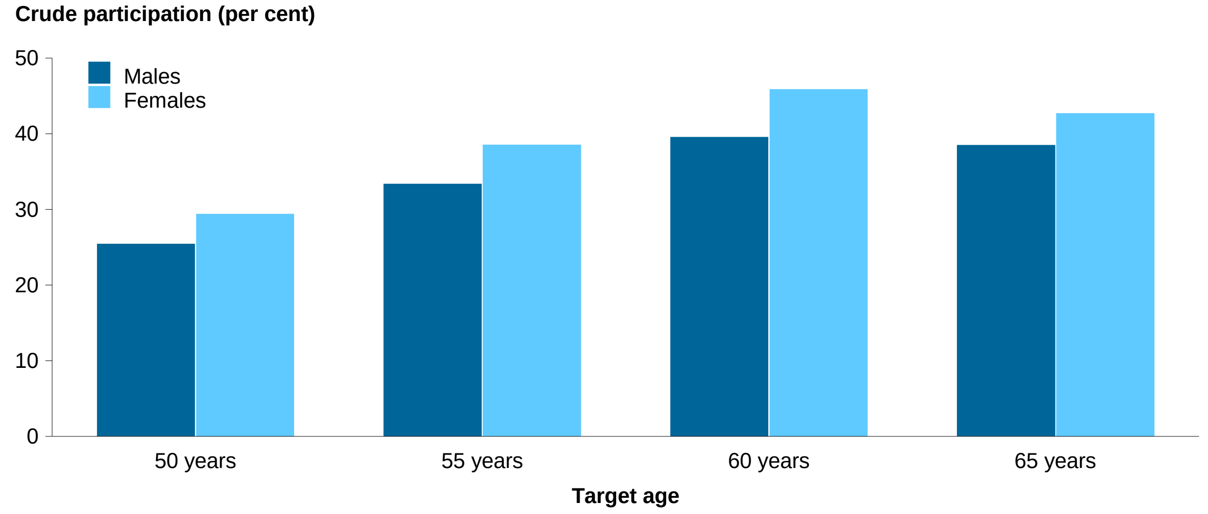
The reasons why invitees in particular jurisdictions participate more or less than in others are unknown; however, further analysis of jurisdictional participation by socioeconomic status and remoteness areas shows that participation in New South Wales and Queensland was generally lower across all subgroups (including *Major cities*, and *Inner and outer regional* areas) than the other jurisdictions. Therefore, lower participation appears to be an overall trend in these jurisdictions. As New South Wales and Queensland are 2 of the larger jurisdictions, their rates have a greater effect on the Australian participation rate.

Participation by age and sex

Participation rates were higher for women than men and generally increased with increasing age, though this age-related increase was influenced by rescreening invitations issued to 55 and 60 year olds (figures 1.2, A1.2 and A1.3).

The start of a second invitation round for those initially invited in 2008 has resulted in an increase in the overall participation rates for those aged 55 and 60, with 60 year olds having a higher rate than 65 year olds (Table A1.8). In previous reports, the participation rate had always increased with invitation age.

Women were 1.1 times more likely than men to participate in bowel screening (38.5% for women compared with 33.6% for men) (Table A1.2 and Figure A1.3).



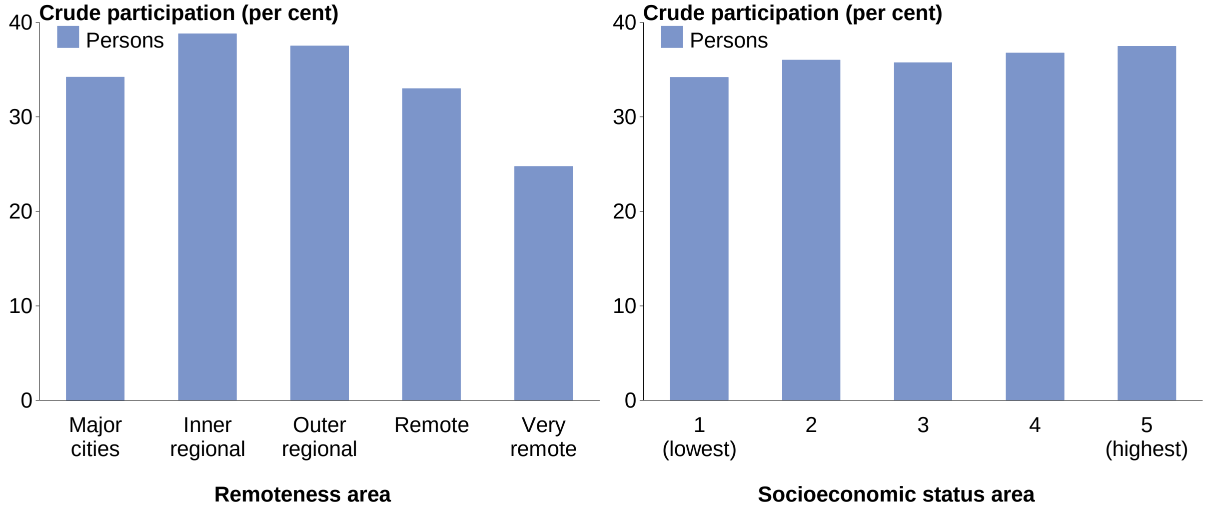
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 1.2: Crude participation, by age and sex, 2013–14

Participation by remoteness area and socioeconomic status area

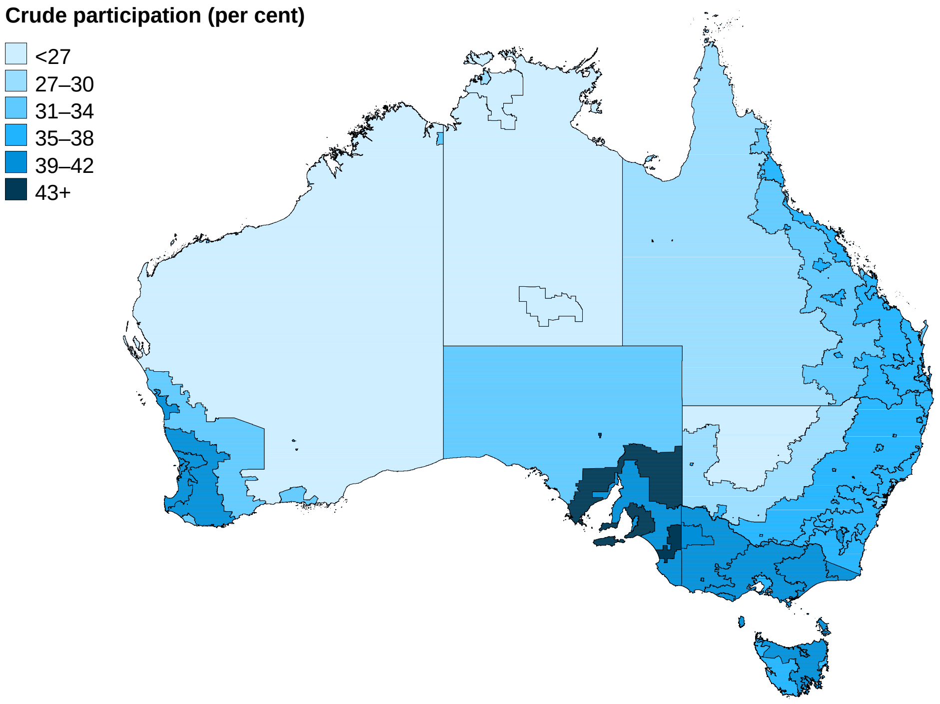
More than 66% of all participants came from *Major cities* (with a 35.2% crude participation rate). The proportion participating in screening was highest in *Inner regional* (38.8%) and *Outer regional* (37.5%) areas and lowest in *Remote* and *Very remote* areas (Table A1.3 and figures 1.3 and 1.4). Jurisdiction-specific figures (figures A1.4a–A1.4h) are provided in Appendix A.

Analysis of invitees grouped into population-based socioeconomic status quintiles showed invitees from within the lowest socioeconomic areas (the areas with the most disadvantage) had lower participation than for those living in all other socioeconomic areas (Table A1.4 and Figure 1.3). Only the 2 highest socioeconomic status quintiles had average participation above the national average.



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 1.3: Crude participation, by remoteness area and by socioeconomic status area, 2013–14



Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 1.4: Crude participation, by remoteness area, 2013–14

Participation by Aboriginal and Torres Strait Islander status, language spoken at home and disability subgroups

As discussed in Section 1 ('Data considerations'), identification of invitees by Aboriginal and Torres Strait Islander status, language spoken at home and disability subgroups is only obtained once an invitee completes the relevant section of their participant details form. Therefore, it is not possible to accurately determine participation rates for these subgroups.

Instead, the proportion of participants who reported their status within these subgroups is shown, along with the corresponding population proportions derived from the 2011 Australian Bureau of Statistics (ABS) Census of Population and Housing (tables A1.5–A1.7). While these are not ideal comparisons, they do allow some understanding of people in these 3 subgroups, and whether they are participating in the NBCSP in similar proportions to their levels within the Australian population (as recorded at the 2011 Census). For example, if 1.5% of the Australian population in the target ages identified as Aboriginal and/or Torres Strait Islander at the 2011 Census, did the same proportion of people who participated in the NBCSP identify as Aboriginal and/or Torres Strait Islander? If the proportion participating is below 1.5%, it may indicate under-participation by this population subgroup.

The following comparisons should be interpreted with caution as the eligible NBCSP population (which includes only those in the target ages, living in Australia, who are registered as Australian citizens or migrants in the Medicare enrolment file, or are registered with a DVA gold card) may differ somewhat from the population recorded in those target ages at the 2011 Census (which did not have the same eligibility criteria, such as Medicare or DVA gold card registration). Further, there were slight differences between the NBCSP and 2011 Census data in the proportion of people who did not identify (that is, who did not answer these questions) (tables A1.5 and A1.7); this may affect comparisons shown below.

The proportion of participants who identified as Aboriginal and/or Torres Strait Islander in the NBCSP was lower across all ages—especially 50 and 55 year olds—and sex groups, compared with those who identified as Aboriginal and/or Torres Strait Islander in the 2011 Census (Table A1.5). This may have been due to the eligible population who were Aboriginal and Torres Strait Islander having participated at a lower rate than would be expected (that is, 0.9% of the eligible population who participated identified as Indigenous, compared with 1.5% of the target ages identifying as Indigenous at the time of the 2011 Census).

The NBCSP Register assumes all people who do not answer the question about language spoken at home speak English, so it was not possible to compare the 'Not stated' percentage with the percentage from the 2011 Census (Table A1.6). Therefore, no interpretation about participation rates by people who speak a language other than English at home should be made, though Table A1.6 is provided for completeness.

As the proportion of participants who identified as having a severe or profound activity limitation (5.0%) was slightly greater than the proportion identified in the 2011 Census (4.6%), it is likely that participation among invitees in this subgroup was no lower than for those invitees without a severe or profound activity limitation (Table A1.7).

2 Faecal occult blood test outcomes

What do we mean by FOBT outcomes?

Definition: The proportion of the eligible population invited who returned a positive (abnormal) result from a correctly completed FOBT kit.

Rationale: Monitoring of FOBT outcomes, including for various subgroups, is important to ensure the quality of the screening test results and participant safety.

Data source: National Bowel Cancer Screening Program Register

Data quality: All FOBT kits returned are analysed for outcome, with the result reliably stored in the register. There are no quality issues with this measure. (See 'Section 1 Data considerations' for further details.)

Guide to interpretation: FOBT result data are based on data recorded in the register to 31 December 2014 for persons invited between 1 July 2013 and 30 June 2014.

Persons are counted only once in the reporting period, even if they completed more than 1 FOBT during this period. For participants who returned more than 1 FOBT kit, the results were analysed according to the following order of precedence: a positive result was selected over any other result, and a negative result was selected over an inconclusive result.

Key results

- Of the 509,736 participants who had completed an FOBT kit, 501,382 (98.4%) had done so correctly, allowing for analysis by the pathology laboratory. However, 93 were inconclusive when analysed and those participants were still to complete and return a replacement FOBT.
- Out of the 501,289 valid FOBT kits analysed, 37,744 returned a positive result, giving an overall positivity rate of 7.5%.
- The positivity rate for men (8.3%) was 1.2 times that for women (6.9%).
- First-round FOBT positivity rates for both sexes increased with age, consistent with the known rise in polyp, adenoma and bowel cancer incidence rates with increasing age.
- Second-round rescreening positivity rates for 55 and 60 year olds were both noticeably lower than the first-round rates for those ages.
- Positivity rates generally increased with increasing geographical remoteness. Rates for participants in *Very remote* (9.6%), *Outer regional* (8.3%) and *Remote* (8.2%) areas were higher than those in *Inner regional* (7.7%) areas and *Major cities* (7.4%).
- Positivity rates were higher for participants living in areas with higher socioeconomic disadvantage—from 6.5% for participants living in areas with the least disadvantage to 8.7% for participants living in areas with the most disadvantage.
- Participants who self-identified as Aboriginal and/or Torres Strait Islander had a higher positivity rate (12.1%) than those who reported as non-Indigenous (7.4%) or those who did not state their Indigenous status (9.7%).
- The positivity rate for participants with a severe or profound activity limitation (12.0%) was higher than for participants without those limitations (7.4%).

Background information

Each invitee in the NBCSP is initially sent 1 FOBT kit containing 2 sample tubes to be completed, from 2 separate bowel motions, and returned to the pathology laboratory together for analysis.

Completed and returned kits are categorised by pathologists into 3 groups: correctly completed, incorrectly completed or unsatisfactory. A kit may be incorrectly completed or unsatisfactory (and thus ineligible for analysis) due to:

- the participant not completing the test correctly
- the completed kit having expired
- the kit having taken more than 14 days between the date of the first sample and analysis by the pathology laboratory.

Participants who return FOBTs that were incorrectly completed are asked to complete another FOBT. (See Figure B.1, Appendix B, for details of the screening pathway.)

Results of correctly completed FOBT kits are classified by pathologists as either positive (abnormal—blood detected in either sample), negative (blood not detected in either sample) or inconclusive (only 1 sample was taken, and it was negative). Valid kits are considered to be those from which it is possible to determine a positive or negative outcome.

Participants with a positive FOBT are encouraged to visit their PHCP to follow up this finding. Those with an inconclusive kit are requested to complete another FOBT kit, while those with a negative result are reminded that it is recommended they rescreen every 2 years with an FOBT. Participants are advised to discuss continuing screening options with their PHCP.

Detailed faecal occult blood test outcome analyses

Between 1 July 2013 and 30 June 2014, 1,415,555 eligible people were invited to screen, and by 31 December 2014, 509,736 participants had returned at least 1 completed FOBT kit. Of these, 501,382 (98.4%) had a correctly completed FOBT kit tested by the pathology laboratory (Table A2.1); the remaining kits had been incorrectly completed. Of the correctly completed kits, some were deemed inconclusive when tested. Those participants who returned an incorrectly completed or inconclusive FOBT kit were requested to complete another FOBT; however, by 31 December 2014, 8,354 participants had not returned a replacement kit, and 93 had returned kits with an inconclusive result. These were excluded from the positivity analyses.

Of the 501,289 valid FOBT kits analysed, 37,744 (7.5%) returned a positive FOBT result (Table A2.2). These participants were advised to consult their PHCP to discuss this result and to seek further diagnostic testing (see ‘Section 2, Chapter 3 Follow-up of positive FOBT results’).

Faecal occult blood test outcomes by population subgroups

Faecal occult blood test outcomes by state and territory

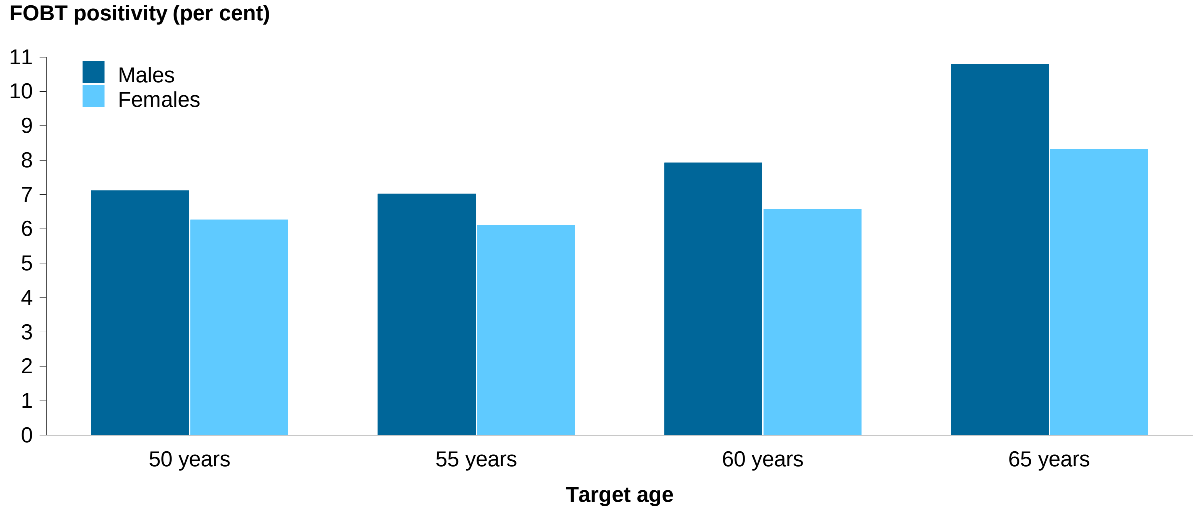
The positivity rates for South Australia (8.0%), Tasmania (8.0%) and the Northern Territory (7.8%) were higher than the overall Australian rate of 7.5% (Table A2.3).

Faecal occult blood test outcomes by age and sex

The first-screen FOBT positivity rate increased with increasing age. This was true for both men and women (Figure 2.1 and Table A2.2). These findings are consistent with the increase in prevalence of polyps and adenomas with age (Winawer et al. 1997).

The second-screen positivity rates for 55 and 60 year olds were lower than the first-screen rates for those ages. Overall, this contributed to the 55-year-old positivity rate being lower than that for 50 year olds. The overall 60-year-old positivity rate was affected by a lower positivity rate for second screens (compared to initial screens) in this age cohort. This suggests that the overall program positivity rate may be lower once biennial screening is fully implemented.

The overall men's positivity rate (8.3%) was 1.2 times the rate for women (6.9%), indicating both age and sex affect the FOBT positivity rate (Table A2.2).



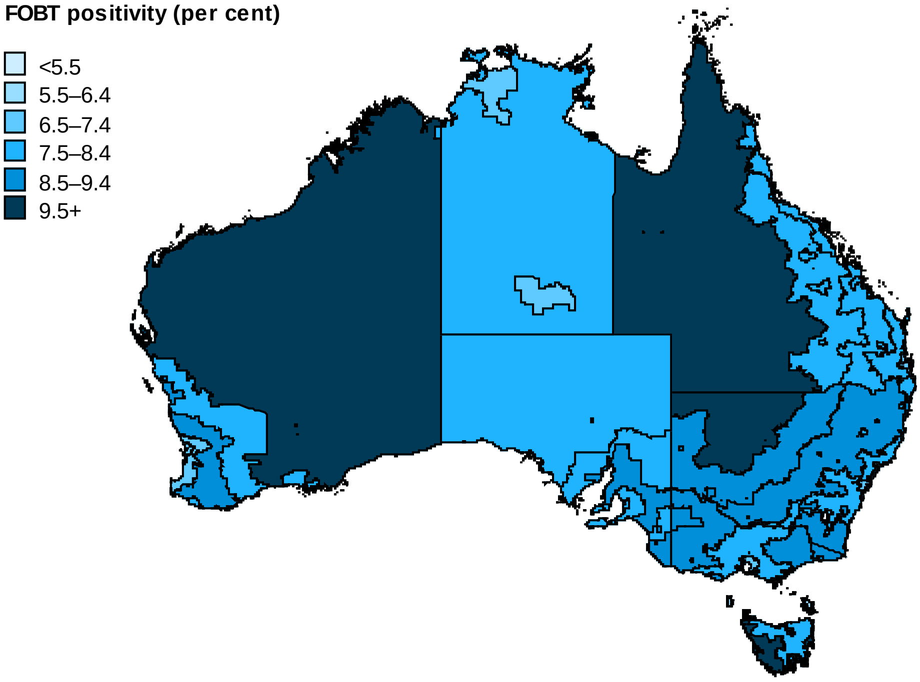
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 2.1: FOBT positivity, by age and sex, 2013–14

Faecal occult blood test outcomes by remoteness area and socioeconomic status area

Analysis of the positivity rate by area (Table A2.4) showed generally increasing positivity with increasing remoteness. *Outer regional, Remote* and *Very remote* areas had positivity rates 1.1, 1.1 and 1.3 times the positivity rate of *Major cities*, respectively. This was a similar result to previous reports. Positivity rates by remoteness area and jurisdiction are shown in Figure 2.2. Jurisdiction-specific figures (figures A2.1a–A2.1h) are provided in Appendix A.

FOBT positivity rates also increased for people living in areas of increasing disadvantage (Table A2.5). The positivity rate for participants living in areas with the lowest socioeconomic status (8.7%) was 1.3 times that of participants living in areas with the highest socioeconomic status (6.5%). Socioeconomic status analyses for the participation measure (see 'Section 2, Chapter 1 Participation') and the FOBT analyses in this chapter show that those living in areas of lower socioeconomic status participate less in the NBCSP (Table A1.4); yet those who do participate return a higher proportion of positive FOBT results (Table A2.5).



Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of positivity across that remoteness area.
3. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 2.2: FOBT positivity, by remoteness area, 2013–14

Faecal occult blood test outcomes by Aboriginal and Torres Strait Islander status, language spoken at home and disability subgroups

Aboriginal and Torres Strait Islander participants had a higher positivity rate (12.1%) than non-Indigenous participants (7.4%) (Table A2.6).

The positivity rate of those who spoke a language other than English at home (7.9%) was higher than participants who spoke English at home (7.5%) (Table A2.7); however, as those who do not report their language spoken at home are assumed to speak English, the interpretability of this result is limited.

People with a severe or profound activity limitation recorded a higher positivity rate (12.0%) than people without such limitations (7.4%) (Table A2.8). Reasons for this difference are speculative, 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 Follow-up of positive FOBT results

What do we mean by FOBT follow-up?

Definition: The proportion of the eligible population invited to participate who returned a positive (abnormal) result from a correctly completed FOBT kit and received follow-up care by a PHCP and colonoscopist.

Rationale: Not all positive screening results will be due to a bowel cancer. Polyps, adenomas and other conditions can also cause a positive screening result. Monitoring of follow-up care for participants with a positive FOBT is important to ensure they have followed up their screening result with medical specialists to determine the cause.

Data source: National Bowel Cancer Screening Program Register.

Data quality: All positive FOBT results are recorded in the register; however, reporting of follow-up care by PHCPs, colonoscopists, surgeons and pathologists is not mandatory, so follow-up rates may be underestimated. (See 'Section 1 Data considerations' for further details.)

Guide to interpretation: This chapter discusses the follow-up procedures, including PHCP visits, colonoscopy procedures and histopathology diagnoses for those participants who were invited between 1 July 2013 and 30 June 2014. Persons are counted only once in the reporting period, even if they attended more than 1 follow-up consultation during this period. For participants who attended more than 1 follow-up consultation, the first consultation after the positive result was used to establish time to follow-up, while the most serious follow-up result was used for outcomes.

Kaplan–Meier rates (see 'Section 1 Crude versus estimated rates') are used to take into account potential time lag between a positive FOBT result and both PHCP and colonoscopy follow-up dates.

The rates of colonoscopy follow-up are discussed in this chapter, while the actual outcomes of colonoscopic investigation are discussed in 'Section 2, Chapter 4 Bowel abnormality detection'.

Key results

- Using Kaplan–Meier estimates, of the 37,744 participants who had a positive FOBT, 62.5% had a follow-up PHCP visit and 71.2% had a follow-up colonoscopy within 1 year of their screening result; because the number of participants reported as proceeding to colonoscopy exceeds the number reported as making a PHCP visit, the PHCP visits may be under-reported (see Box 3.1).
- PHCP follow-up was highest for participants living in *Inner regional* and *Outer regional* areas.
- Of the 23,215 participants who had reported a PHCP consultation, 82.3% reported experiencing no symptoms before their positive FOBT result and 92.2% were referred for a colonoscopy.
- Aboriginal and Torres Strait Islander participants, participants who spoke a language other than English at home, and those with a severe or profound activity limitation had a lower rate of colonoscopy follow-up than other participants.

Background information

The NBCSP uses an FOBT as the screening tool to screen for microscopic blood loss from the bowel—a sign of potential bowel problems that require further investigation, including bowel cancer and adenomas. A procedure such as a colonoscopy is required to actually diagnose a bowel condition after a positive screening test.

Participants who receive a positive FOBT result are encouraged to follow up this outcome with their PHCP. In accordance with the *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* (ACN 2005), PHCPs are encouraged to refer all participants with a positive FOBT for a colonoscopy, unless other information gained at the consultation suggests an alternative course of action.

Colonoscopy is currently considered the most accurate method of investigation to assess the colon and rectum, as it enables biopsy and subsequent histopathological diagnosis. Colonoscopy also allows identification and endoscopic removal of polyps and adenomas.

As most bowel cancers are known to initiate from polyps (Cappell 2005), their removal at colonoscopy provides a preventive measure to lower the risk of future bowel cancers. A study by Stryker and colleagues (1987) estimated that the cumulative risk of bowel cancer at the site of an untreated polyp was 2.5% at 5 years, 8% at 10 years and 24% at 20 years post-discovery.

This is one of the advantages of the NBCSP: while bowel cancer screening aims to find cancers at an earlier and treatable stage, follow-up colonoscopy after a positive screen may also identify and remove precancerous lesions. This should result in lower bowel cancer incidence rates in future years. However, the effect may not be apparent until about 10 years from the start the program.

Detailed primary health-care practitioner follow-up analyses

Of the 37,744 participants invited who returned a positive FOBT result, 23,215 (61.5%) had a PHCP visit registered by 31 December 2014 (Table A3.1). Using Kaplan–Meier estimates to minimise any effect of time lag, an estimated 62.5% of participants had consulted a PHCP within 1 year of their positive FOBT result (Table A3.2). The reminder letter sent to participants and their PHCP 8 weeks after a positive FOBT clearly had a positive effect, with an increase in the follow-up rate seen between 10 and 14 weeks (figures A3.1a–c).

Box 3.1: Interpretation of follow-up results

Assessment form return has recently improved over that recorded in earlier monitoring reports. Some of this improvement is due to the time increase between the invitation and final data cut-offs used in recent reports, which has allowed sufficient time for the majority of participants with a positive FOBT result to attend their PHCP, thus allowing for greater completeness of data on participant progress through the NBCSP pathway.

However, there is still room for more improvement in assessment form return as there were more recorded colonoscopies than recorded PHCP visits (tables A3.1 and A3.12), and PHCP referral is generally required to progress to colonoscopy.

Of the participants who had a reported PHCP consultation:

- 82.3% reported having no symptoms before the positive FOBT result (Table A3.8)
- 92.2% were referred for colonoscopy (Table A3.9).

For those not referred for colonoscopy (1,142), the main reasons were:

- having had a colonoscopy in the previous 18 months (43.8%)
- participant declining a colonoscopy (31.5%)
- other medical condition(s) (28.0%) (Table A3.11).

Of the 573 participants who declined colonoscopy (Table A3.11), 346 were not referred for any other assessment (data not shown).

As the invitation strategy at the time of this report sent invitations to all people who turned the target ages regardless of recent screening or surveillance—or current bowel cancer status—it is possible that some participants move through the screening pathway before these reasons potentially negate the need for further follow-up. However, without complete PHCP form return (as well as participant opt-off form return), it is not possible to accurately quantify the number of people that should be excluded from asymptomatic population-based bowel screening.

Primary health-care practitioner follow-up by population subgroups

Primary health-care practitioner follow-up by state and territory

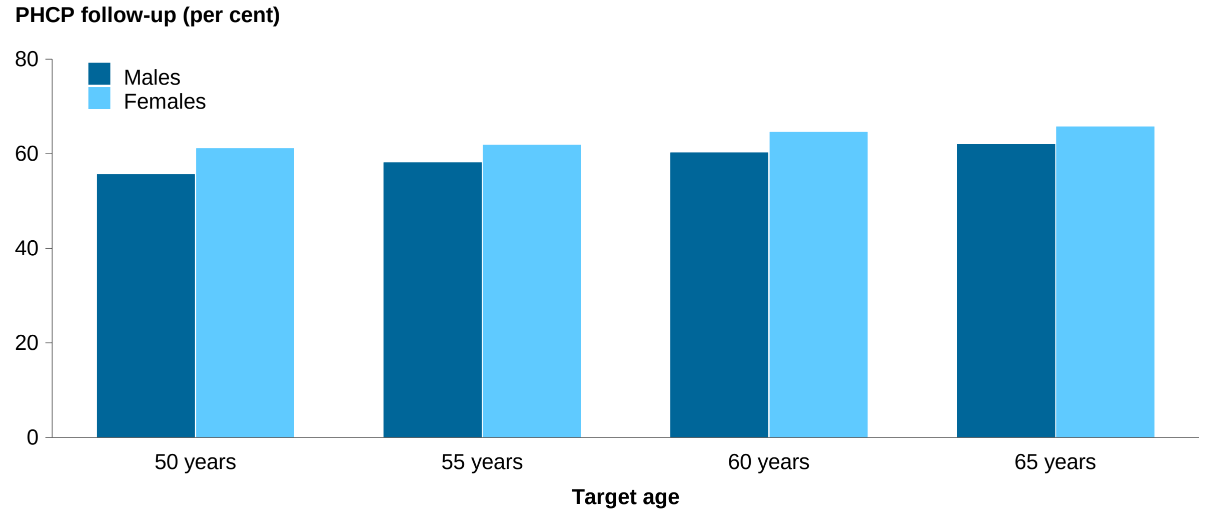
The provision of follow-up healthcare services for participants with a positive result is the shared responsibility of the Commonwealth and states and territories, and follow-up policies and procedures may vary between jurisdictions. There were large differences recorded in PHCP follow-up between the jurisdictions, with the Northern Territory, Victoria and the Australian Capital Territory recording the lowest levels of PHCP follow-up (Table A3.1). The Kaplan–Meier PHCP follow-up rates, up to 52 weeks from a positive FOBT result, showed a similar pattern to the crude data with respect to state and territory differences (Table A3.2 and figures A3.1b and A3.1c). For clarity, Kaplan–Meier curves for the states and territories were divided between figures A3.1b and A3.1c. With the exception of those living in the Northern Territory, Victoria and the Australian Capital Territory, at least 40% of all people with a positive FOBT were estimated to have had follow-up with their PHCP within 4 weeks of their screening result.

Primary health-care practitioner follow-up by age and sex

PHCP follow-up rates increased with age (Figure 3.1 and Table A3.1). As it is unlikely that PCHPs would return assessment forms differently for different-aged participants, this suggests that older participants are more likely to follow up a positive result.

More women (63.6%) than men (59.5%) had an assessment form recorded, suggesting that women are more likely to follow up a positive FOBT with their PHCP. This was a common finding when comparing sexes across all PHCP subgroup tables.

From the PHCP visits recorded, women had a slightly higher rate of reported symptoms (Table A3.8), and a slightly lower rate of referral for colonoscopy, but a higher rate of non-colonoscopy follow-up procedures (Table A3.9).



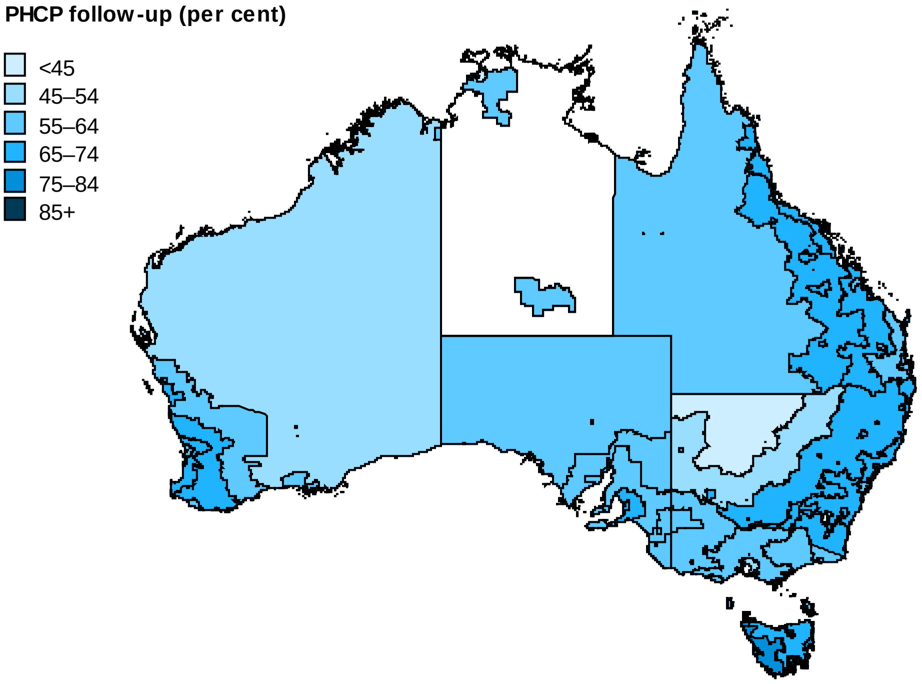
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 3.1: Primary health-care practitioner follow-up, by age and sex, 2013–14

Primary health-care practitioner follow-up by remoteness area and socioeconomic status area

Participants in *Outer regional* (65.6%) and *Inner regional* areas (64.4%) had the highest rates of PHCP consultations (Table A3.3). Participants in *Very remote* areas had the lowest rates of PHCP follow-up recorded. Follow-up to a PHCP varied by remoteness area and jurisdiction (Figure 3.2). However, this could reflect differences in the return of assessment forms rather than a true difference in follow-up. Jurisdiction-specific figures (figures A3.2a–A3.2h) are provided in Appendix A. Referral for colonoscopy was similar across remoteness areas (Table A3.10).

PHCP follow-up between participants from different socioeconomic status areas was similar (Table A3.4).



Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
3. PHCP follow-up rates rounded to integers.
4. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return and not a real difference in follow-up.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 3.2: Follow-up by primary health-care practitioners after a positive FOBT result, by remoteness area, 2013–14

Primary health-care practitioner follow-up by Aboriginal and Torres Strait Islander status, language spoken at home and disability subgroups

All 3 population subgroups had low numbers of participants with returned assessment forms. Care must be taken when interpreting results in these tables.

There were no major differences in the rates of PHCP visits when comparing participants by Indigenous status (about 62% for both Indigenous and non-Indigenous participants). However, people who spoke a language other than English at home, and people with a severe or profound disability had a 3 percentage point drop in PHCP visits, when compared with people who spoke English at home, and with people who did not record a disability (tables A3.5–A3.7, respectively).

Detailed colonoscopy follow-up

Background

This section presents the rate at which participants with a positive FOBT had follow-up assessment by colonoscopy.

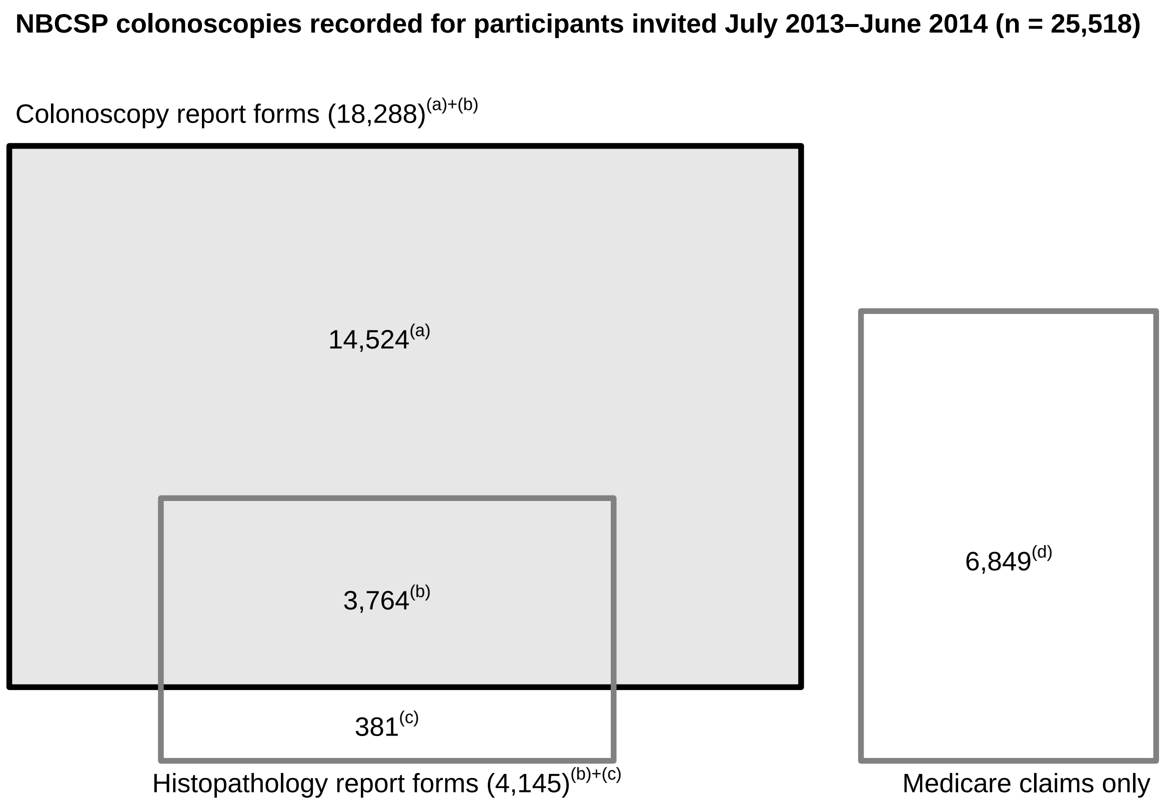
Following a positive FOBT result, PHCPs should refer a participant for colonoscopy, and the results should be returned to the NBCSP Register on a colonoscopy report form (Figure B.1, Appendix B). Some of these colonoscopies would also have sent pathology samples for analysis, and these additional results should be returned to the register on histopathology report forms. Lastly, each participant may choose to have their colonoscopy through the private or public health-care system (depending on their individual circumstances and choice), and those who had a private colonoscopy may then make a Medicare claim for that procedure. The register records claims from NBCSP-related colonoscopies.

Due to the recommendation that all referrals be for colonoscopy, it is not possible to analyse follow-up by other assessment methods (for example, sigmoidoscopy) as data are not available.

As not all colonoscopy forms are returned to the register, a count of colonoscopy report forms only will not be a complete count of all colonoscopies performed as part of NBCSP follow-up. Therefore, in an effort to obtain the most comprehensive picture of true NBCSP colonoscopy follow-up, colonoscopy procedures up until 31 December 2014 were identified through 3 sources:

1. colonoscopy report forms (colonoscopy outcomes can be analysed using data on these forms)
2. additional histopathology report forms (from the subset of colonoscopies that, although not directly reported on a colonoscopy report form, must have sent samples to histopathology—which were reported on histopathology report forms)
3. claims for Medicare benefits for NBCSP-related private colonoscopies that were not reported through a colonoscopy report form (from the subset of NBCSP colonoscopies that were undertaken through the private healthcare system, as identified by DHS).

Figure 3.3 visually presents the number of colonoscopies counted, and from which source (or sources) they were identified. If all colonoscopy forms were returned and recorded, it would be expected that no extra colonoscopies would be counted from outside the colonoscopy report forms box. However, 6,849 NBCSP-related colonoscopies were identified by private colonoscopy Medicare claim only, and a further 381 were identified through a histopathology report form only. Details such as colonoscopic findings could not be obtained for these colonoscopies; however, they are still counted in the total number of colonoscopies performed as part of NBCSP follow-up activities. Even though using these 3 sources allows the count of NBCSP colonoscopies to be as complete as possible, further investigation has previously shown a number of additional colonoscopies are likely to be unaccounted for, so colonoscopy follow-up rates are underestimated.



People invited in 2013–14 with:

(a) colonoscopy report forms recorded in the NBCSP Register for which no histopathology report form has been received

(b) colonoscopies performed as part of the NBCSP where a colonoscopy and histopathology report form were recorded on which confirmed outcomes can be calculated. The total number of colonoscopy report forms is given by (a)+(b)

(c) colonoscopies performed as part of the NBCSP where only a histopathology report form was recorded

(d) colonoscopies performed as part of the NBCSP where only a Medicare claim was recorded.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 3.3: Sources of colonoscopy follow-up data, 2013–14

2013–14 colonoscopy follow-up

Of the 37,744 positive FOBT results from participants invited, 25,518 had a colonoscopy registered by 31 December 2014, giving a crude colonoscopy follow-up rate of 67.6% (Table A3.12). Of these, 6,849 colonoscopies were known to have taken place only due to a Medicare claim for the procedure; no colonoscopy or histopathology report forms were recorded for those colonoscopies.

Reasons for this non-complete rate of follow-up are likely to be similar to reasons for the low rate of PHCP follow-up: not all participants may follow up a positive FOBT result (and the positive FOBT count was used as the denominator for colonoscopy follow-up instead of all PHCP colonoscopy referrals), there is a time lag between booking and having a colonoscopy, and there is some delay in returning (non-mandatory) colonoscopy report forms. (See ‘Section 1 Data considerations’ and ‘Section 1 Colonoscopy follow-up’ for further details.)

To adjust for the effect of time lag on the follow-up rate, an analysis using Kaplan–Meier estimates was performed. The Kaplan–Meier analysis of colonoscopy follow-up estimated that 71.2% of participants with a positive FOBT had a colonoscopy within 52 weeks of notification of their positive result (Table A3.13 and Figure A3.3a).

Colonoscopy follow-up by population subgroups

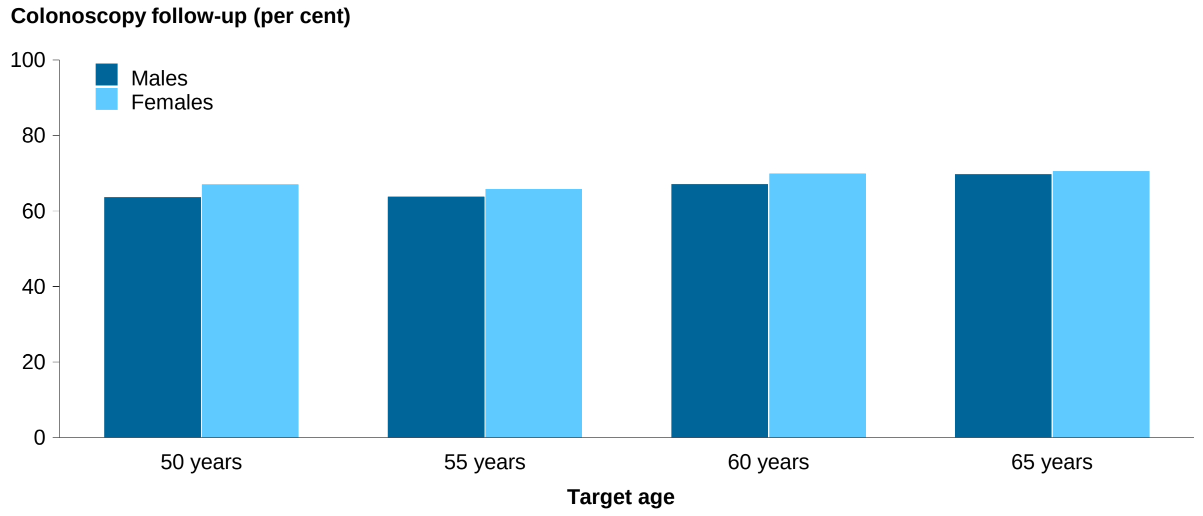
Colonoscopy follow-up by state and territory

There were differences in colonoscopy follow-up rates between states and territories (tables A3.12 and A3.13). Tasmania (77.7%), Queensland (74.9%) and South Australia (70.6%) had the highest rates of crude colonoscopy follow-up. Much like the PHCP follow-up differences by jurisdiction (Table A3.1), these colonoscopy follow-up differences (tables A3.12 and A3.13 and figures A3.3b and A3.3c) may also be affected by NBCSP implementation procedures specific to each jurisdiction. Overall, an estimated 50.8% of those with a positive FOBT had undergone a colonoscopy within 12 weeks of their positive screen.

Colonoscopy follow-up by age and sex

The crude rate of colonoscopy follow-up for people aged 65 (70.0%) was higher than for those aged 60, 55 and 50 (68.4%, 64.7% and 65.2%, respectively) (Figure 3.4 and Table A3.12).

The difference in crude colonoscopy follow-up between men and women was smaller (66.6% and 68.6%, respectively) (Table A3.12).



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

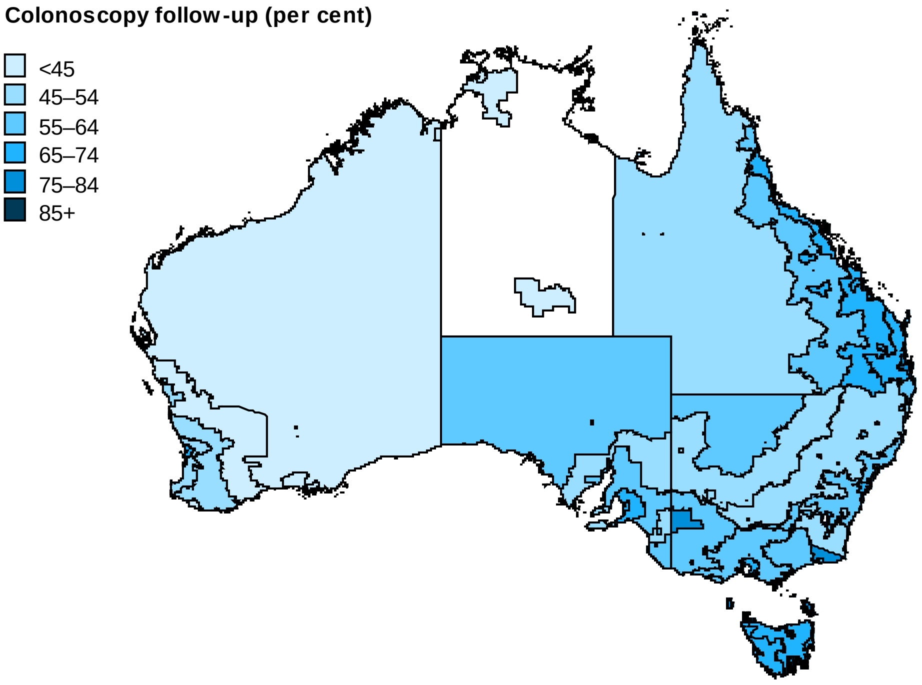
Figure 3.4: Colonoscopy follow-up, by age and sex, 2013–14

Colonoscopy follow-up by remoteness area and socioeconomic status area

Colonoscopy follow-up for participants living in *Major cities* was higher than in all other regions (Table A3.14), yet PHCP follow-up in *Major cities* was lower than all regions except *Very remote* (Table A3.3). As time lag is not considered a contributing factor towards PHCP or colonoscopy rates in this report, there may be differences in form return between PHCPs and colonoscopists between regions.

Colonoscopy follow-up rates varied by remoteness area and jurisdiction (Figure 3.5). Queensland had a high percentage of colonoscopy follow-up for most remoteness areas. However, these differences may be affected by colonoscopy and histopathology form return practices within medical facilities across remoteness areas and jurisdictions. Jurisdiction-specific figures (figures A3.4a–A3.4h) are provided in Appendix A.

There were also differences in colonoscopy follow-up between participants living in areas of differing socioeconomic status (Table A3.15); those living in areas with greater socioeconomic disadvantage had lower rates of colonoscopy follow-up than those living in areas with less socioeconomic disadvantage.



Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
3. Colonoscopy follow-up rates rounded to integers.
4. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return and not a real difference in follow-up.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 3.5: Colonoscopy follow-up after a positive FOBT result, by remoteness area, 2013–14

Colonoscopy follow-up by Aboriginal and Torres Strait Islander status, language spoken at home and disability subgroups

All 3 population subgroups had low numbers of participants with returned colonoscopy report forms. Care must be taken when interpreting results in these tables.

Although Aboriginal and Torres Strait Islander participants had a lower rate of colonoscopy follow-up (56.5%) than non-Indigenous participants (68.2%), this difference should be interpreted with caution because the low number of Aboriginal and Torres Strait Islander participants recorded as having a colonoscopy may affect reliability (313) (Table A3.16).

Participants who spoke English at home had a higher rate of colonoscopy follow-up (68.3%) than participants who spoke a language other than English (63.6%) (Table A3.17).

Participants with a severe or profound activity limitation had a lower rate of colonoscopy follow-up (56.2%) than participants without such limitations (69.5%) (Table A3.18). Further analysis of referrals and reasons for non-referral data showed 8.9% of participants with a severe or profound activity limitation were not referred to colonoscopy in the first place, compared with 5.1% of participants without such limitations (data not shown). Participants with a severe or profound activity limitation were more likely to cite limited life expectancy, a significant comorbidity or other medical condition as the reason for non-referral. They were less likely to report having had a recent colonoscopy as the reason for non-referral.

Detailed histopathology follow-up

Background

If a NBCSP colonoscopy procedure removed specimens (such as polyps or adenomas) for analysis by histopathology, this is noted on the colonoscopy report form and the result of the histopathology analysis should then be returned to the NBCSP Register. However, there was a high rate of non-return of histopathology data, which may be due to the time lag in processing of samples, or poor form return from pathology laboratories.

In recent years, several jurisdictions have started projects to improve histopathology data return, and this may have resulted in some jurisdictions having a higher proportion of confirmed colonoscopy outcomes than other jurisdictions.

As the final diagnosis of cancers suspected at colonoscopy requires confirmation by histopathology, the suspected number of missing histopathology report forms means the confirmed cancer numbers in ‘Chapter 4 Bowel abnormality detection’ in Section 2 are likely to be under-reported, and under-reported by different degrees for different jurisdictions.

For example, the recent *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program* report (AIHW 2014a) found that for 2006–2008 invitees, the National Bowel Cancer Screening Program register had 337 recorded bowel cancer diagnoses. However, after linkage to national bowel cancer registry data, 1,575 of those invitees were found to have been diagnosed with bowel cancer.

2013–14 histopathology follow-up

Data recorded on the 18,288 colonoscopy report forms returned indicated samples were sent to histopathology for 9,942 participants (54.4%, data not shown). However, as at 31 December 2014, only 4,145 histopathology report forms (41.7%) had been returned. Outcomes of these are discussed in ‘Section 2, Chapter 4 Bowel abnormality detection’.

4 Bowel abnormality detection

What do we mean by bowel abnormality detection?

Definition: The proportion of the eligible population invited to participate who returned a positive result from a correctly completed FOBT kit who then had an abnormality detected at follow-up.

Rationale: Monitoring of abnormalities detected through the NBCSP by various stratifications is important to determine the effectiveness of the program, and to help determine the rate of false positive screening results.

Data source: National Bowel Cancer Screening Program Register

Data quality: Reporting of follow-up care by colonoscopists, surgeons and pathologists is not mandatory, so outcomes may be underestimated. (See 'Data considerations' in Section 1, for further details.)

Guide to interpretation: Follow-up data are based on data recorded in the register to 31 December 2014 for persons invited between 1 July 2013 and 30 June 2014. Due to the time delay between notification of a positive FOBT result, progression to colonoscopy and histopathological confirmation of results, outcome data are incomplete.

Only outcomes from colonoscopies with returned report forms are included in Table A4.1; additional data from histopathology report forms are then included in Figure 4.1 and tables A4.2–A4.4. Due to the return of Medicare claim forms (see 'Chapter 3 Follow-up of positive FOBT results' in Section 2), additional colonoscopies are known to have taken place. However, they do not have outcome data available for reporting purposes.

Persons are counted only once in the reporting period, even if they have more than 1 abnormality detected during this period. Results confirmed by histopathology are reported in preference to results suspected by the colonoscopist.

The abnormalities analysed in this chapter include polyps, adenomas and cancers diagnosed, and these are reported firstly using colonoscopy findings only, then with the addition of available histopathology confirmation data. The stage of confirmed cancer spread is not reported because sufficient staging data were not available.

Some jurisdictions have started specific projects to improve the quantity and quality of the outcome data reported to the register in recent years.

Key results

- Of the 37,744 participants with a positive FOBT, 18,669 (50%) had a valid colonoscopy or histopathology report form recorded (Figure 3.3). A further 8,669 (23%) had other recorded outcomes (Figure 3.3 and Table A3.9). Recorded outcomes for the remaining 10,406 (27%) people with a positive FOBT were unknown as at 31 December 2014.
- Of those with outcome data, there were 149 participants diagnosed with a confirmed cancer, and 599 found with a suspected cancer, equating to 1 suspected or confirmed cancer for every 25 participants undergoing colonoscopy after a positive FOBT.
- A further 1,691 participants had an advanced adenoma detected during colonoscopy.
- The proportion of people for whom abnormalities were detected at colonoscopy increased with age and was higher for men than women.

Background information

This chapter presents outcomes from the NBCSP as at 31 December 2014, based on those people invited who returned a positive FOBT and proceeded to colonoscopy. Program outcomes at key pathway points are summarised in Figure 4.1.

Data for colonoscopy outcomes were derived from information recorded on the colonoscopy and histopathology report forms. From 2011, a new combined colonoscopy/histopathology form has been implemented, with the aim to improve the level of outcome data returned to the NBCSP Register. A new surgical resection form that will collect staging data is also to be implemented.

Outcome information comes from the last points in the NBCSP pathway, and by 31 December 2014 there were still colonoscopy and histopathology report forms yet to be returned. Ultimately, for cancers and adenomas detected at colonoscopy, the final diagnosis must be returned by histopathology. However, as reporting by clinicians to the NBCSP is not mandatory, a participant may have colonoscopy details, histopathology details or both recorded in the register. As a result, outcomes were classified in the following order:

- 'Confirmed cancers' included suspected cancers at colonoscopy where a biopsy sample was taken that was confirmed as cancer by histopathology. Confirmed cancers also included any tissue samples from surgical resection or colonoscopic excisions that were confirmed to be cancerous, and subsequently reported by histopathology report form. Confirmed cancers were given a higher priority than suspected cancers.
- 'Suspected cancers' were abnormalities detected at colonoscopy that the colonoscopist suspected to be cancer, but did not have histopathology outcomes available. Final diagnoses cannot be confirmed until histopathology results are returned, though bowel cancer is highly likely if the colonoscopist has suspected a cancerous lesion.
- Adenomas confirmed by histopathology were categorised into 3 risk levels—advanced, small and diminutive. These risk levels are described in Appendix B.
- Polyps awaiting histopathology were polyps detected at colonoscopy that had not had an associated histopathology report form returned. There is the potential that a number of these may be reclassified as adenomas by histopathology, so the number of adenomas counted may be under-reported.
- Participants recorded as having no cancer or adenoma were those who had no polyps or suspected cancers detected at colonoscopy, or had polyps detected at colonoscopy that were confirmed as non-adenomatous by histopathology.

Detailed analyses

Three separate analyses regarding abnormality detection are presented here. As it is important to understand what results the colonoscopists are reporting initially, the first analysis (Table A4.1) reports findings when only analysing colonoscopy report forms. The second analysis (Figure 4.1 and tables A4.2 and A4.3) reports updated colonoscopy outcomes, when including histopathology results recorded as part of the colonoscopy procedures.

Bowel abnormality detection at colonoscopy

Of the 509,736 people invited into the NBCSP from 1 July 2013 to 30 June 2014 who returned FOBT kits, 37,744 were found to have blood in their samples (Figure 4.1), giving a positive result that should be followed up by colonoscopy. However, only 18,288 (48.5%) of these had colonoscopy report form details recorded from which colonoscopy outcome data could be reported (Figure 3.3).

Results from the 18,288 colonoscopies with a completed colonoscopy report form showed 957 (5.2%) participants with a suspected cancer and 3,041 (16.6%) with 1 or more polyps 10 millimetres or greater in size (Table A4.1). The cumulative risk of polyps (mainly adenomas) greater than 10 millimetres developing into bowel cancer within 10 years is considered to be 8% (Stryker et al. 1987). The removal of these polyps alone could be estimated to have stopped a future bowel cancer from developing in about 243 of the participants screened in 2013–14.

There were a further 6,402 (35.0%) participants with polyps less than 10 millimetres, and 4,120 (22.5%) other diagnoses such as diverticular disease or haemorrhoids (Table A4.1). About 1 in 5 participants with a positive FOBT who had a colonoscopy report form returned were found to have no abnormality.

Specimen samples were sent to histopathology for most polyps and suspected cancers found (data not shown).

Bowel abnormality detection, including histopathology

After including the 4,145 histopathology report forms—many of which updated the original 'suspected' colonoscopy diagnosis—the outcomes available for the 18,669 who had a colonoscopy or histopathology report form were as follows:

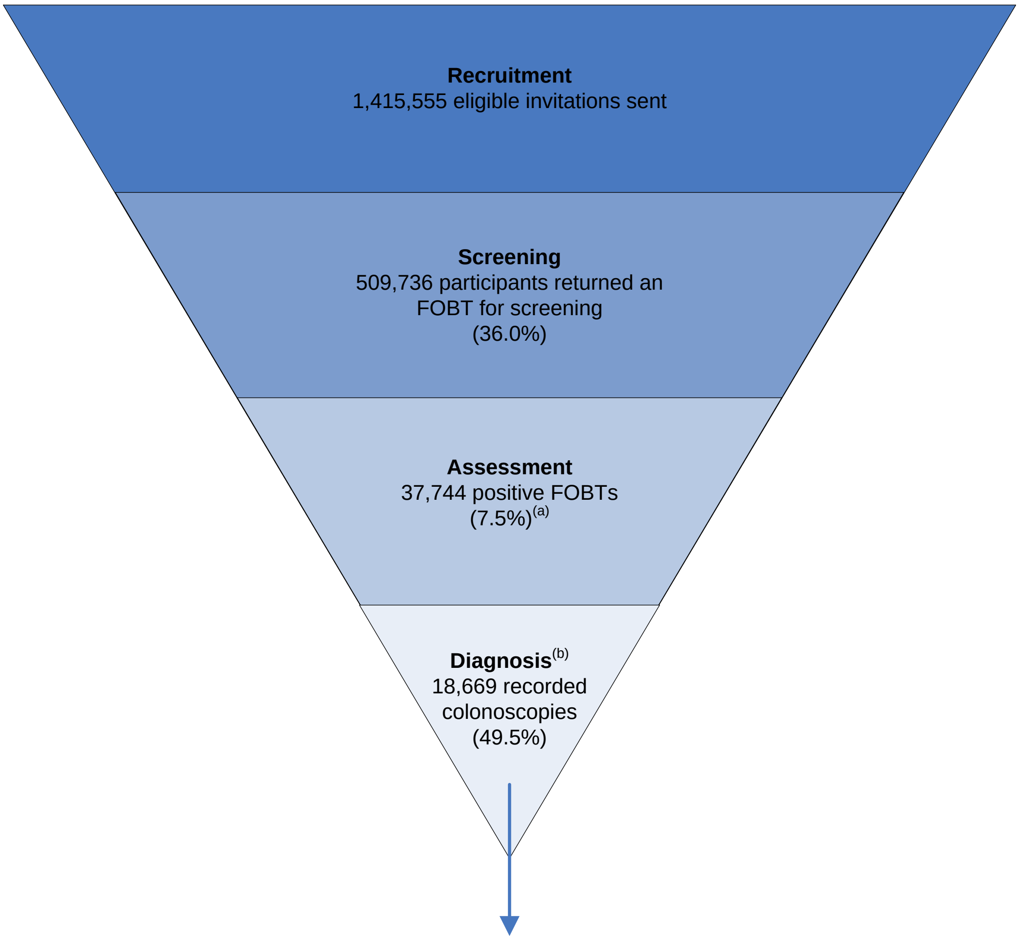
- 149 participants had bowel cancer detected and confirmed by histopathology
- 599 participants had suspected bowel cancers that were still awaiting histopathological diagnosis
- 3,255 participants had an adenoma diagnosed by histopathology
- 8,839 participants were found to have no abnormality (Figure 4.1 and Table A4.2).

Results for another 5,827 participants awaiting histopathology outcomes for excised polyps were not available by 31 December 2014.

In summary, of the 37,744 people with a positive FOBT:

- 18,669 had diagnostic outcome information available (above)
- 6,849 had a colonoscopy that was identified only through a NBCSP-related Medicare claim and therefore had no diagnostic outcome data (Figure 3.3)
- 1,820 were not referred to colonoscopy (Table A3.9).

Therefore, there were 10,406 (27.6%) people remaining who had received a positive FOBT but had no follow-up information recorded.



Recorded colonoscopy outcomes

No cancer or adenoma	8,839	(47.3%)
Polyp awaiting histopathology	5,827	(31.2%)
Diminutive adenoma	1,325	(7.1%)
Small adenoma	239	(1.3%)
Advanced adenoma	1,691	(9.1%)
Suspected cancer	599	(3.2%)
Confirmed cancer	149	(0.8%)

(a) Based on the 501,289 participants who returned a valid FOBT.

(b) Additionally, 6,849 participants underwent colonoscopic diagnostic assessment as identified through a Medicare claim. However, these were not included as there were no associated outcome data available for analysis.

Notes

1. Adenoma classifications are described in Appendix B.
2. Figure is not to scale.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure 4.1: NBCSP participant outcomes, 2013–14

Bowel abnormality detection, including histopathology, by population subgroups

Bowel abnormality detection by state and territory

As mentioned in the previous chapter, a number of jurisdictions have undertaken projects to improve their level of returned histopathology data. For example, some jurisdictions have much higher proportions of histopathology-confirmed abnormalities (adenomas and cancers) compared with others (Table A4.2). However, this is mainly due to having more complete data for participant outcomes, rather than a geographical link to higher bowel cancer incidence. Therefore, outcome data completeness between jurisdictions needs to be taken into account when analysing Table A4.2.

This report is the first to show an improvement in the percentage of histology-confirmed outcomes (and the percentage of polyps awaiting histopathology) compared with previous reports (AIHW 2009; AIHW 2010; AIHW 2012; AIHW 2013; AIHW 2014e). This may indicate that the jurisdictional projects to collect histopathology data are retrieving significant data.

Bowel abnormality detection by age and sex

Table A4.1 presents the recorded colonoscopy diagnoses for people invited into the NBCSP in 2013–14; these numbers do not take into account histopathology results that may have updated these diagnoses. Conversely, colonoscopist-suspected cancers shown in tables A4.2 and A4.3 include only those that have not been updated by histopathology to their final diagnosis; therefore, Table A4.1 and the later tables show different numbers of suspected cancers.

As would be expected from the known increase in bowel cancer incidence with age (see 'Chapter 6 Incidence of bowel cancer' in Section 2), the incidence of abnormalities detected at colonoscopy increased with age; 2.8% of people aged 50 who had a colonoscopy returned a suspected or confirmed cancer outcome compared with 5.5% for those aged 65 (Table A4.3).

Similarly, men (4.8%) showed an incidence of suspected or confirmed cancers that was 1.5 times that of women (3.2%) (Table A4.3). This was also consistent with known bowel cancer incidence in the Australian population.

Cancer spread status

While the scope of the NBCSP is to monitor participants up to the point of 'definite diagnosis' (Health 2015b), staging data for confirmed cancers are useful to determine the effectiveness of the NBCSP at detecting bowel cancers at a more treatable stage than for those diagnosed with symptomatic bowel cancers. Cancers diagnosed at earlier stages are generally associated with improved patient prognosis (Morris et al. 2007).

A biopsy of a suspected cancer taken at colonoscopy is adequate to confirm a cancerous growth, but is not usually sufficient to obtain information on the stage and potential metastatic spread of the cancer. To gain these data, a sample from a surgical resection (or colonoscopic local excision) plus additional biopsies (for example, lymph node) are required. If available, these additional data can be recorded on the histopathology report form, but not the combined colonoscopy/histopathology form.

Therefore, these data cannot be presented in this report due to limited cancer spread information currently available for the 149 participants with confirmed cancers. A new resection form will be implemented in 2015 which will allow information on the stage of cancers resected to be reported.

5 Adverse events

What is the adverse event rate within the NBCSP?

Definition: The proportion of eligible people invited between 1 July 2013 and 30 June 2014 who had an adverse event (such as bleeding or perforation) reported after having a colonoscopy as part of NBCSP follow-up.

Rationale: As with any invasive procedure, there is the risk of an adverse event occurring with a colonoscopy. Monitoring of adverse events through the NBCSP is important to ensure participant safety in the program.

Data source: National Bowel Cancer Screening Program Register

Data quality: Reporting of adverse events after a NBCSP colonoscopy is not mandatory. There is a risk an adverse event that occurs days or weeks after the colonoscopy (for example, unplanned hospital admission within 30 days of procedure) will not be associated with the NBCSP procedure, thus not be recorded in the register using the relevant NBCSP adverse event form. These issues would be expected to cause an underestimation of adverse events. (See 'Section 1 Data considerations' for further details.)

Guide to interpretation: This chapter discusses the recorded adverse events for participants invited into the NBCSP who had a colonoscopy as a result of a positive FOBT. Adverse event data are based on data recorded in the register to 31 December 2014 for persons invited from 1 July 2013 to 30 June 2014. Due to the time delay between notification of a positive FOBT result and progression to colonoscopy or surgery, data may be incomplete.

While the NBCSP records the number of people referred by PHCPs for various procedures (for example, sigmoidoscopy, barium enema, colonoscopy), only outcomes (including adverse outcomes) of colonoscopy are analysed in this report.

Persons are counted only once in the reporting period, even if they have more than 1 adverse event reported during this 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.

Key results

- For participants invited in 2013–14, 69 out of 25,518 who underwent colonoscopy (about 1 in every 370 participants undergoing colonoscopy) recorded an adverse event.
- Bleeding was the most commonly recorded adverse event, with more recorded for men than women.
- About 1 in every 1,109 participants undergoing colonoscopy required an unplanned hospital admission within 30 days of the colonoscopy.

Background information

Colonoscopy is an invasive procedure performed after preparation of the bowel. The procedure is performed under sedation and is considered safe and relatively pain free. However, several complications and adverse events are associated with colonoscopy, including:

- intolerance of the bowel preparation—some people develop dizziness, headaches or vomiting
- reaction to the sedatives or anaesthetic—this is very uncommon but is of concern in people who have severe heart disease or lung disease
- perforation (making a hole in the bowel wall)
- major bleeding from the bowel—this can occur as a result of polyps being removed.

The draft report of the Quality Working Group to the NBCSP noted that the 2 main complications arising were perforation and post-colonoscopic bleeding. A literature review by the Quality Working Group showed the risk of death associated with colonoscopy to be low, with incidence rates 0.03% or lower. The incidence rate of perforation was 0.07–0.30%, and bleeding was found to have an incidence rate of 0.03–2.00% (NBCSP-QWG 2009).

Overall adverse events

Table A5.1 shows adverse events recorded up to 31 December 2014 for people invited to participate in the NBCSP from 1 July 2013 to 30 June 2014. Of participants with a positive FOBT, 25,518 were known to have had a colonoscopy, with 69 (0.3%) having an adverse outcome recorded (data not shown). Men recorded more adverse events, with bleeding being the most common. The most frequent additional service required because of an adverse event was unplanned hospital admission within 30 days of colonoscopy.

Overall, the recorded incidence rate of a bleeding event related to colonoscopy was 0.09%. Smaller numbers were recorded for all other types of adverse event.

6 Incidence of bowel cancer

What do we mean by bowel cancer incidence?

Definition: The number of people diagnosed with bowel cancer, reported for various population subgroups.

Rationale: Monitoring of bowel cancer incidence statistics alongside the implementation of the NBCSP allows an understanding of the potential effect of screening on incidence.

Data source: Australian Cancer Database (ACD)

Data quality: Each Australian state and territory has legislation that makes the reporting of cancers (excluding basal cell and squamous cell carcinomas of the skin) mandatory. The AIHW compiles and maintains the ACD, in partnership with the Australasian Association of Cancer Registries, whose member registries provide data to the AIHW annually. This began with cases first diagnosed in 1982, and the ACD currently has data on cancers diagnosed up to and including 2011 – though the 2010 and 2011 incidence counts (and 2009 death-certificate-only cases) for New South Wales and the Australian Capital Territory are estimates.

Guide to interpretation: Bowel cancer comprises cancer of the colon and cancer of the rectum. It is also known as colorectal cancer. An objective of the NBCSP is to reduce the incidence of bowel cancer in Australia. Positive FOBTs and subsequent colonoscopies identify and remove polyps and adenomas that might develop into cancer, thereby reducing future incidence. However, it is expected that during the first few years of the NBCSP, incidence rates may increase, as pre-existing, developed cancers (in addition to polyps and adenomas) that had not resulted in symptoms are found earlier through screening. This should stabilise over time as retesting of participants occurs (for example, 50 year olds who are reinvited when they turn 55).

This chapter provides bowel cancer incidence data, grouped by age, sex and population subgroups. See the AIHW *National Bowel Cancer Screening Program monitoring report: 2013–14 supplementary tables* webpage for additional tables.

Detailed numbers and rates for bowel cancer in Australia over time are in the AIHW *Australian Cancer Incidence and Mortality* workbook for colorectal (bowel) cancer—an interactive workbook that currently includes incidence data from 1982 to 2011 and mortality data from 1968 to 2012. It is available at <www.aihw.gov.au/acim-books>.

Key results

In 2011:

- 15,151 people were diagnosed with bowel cancer (8,351 males; 6,800 females).
- Bowel cancer accounted for 13% of all invasive cancers diagnosed, making it the second most commonly diagnosed cancer in Australia, after prostate cancer.
- The age-standardised incidence rate for bowel cancer was 73 per 100,000 males, 52 per 100,000 females and 62 per 100,000 persons.
- The risk of being diagnosed by the age of 85 was 1 in 10 for males and 1 in 15 for females.
- The average age of diagnosis was 69 for males and 71 for females.

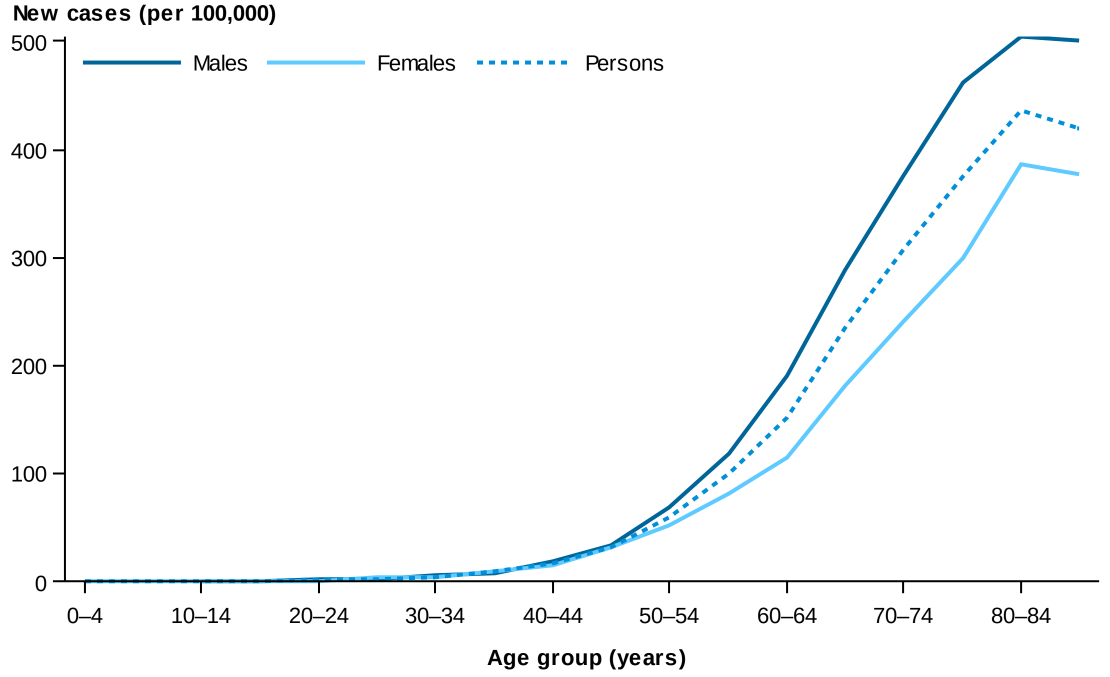
Detailed bowel cancer incidence analyses

Bowel cancer incidence by state and territory

The incidence of bowel cancer varied between jurisdictions in the period 2007 to 2011 (supplementary tables S1.3a–S1.4c). Tasmania (78 cases per 100,000 persons) and Queensland (65) had the highest age-standardised incidence rates, and the Northern Territory (54) had the lowest.

Bowel cancer incidence by age and sex

In 2011, and similar to previous years, newly diagnosed cases of bowel cancer were relatively rare in people under 45; however, the incidence rate increased sharply for older age groups (Figure 6.1). The highest incidence rates were in people aged 80 and over (more than 500 cases per 100,000 population).

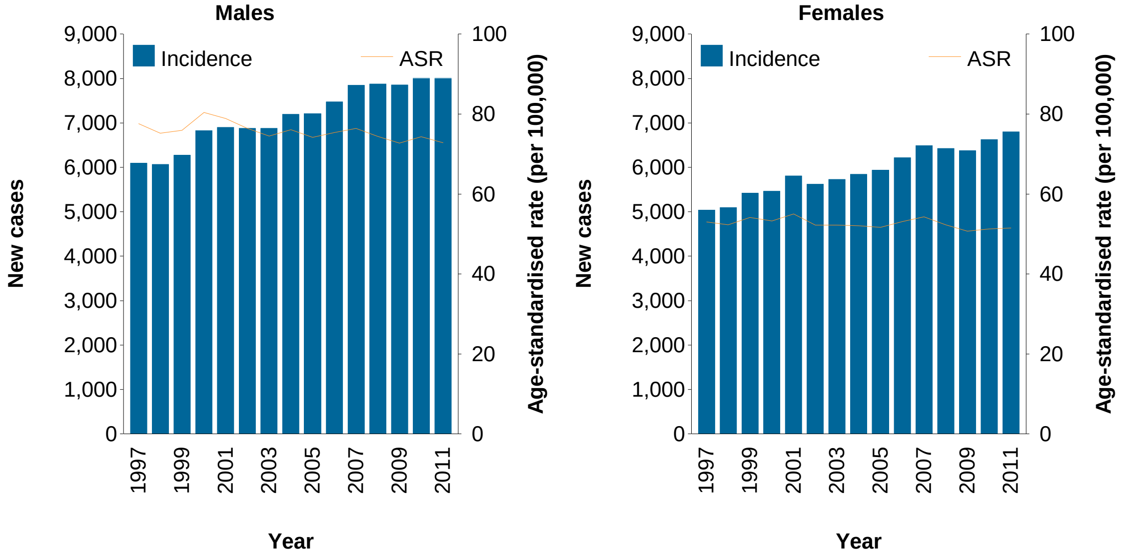


Source: AIHW Australian Cancer Database.

Figure 6.1: Age-specific incidence rates of bowel cancer, Australia, 2011

Trends

The number of new cases of bowel cancer for males increased between 1997 and 2011 by 37%, with incidence in females showing a similar increase (35%). While the age-standardised rates have decreased gradually between 1997 and 2011 for males (0.4% per year) and for females (0.2% per year), the increase in the number of cases due to the ageing population in Australia means the burden bowel cancer places on the health-care system is still increasing (Figure 6.2 and supplementary tables S1.1a–S1.2c).



Note: Rates age-standardised to the Australian 2001 population.

Source: AIHW Australian Cancer Database.

Figure 6.2: Incidence and age-standardised incidence rates of bowel cancer, Australia, 1997–2011

Analysis of NBCSP data shows 454 suspected cancers were detected within the NBCSP in 2011. Due to limitations in histopathology report form return, it is not possible to accurately determine how many of these were actually confirmed and thus registered in the ACD as bowel cancers. (The NBCSP data for 2011 show 138 of these were confirmed by NBCSP histopathology report form).

7 Mortality from bowel cancer

What do we mean by bowel cancer mortality?

Definition: The number of people who have died from bowel cancer (as the underlying cause of death), by various stratifications.

Rationale: Changes in the number and rate of bowel cancer deaths are monitored to help understand the effect of interventions (such as screening and improved treatments).

Data source: National Mortality Database (NMD)

Data quality: See Appendix C for further information on mortality data.

Guide to interpretation: Bowel cancer mortality data from the NMD includes deaths up to 2012. The denominator is based on ABS estimated resident populations up to 2012. As these data are for years prior to the screening data in this report, these outcomes are not currently related in any way to the screening activities presented in this report. However, they provide a baseline against which to monitor future outcomes.

A major objective of the NBCSP is to reduce mortality from bowel cancer in Australia through early detection and treatment of bowel cancers, and through identifying and treating polyps and adenomas that might develop into cancer. It is hoped these outcomes will eventually result in a reduction in the number of people who die from bowel cancer; however, it may take many years for this effect to become apparent, as polyps and adenomas detected at screening now may not have become cancers resulting in death for many years. However, even then it is not possible to provide a causal link between the NBCSP and any changes in mortality rates.

See the AIHW *National Bowel Cancer Screening Program monitoring report: 2013–14 supplementary tables* webpage for additional tables. As mortality data are enumerated by age at death, not age at diagnosis, it is not accurate to analyse NBCSP performance by looking at mortality rates of people aged 50, 55, 60 and 65; the NBCSP target ages were included for illustrative purposes only.

Key results

In 2012:

- There were 3,980 deaths from bowel cancer in Australia (2,208 males; 1,772 females). Bowel cancer accounted for 9% of all deaths from invasive cancers, second only to lung cancer.
- The age-standardised death rate was 19 per 100,000 males and 12 per 100,000 females.
- The risk of dying from bowel cancer by the age of 85 was 1 in 38 for males, 1 in 61 for females and 1 in 48 overall.

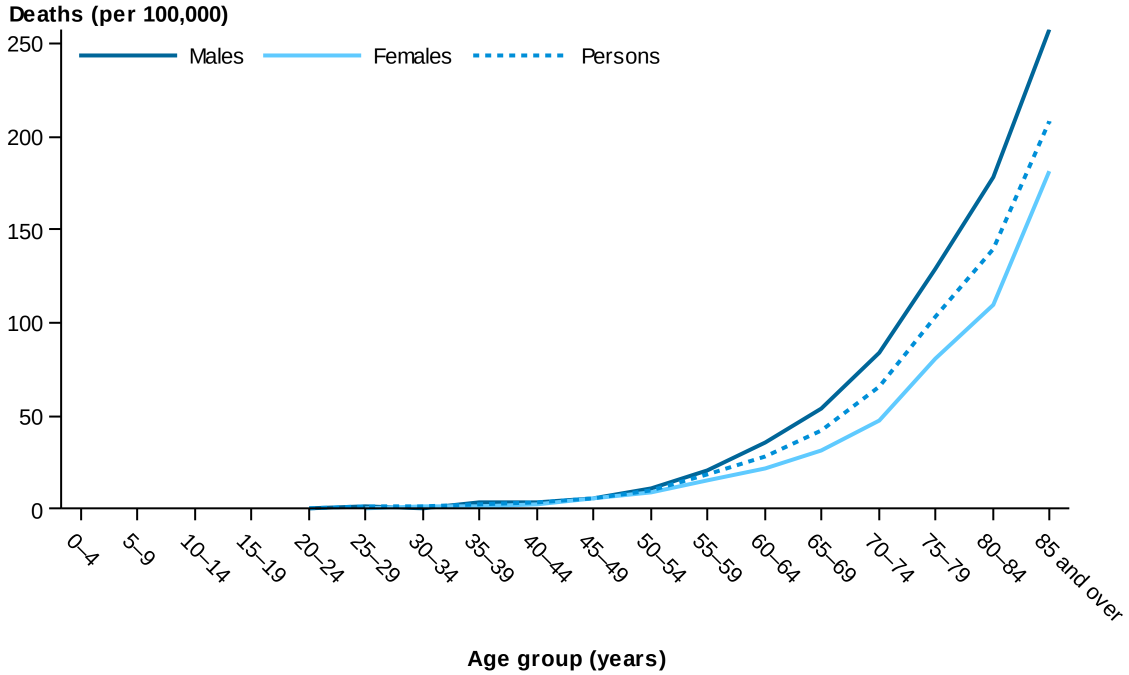
Detailed bowel cancer mortality analyses

Bowel cancer mortality by state and territory

In 2008–2012, Tasmania and the Northern Territory experienced the highest age-standardised rate of deaths from bowel cancer (19 deaths per 100,000 population). Western Australia experienced the lowest age-standardised rate of deaths from bowel cancer (13) (supplementary tables S2.3a–S2.4c).

Bowel cancer mortality by age and sex

Death from bowel cancer is relatively rare before 50 years of age, with 95% of deaths for those aged 50 or over (Figure 7.1). In 2012, the highest age-specific death rates were in the oldest age groups—people aged 80–84 (139 per 100,000 population) and 85 and over (208 per 100,000). There were 1,193 deaths in the 50–69 year age group, 30% of all bowel cancer deaths. This age group is currently targeted by the NBCSP; however, the outcomes of screening participation may also affect mortality rates in older ages.



Notes

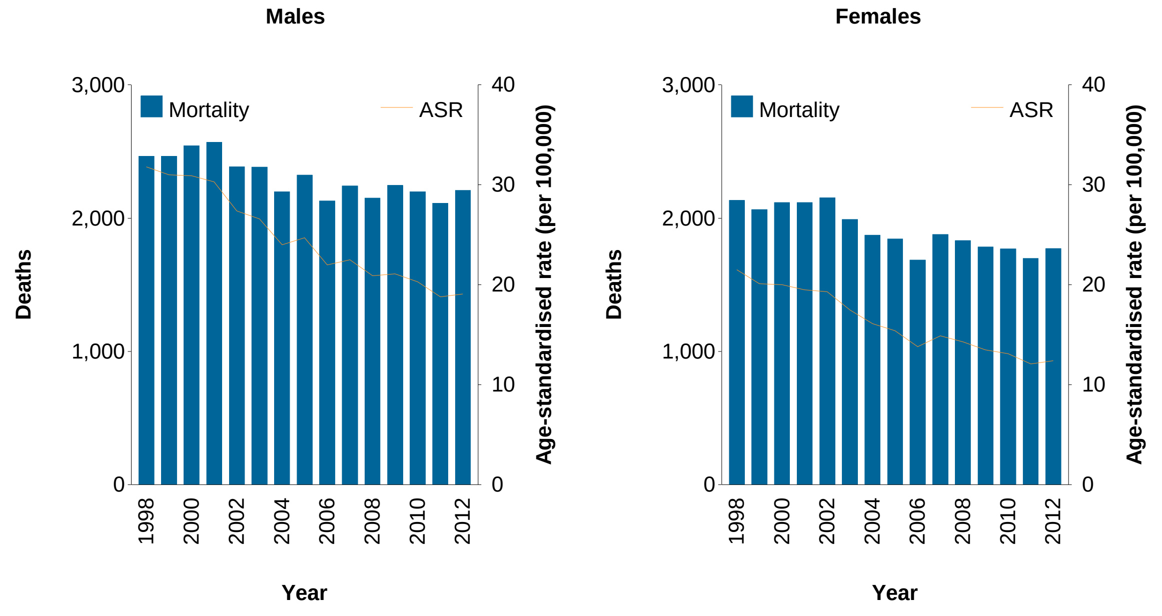
1. Deaths registered in 2012 are based on preliminary versions of cause-of-death data and are subject to further revision by the ABS.

Source: AIHW National Mortality Database.

Figure 7.1: Age-specific mortality rates for bowel cancer (ICD-10 C18–C20), Australia, 2012

Trends

Between 1998 and 2012, the age-standardised death rate from bowel cancer fell by an average of 2.7% per year for males, 2.8% per year for females, and 2.7% per year overall (Figure 7.2 and supplementary tables S3.1a–S3.2c). It is expected the NBCSP will, in time, continue to contribute to this decline in the death rate.



Notes

1. Rates age-standardised to the Australian 2001 population and are expressed per 100,000 population.
2. Deaths registered in 1998–2010 are based on the final version of cause-of-death data; deaths registered in 2011 and 2012 are based on revised and preliminary versions, respectively and are subject to further revision by the ABS.

Source: AIHW National Mortality Database.

Figure 7.2: Age-standardised mortality rates for bowel cancer, Australia, 1998–2012

Bowel cancer mortality by region

In 2008–2012, age-standardised deaths from bowel cancer were higher in *Inner regional* and *Outer regional* areas of Australia, each with 17 deaths per 100,000 (supplementary tables S3.5a–S3.6c). Age-standardised death rates were lowest in *Very remote* areas (11 deaths per 100,000).

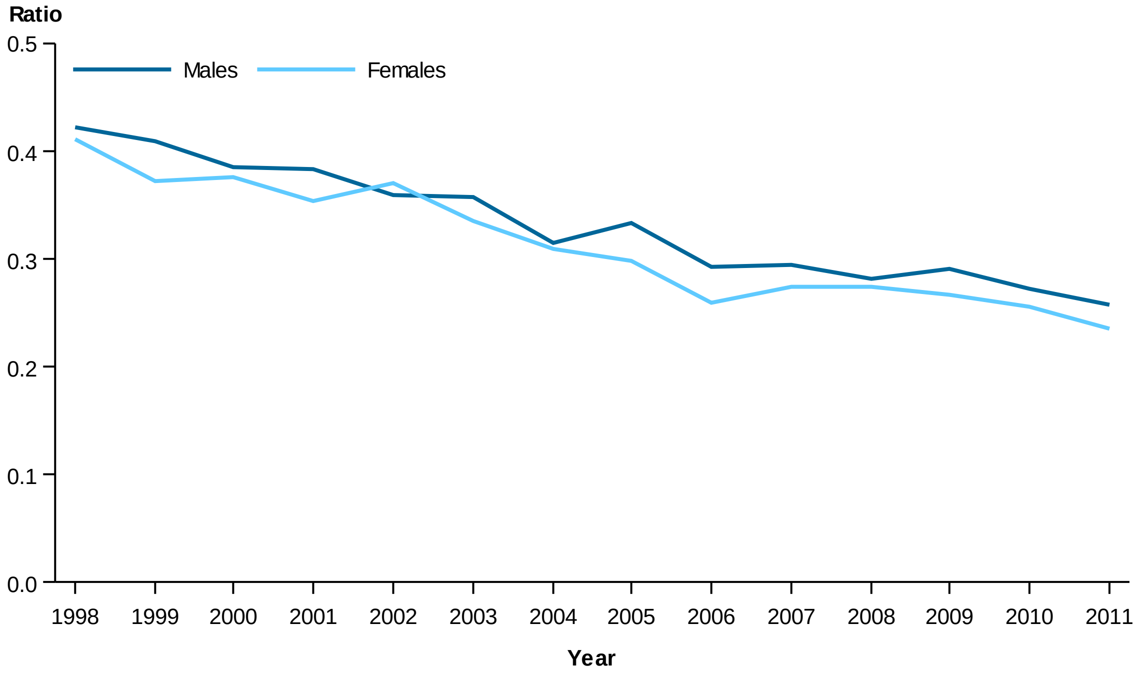
Bowel cancer mortality of Aboriginal and Torres Strait Islander peoples

Information in the NMD on Indigenous status is currently considered of sufficient quality for reporting for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only.

In 2008–2012 in these jurisdictions, the age-standardised rate of deaths from bowel cancer was lower for Aboriginal and Torres Strait Islander people (11 deaths per 100,000) than for non-Indigenous people (16 deaths per 100,000) (supplementary tables S3.7a and S3.7b).

Bowel cancer mortality-to-incidence ratio

The trends in bowel cancer mortality-to-incidence ratios have been steadily falling for many years (Figure 7.3). Any change in these rates due to the NBCSP would depend on the number of people screened, the number of precancerous polyps removed and the stage of growth at which cancers were detected. However, it would be expected that, at least until biennial screening is fully implemented, the NBCSP would assist in ongoing reductions in these ratios.



Notes

1. Ratios calculated from rates, age-standardised to the Australian 2001 population.
2. Deaths registered in 1998–2010 are based on the final version of cause-of-death data; deaths registered in 2011 are based on revised version and are subject to further revision by the ABS.

Source: AIHW Australian Cancer Database and AIHW National Mortality Database.

Figure 7.3: Trends in mortality-to-incidence ratios for bowel cancer, Australia, 1998–2011

8 Expenditure on the NBCSP

Expenditure on Australia's cancer screening programs

In Australia, there are 3 cancers for which screening is recommended—breast, cervical and bowel. Each cancer has a national screening program, with both Australian government and state and territory government components.

The National Bowel Cancer Screening Program (NBCSP) uses a different program model to the 2 other screening programs. It is funded through direct appropriation from the Australian government, plus a National Partnership payment for the 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 a positive screening result.

For the BreastScreen Australia Program and the National Cervical Screening Program (NCSP), the Australian government provides funding to the states and territories for a range of public health services through National Health Reform payments (known as National Specific Purpose payments prior to 1 July 2012) and National Partnership payments. State and territory governments have full discretion over the application of National Health Reform payments for public health funding, including the amount expended on the BreastScreen Australia Program and the NCSP.

In addition to the funding provided by the Australian government, state and territory governments also contribute funding towards these programs.

Table 8.1 shows expenditure for the 3 national cancer screening programs (expenditure by Australian and state and territory governments combined), as well as total expenditure on cancer screening for the 2012–13 financial year.

Table 8.1: Government funding for cancer screening programs, 2012–13, $ million

Screening programs	Expenditure 2012–13
BreastScreen Australia(a)	204.9
National Cervical Screening Program(b)	89.3
National Bowel Cancer Screening Program(c)	32.9
Total	**327.1**

(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.

NBCSP expenditure

In 2012–13 an estimated $32.9 million was spent on the NBCSP (Table 8.1). As the rollout of biennial screening for those aged 50–74 expands (due to be completed by 2020), this amount will increase. Care should be taken to consider the inclusions and exclusions detailed in the notes for Table 8.1, as well as in the introductory text, to ensure the limitations of these data are clear.

Appendix A: Supporting data

A1: Participation tables and figures

Table A1.1: Screening invitation, by state and territory, 2013–14

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Invitations issued to the eligible population[a][b]									
50 years	148,451	107,495	88,781	44,060	32,407	9,718	7,293	3,432	441,637
55 years	99,513	70,853	58,623	29,403	22,175	6,931	5,000	2,702	295,200
60 years	117,353	83,581	69,170	34,912	26,781	8,514	5,679	2,925	348,915
65 years	112,039	79,765	66,216	30,547	25,892	8,368	5,185	1,791	329,803
Total	**477,356**	**341,694**	**282,790**	**138,922**	**107,255**	**33,531**	**23,157**	**10,850**	**1,415,555**
Persons suspended[c]									
50 years	1,200	1,020	842	409	347	95	75	32	4,020
55 years	1,532	1,216	1,050	518	422	143	119	37	5,037
60 years	1,588	1,081	1,081	500	450	140	98	27	4,965
65 years	2,132	1,515	1,315	611	623	191	128	31	6,546
Total	*6,452*	*4,832*	*4,288*	*2,038*	*1,842*	*569*	*420*	*127*	*20,568*
Persons opting off[d]									
50 years	2,851	2,147	1,766	804	678	217	176	42	8,681
55 years	1,593	1,104	1,124	485	340	112	84	28	4,870
60 years	2,797	1,835	1,848	781	599	210	138	45	8,253
65 years	7,140	4,990	4,419	1,870	1,606	565	341	77	21,008
Total	*14,381*	*10,076*	*9,157*	*3,940*	*3,223*	*1,104*	*739*	*192*	*42,812*
Persons participating[e]									
50 years	37,159	31,149	23,447	12,942	10,592	2,853	2,097	660	120,899
55 years	33,127	26,540	20,449	11,207	9,273	2,807	1,928	728	106,059
60 years	46,341	36,638	29,389	15,764	13,153	4,144	2,590	967	148,986
65 years	41,900	32,176	27,123	13,350	12,533	3,946	2,222	542	133,792
Total	*158,527*	*126,503*	*100,408*	*53,263*	*45,551*	*13,750*	*8,837*	*2,897*	*509,736*
Total respondents[f]									
50 years	41,210	34,316	26,055	14,155	11,617	3,165	2,348	734	133,600
55 years	36,252	28,860	22,623	12,210	10,035	3,062	2,131	793	115,966
60 years	50,726	39,554	32,318	17,045	14,202	4,494	2,826	1,039	162,204
65 years	51,172	38,681	32,857	15,831	14,762	4,702	2,691	650	161,346
Total	**179,360**	**141,411**	**113,853**	**59,241**	**50,616**	**15,423**	**9,996**	**3,216**	**573,116**

(a) Invitations to participate in screening were issued from 1 July 2013 to 30 June 2014 to members of the Australian population (registered as Australian citizens or migrants in the Medicare enrolment file, or who are registered with a Department of Veterans' Affairs gold card) who turned 50, 55, 60 or 65 from 1 January 2013 to 30 June 2014.

(b) There were 910 invitations sent to those not of the 4 target ages, or to addresses overseas (making 1,416,465 invitations in total). These were excluded from the eligible population and further analysis.

(c) 'Persons suspended' refers to the eligible population invited who did not return a faecal occult blood test (FOBT) kit, but elected to suspend participation until a later date.

(d) 'Persons opting off' refers to the eligible population invited who did not return an FOBT kit, but elected to opt off.

(e) 'Persons participating' refers to the eligible population invited who returned an FOBT kit for analysis, regardless of whether it was correctly completed or if they later suspended or opted off.

(f) 'Total respondents' refers to the eligible population invited who returned any response (returned an FOBT kit, or suspension/opt-off request).

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

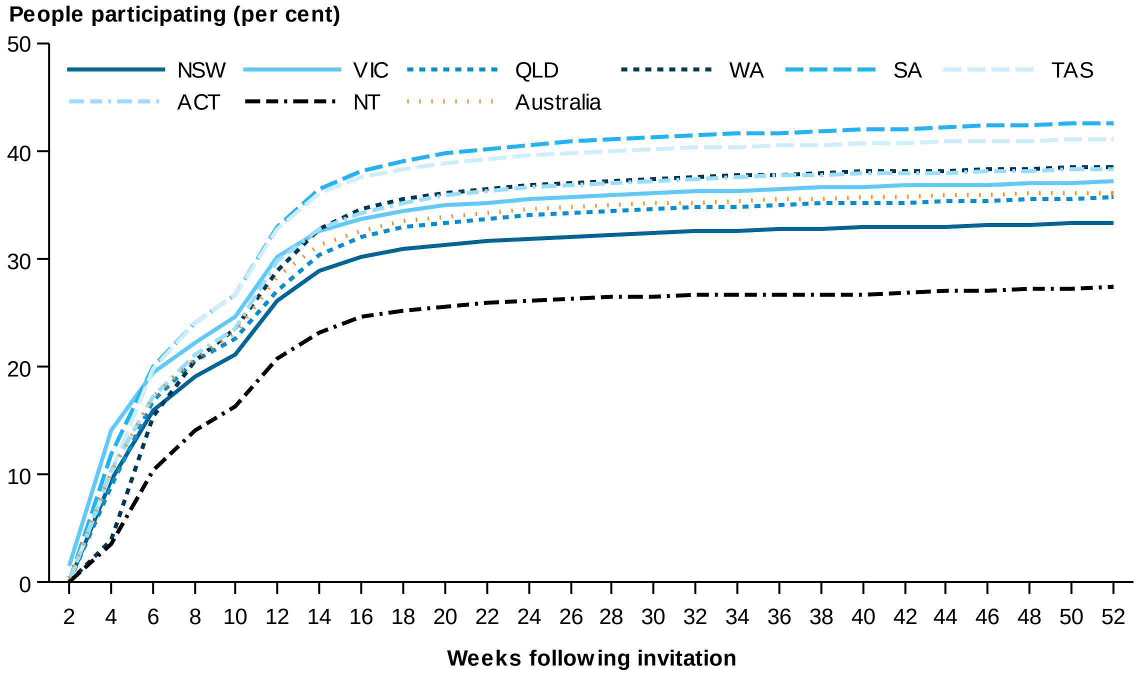
Table A1.2: Crude participation, by state and territory, 2013–14

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males										
50 years	Number	17,487	14,165	11,113	6,146	4,838	1,278	963	305	56,295
	Per cent	23.5	26.4	25.0	27.4	29.7	26.4	26.9	17.3	25.4
55 years	Number	15,387	12,191	9,500	5,278	4,282	1,247	850	358	49,093
	Per cent	30.9	34.5	32.5	35.8	38.9	36.9	35.4	25.6	33.3
60 years	Number	21,386	16,609	13,653	7,377	5,976	1,876	1,185	486	68,548
	Per cent	36.7	40.3	39.6	41.8	45.2	45.0	42.7	31.2	39.5
65 years	Number	19,926	14,751	12,964	6,425	5,888	1,780	1,030	292	63,056
	Per cent	35.7	37.8	38.9	41.6	46.1	44.0	40.6	30.2	38.5
Total	*Number*	*74,186*	*57,716*	*47,230*	*25,226*	*20,984*	*6,181*	*4,028*	*1,441*	*236,992*
	Per cent	*31.1*	*34.1*	*33.4*	*35.9*	*39.4*	*37.6*	*35.7*	*25.4*	*33.6*
Females										
50 years	Number	19,672	16,984	12,334	6,796	5,754	1,575	1,134	355	64,604
	Per cent	26.6	31.6	27.8	31.4	35.7	32.3	30.5	21.3	29.3
55 years	Number	17,740	14,349	10,949	5,929	4,991	1,560	1,078	370	56,966
	Per cent	35.7	40.4	37.3	40.5	44.7	44.0	41.5	28.3	38.5
60 years	Number	24,955	20,029	15,736	8,387	7,177	2,268	1,405	481	80,438
	Per cent	42.3	47.2	45.4	48.6	53.0	52.2	48.4	35.2	45.8
65 years	Number	21,974	17,425	14,159	6,925	6,645	2,166	1,192	250	70,736
	Per cent	39.1	42.8	43.1	45.8	50.7	50.1	45.0	30.3	42.7
Total	*Number*	*84,341*	*68,787*	*53,178*	*28,037*	*24,567*	*7,569*	*4,809*	*1,456*	*272,744*
	Per cent	*35.3*	*39.9*	*37.7*	*40.8*	*45.5*	*44.3*	*40.5*	*28.2*	*38.5*
Persons										
50 years	Number	37,159	31,149	23,447	12,942	10,592	2,853	2,097	660	120,899
	Per cent	25.0	29.0	26.4	29.4	32.7	29.4	28.8	19.2	27.4
55 years	Number	33,127	26,540	20,449	11,207	9,273	2,807	1,928	728	106,059
	Per cent	33.3	37.5	34.9	38.1	41.8	40.5	38.6	26.9	35.9
60 years	Number	46,341	36,638	29,389	15,764	13,153	4,144	2,590	967	148,986
	Per cent	39.5	43.8	42.5	45.2	49.1	48.7	45.6	33.1	42.7
65 years	Number	41,900	32,176	27,123	13,350	12,533	3,946	2,222	542	133,792
	Per cent	37.4	40.3	41.0	43.7	48.4	47.2	42.9	30.3	40.6
Total	**Number**	**158,527**	**126,503**	**100,408**	**53,263**	**45,551**	**13,750**	**8,837**	**2,897**	**509,736**
	Per cent	**33.2**	**37.0**	**35.5**	**38.3**	**42.5**	**41.0**	**38.2**	**26.7**	**36.0**

Notes

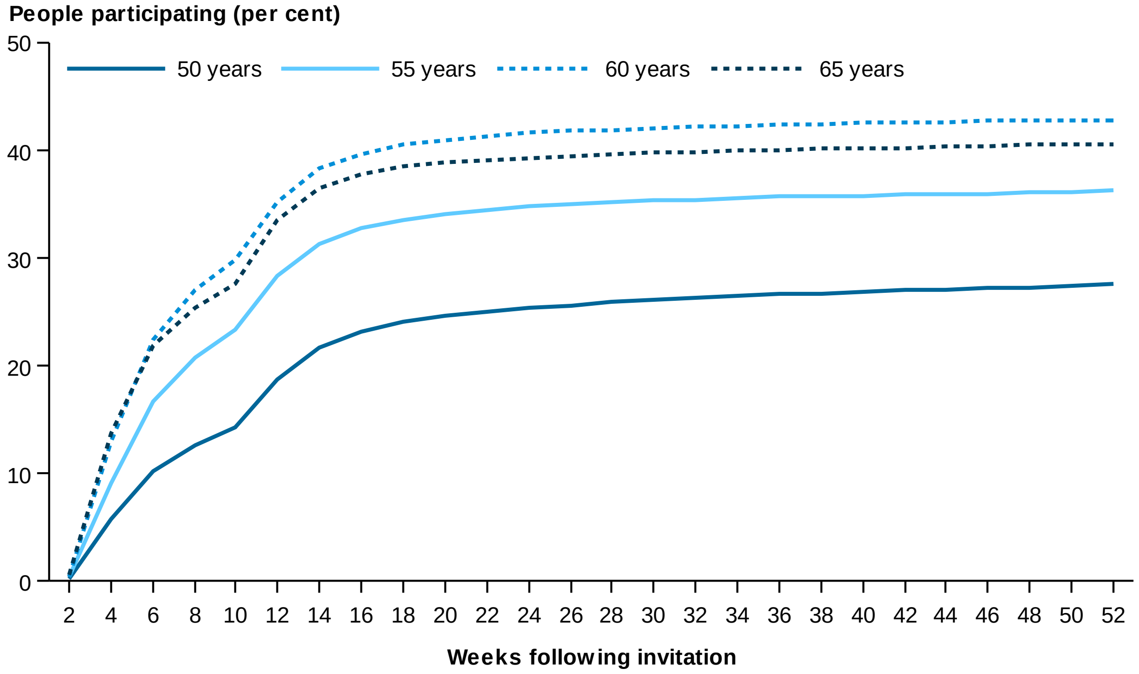
1. Participants in the program were defined as members of the eligible population who returned a completed FOBT kit, regardless of whether it was correctly completed.
2. Percentages equal people participating as a proportion of the total number of the eligible population who were invited to screen. This includes people who suspended or opted off.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.



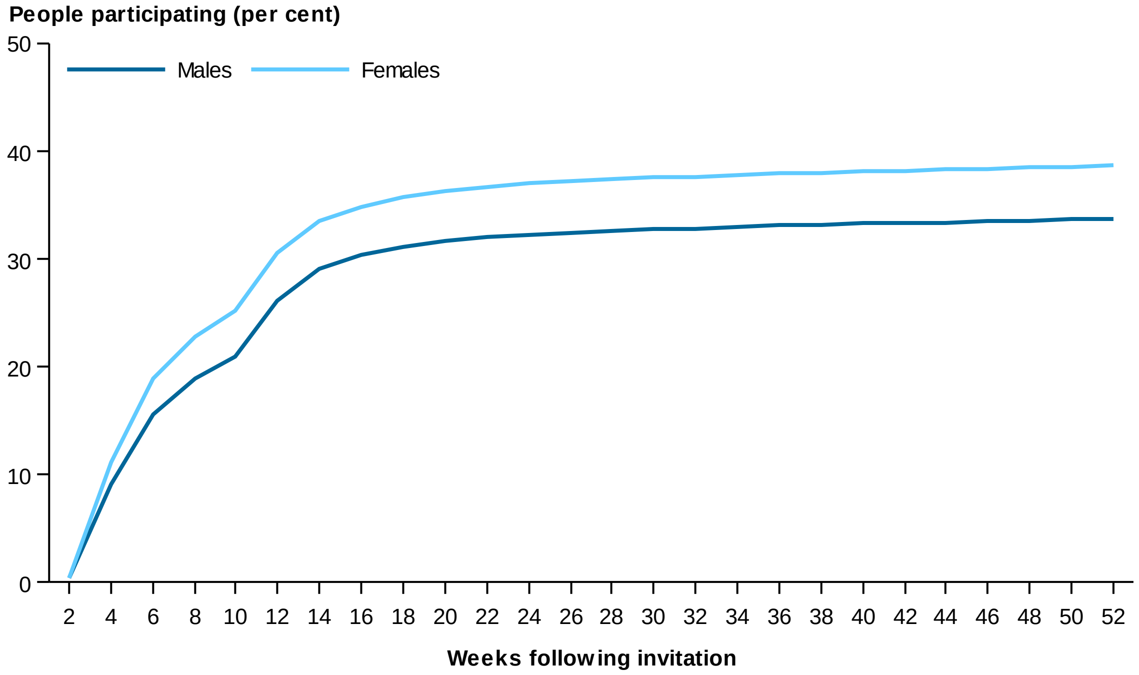
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.1: Participation, by weeks since invitation, using Kaplan–Meier estimates, by state and territory, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.2: Participation, by weeks since invitation, using Kaplan–Meier estimates, by age, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.3: Participation, by weeks since invitation, using Kaplan–Meier estimates, by sex, 2013–14

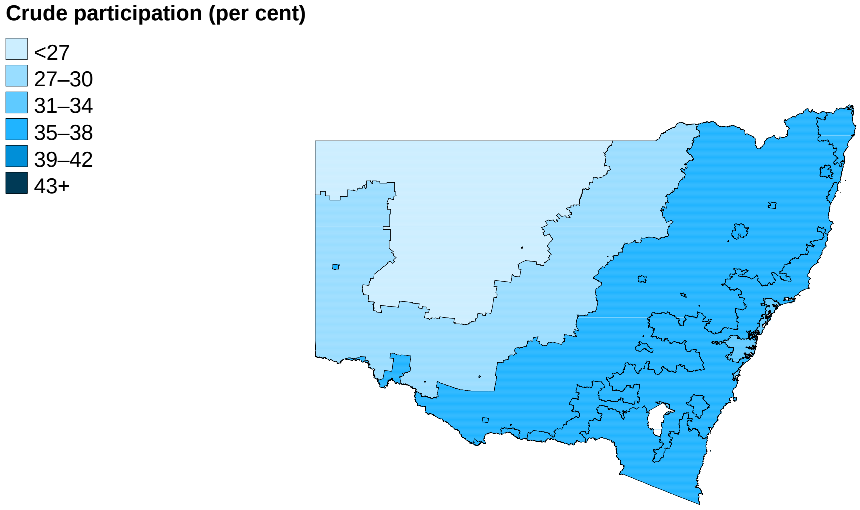
Table A1.3: Crude participation, by remoteness area, 2013–14

		Remoteness area						
		Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Unknown**	**Total**
Males								
50 years	Number	39,686	10,483	4,728	629	204	565	56,295
	Per cent	25.6	25.9	24.4	22.5	16.1	25.1	25.4
55 years	Number	33,202	9,912	4,608	619	203	549	49,093
	Per cent	33.2	34.1	33.3	30.1	22.7	33.3	33.3
60 years	Number	44,393	15,032	7,155	863	309	796	68,548
	Per cent	38.7	42.0	40.6	37.3	30.0	38.6	39.5
65 years	Number	40,003	14,786	6,692	723	227	625	63,056
	Per cent	37.3	41.4	41.1	36.4	29.0	32.2	38.5
Total	*Number*	*157,284*	*50,213*	*23,183*	*2,835*	*943*	*2,535*	*236,992*
	Per cent	*33.0*	*35.6*	*34.5*	*31.0*	*23.7*	*32.1*	*33.6*
Females								
50 years	Number	45,148	12,521	5,542	674	209	510	64,604
	Per cent	29.1	30.6	30.0	25.9	18.3	26.3	29.3
55 years	Number	38,118	12,039	5,378	685	220	526	56,966
	Per cent	37.8	41.0	40.0	36.4	26.2	37.5	38.5
60 years	Number	52,744	17,959	7,864	804	294	773	80,438
	Per cent	44.5	49.7	48.0	42.8	33.6	42.8	45.8
65 years	Number	45,344	16,947	6,986	659	184	617	70,736
	Per cent	40.7	47.6	46.3	40.3	28.7	40.5	42.7
Total	*Number*	*181,354*	*59,466*	*25,770*	*2,822*	*906*	*2,426*	*272,744*
	Per cent	*37.3*	*41.9*	*40.6*	*35.3*	*25.9*	*36.4*	*38.5*
Persons								
50 years	Number	84,834	23,004	10,270	1,303	412	1,075	120,899
	Per cent	27.3	28.3	27.1	24.1	17.1	25.7	27.4
55 years	Number	71,320	21,950	9,987	1,304	422	1,075	106,059
	Per cent	35.5	37.6	36.6	33.1	24.3	35.3	35.9
60 years	Number	97,137	32,991	15,019	1,667	603	1,569	148,986
	Per cent	41.7	45.9	44.1	39.8	31.7	40.6	42.7
65 years	Number	85,347	31,733	13,678	1,382	411	1,242	133,792
	Per cent	39.0	44.5	43.6	38.2	28.9	35.9	40.6
Total	**Number**	**338,639**	**109,678**	**48,953**	**5,656**	**1,848**	**4,961**	**509,736**
	Per cent	**35.2**	**38.8**	**37.5**	**33.0**	**24.7**	**34.1**	**36.0**

Notes

1. Percentages equal the number of people returning a completed FOBT kit (regardless of whether it was correctly completed) as a proportion of the eligible population invited to screen.
2. The residential postcodes of invitees and respondents were mapped to remoteness areas in the 2011 Australian Statistical Geography Standard remoteness structure through a postal area correspondence. Those that could not be mapped were included in the ‘Unknown’ column.
3. Discrepancies may occur between totals and sums of the component items due to rounding—see ‘Geographical classification’, Appendix C.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

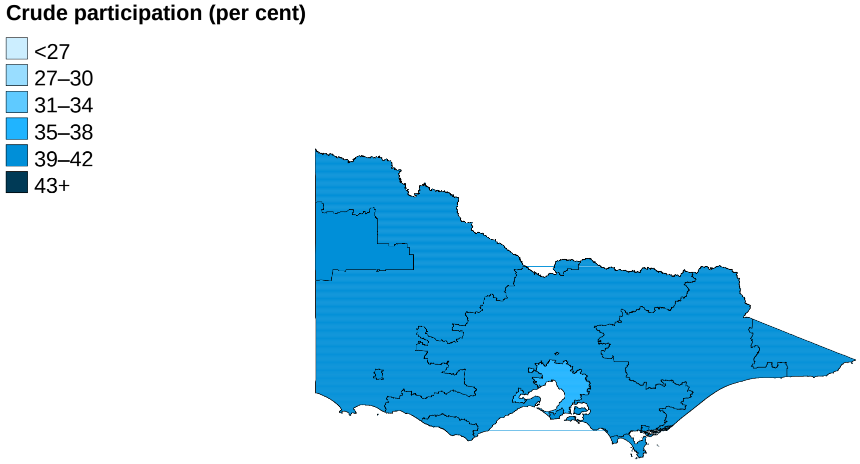


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4a: Crude participation, by remoteness area, New South Wales, 2013–14

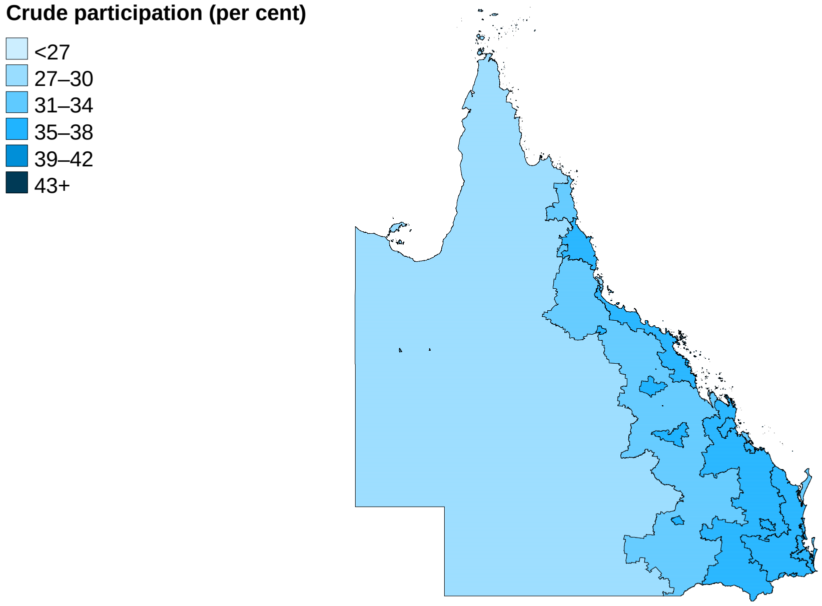


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4b: Crude participation, by remoteness area, Victoria, 2013–14

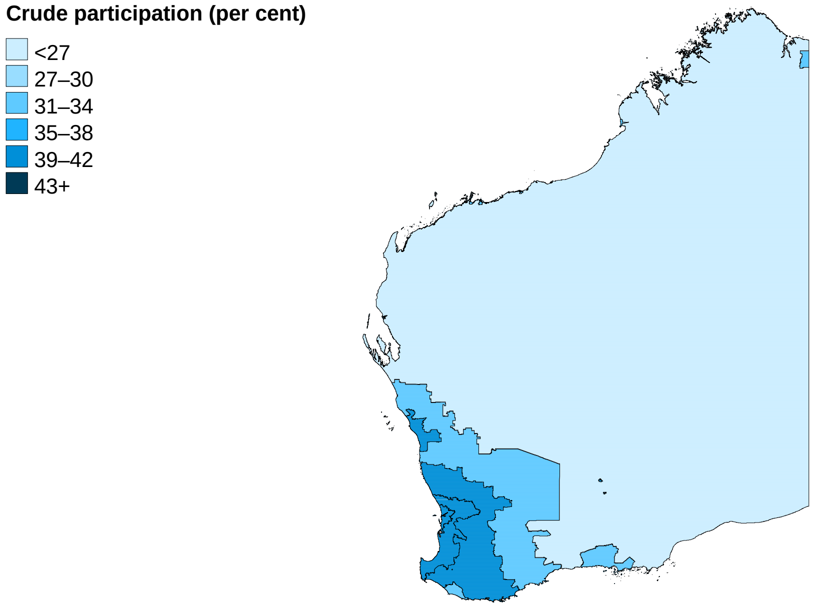


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4c: Crude participation, by remoteness area, Queensland, 2013–14

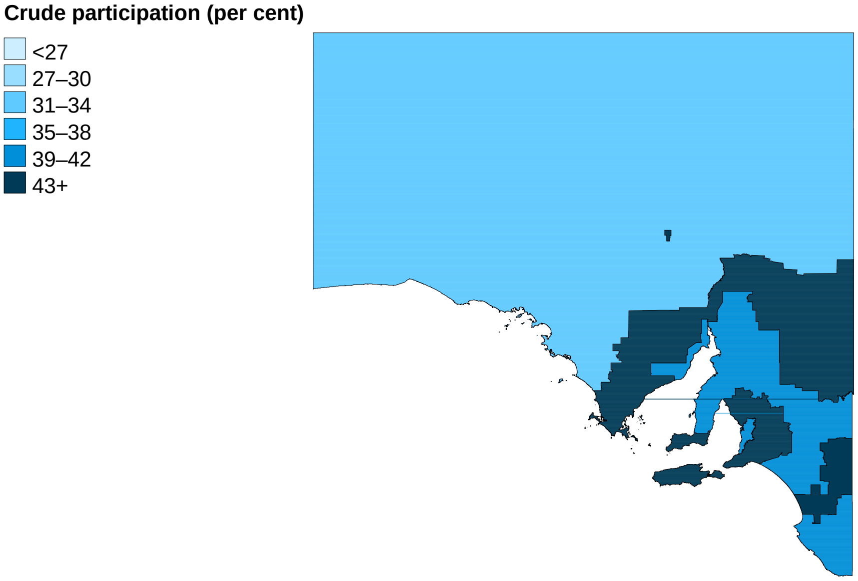


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4d: Crude participation, by remoteness area, Western Australia, 2013–14

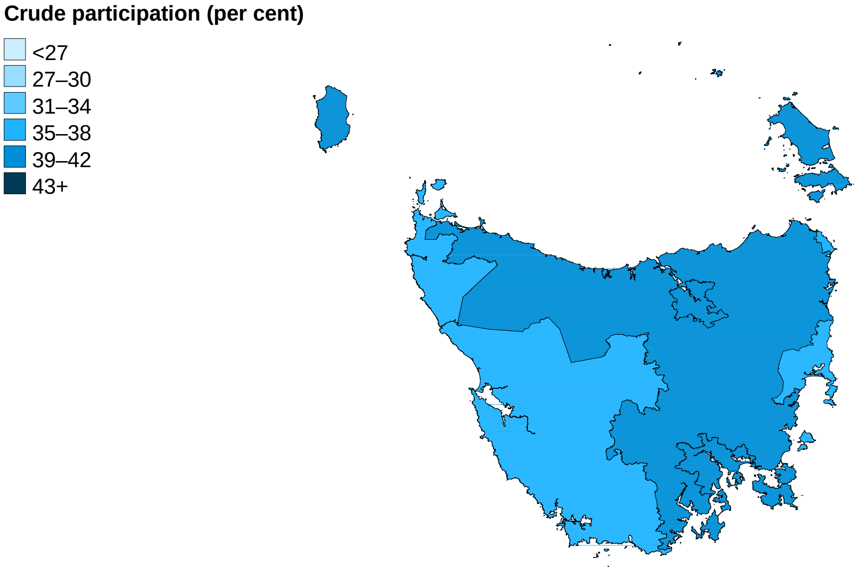


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4e: Crude participation, by remoteness area, South Australia, 2013–14

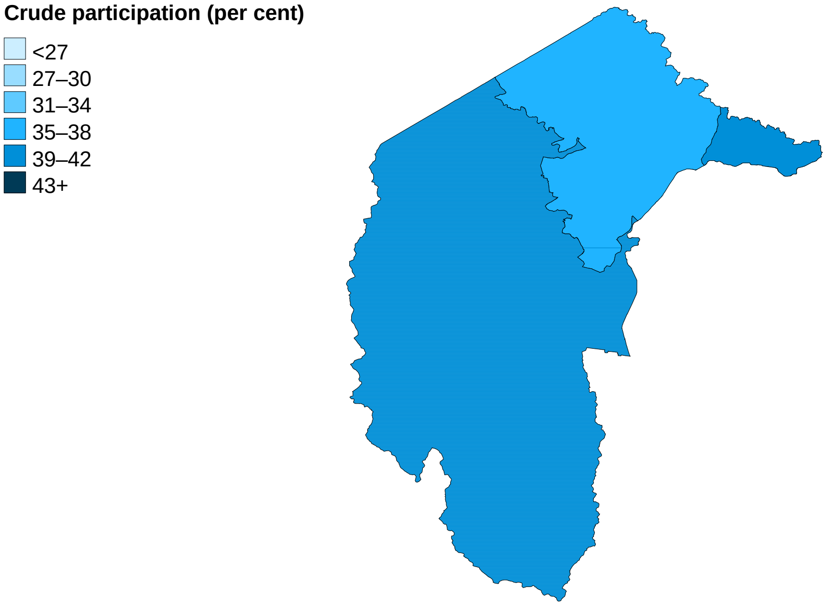


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4f: Crude participation, by remoteness area, Tasmania, 2013–14

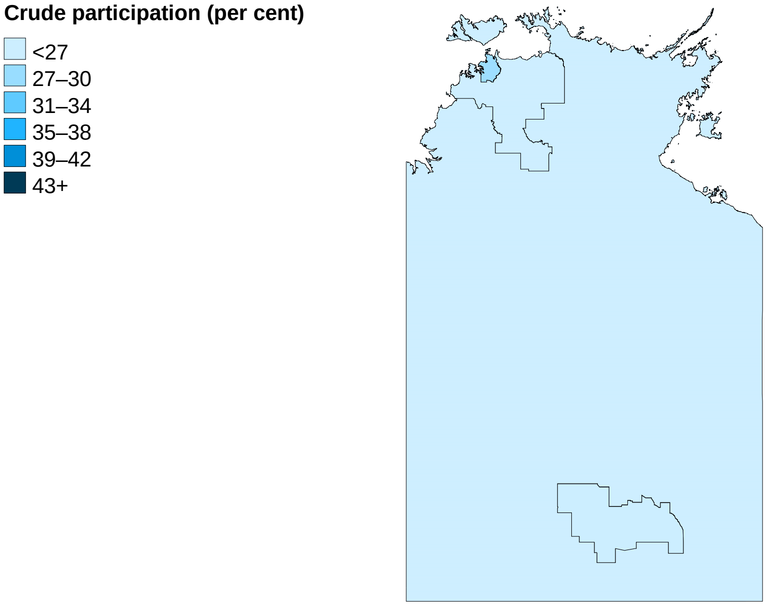


Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4g: Crude participation, by remoteness area, Australian Capital Territory, 2013–14



Notes

1. Rate per remoteness area is an average of participation across that remoteness area.
2. Participation rates rounded to integers.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A1.4h: Crude participation, by remoteness area, Northern Territory, 2013–14

Table A1.4: Crude participation, by socioeconomic status area, 2013–14

		Socioeconomic status area						
		1 (lowest)	**2**	**3**	**4**	**5 (highest)**	**Unknown**	**Total**
Males								
50 years	Number	9,648	10,042	11,035	11,915	12,927	728	56,295
	Per cent	23.0	23.9	25.2	26.5	28.2	25.8	25.4
55 years	Number	9,104	9,532	9,600	9,806	10,361	690	49,093
	Per cent	31.6	32.8	32.8	34.0	35.3	34.4	33.3
60 years	Number	12,863	13,957	13,406	13,465	13,860	997	68,548
	Per cent	37.6	39.6	39.4	40.4	40.7	39.3	39.5
65 years	Number	12,372	13,255	12,286	11,995	12,342	806	63,056
	Per cent	37.1	39.3	38.5	39.3	38.5	34.2	38.5
Total	*Number*	*43,987*	*46,786*	*46,327*	*47,181*	*49,490*	*3,221*	*236,992*
	Per cent	*31.8*	*33.4*	*33.3*	*34.3*	*35.0*	*33.1*	*33.6*
Females								
50 years	Number	10,860	11,844	12,629	13,642	14,929	700	64,604
	Per cent	27.1	28.3	28.8	30.5	31.6	28.4	29.3
55 years	Number	10,303	10,989	11,095	11,595	12,307	677	56,966
	Per cent	36.2	37.8	38.0	39.6	40.7	38.7	38.5
60 years	Number	14,856	16,392	15,848	15,778	16,568	996	80,438
	Per cent	43.6	46.2	45.7	46.7	47.0	44.8	45.8
65 years	Number	13,626	14,940	13,774	13,448	14,159	789	70,736
	Per cent	41.0	43.9	42.5	43.0	42.8	42.0	42.7
Total	*Number*	*49,645*	*54,165*	*53,346*	*54,463*	*57,963*	*3,162*	*272,744*
	Per cent	*36.6*	*38.6*	*38.1*	*39.2*	*39.8*	*38.0*	*38.5*
Persons								
50 years	Number	20,508	21,886	23,664	25,557	27,856	1,428	120,899
	Per cent	25.0	26.1	27.0	28.5	29.9	27.0	27.4
55 years	Number	19,407	20,521	20,695	21,401	22,668	1,367	106,059
	Per cent	33.9	35.3	35.4	36.8	38.1	36.4	35.9
60 years	Number	27,719	30,349	29,254	29,243	30,428	1,993	148,986
	Per cent	40.6	42.9	42.6	43.6	43.9	41.8	42.7
65 years	Number	25,998	28,195	26,060	25,443	26,501	1,595	133,792
	Per cent	39.0	41.6	40.5	41.2	40.7	37.7	40.6
Total	**Number**	**93,632**	**100,951**	**99,673**	**101,644**	**107,453**	**6,383**	**509,736**
	Per cent	**34.1**	**36.0**	**35.7**	**36.7**	**37.4**	**35.4**	**36.0**

Notes

1. Percentages equal the number of people returning a completed FOBT kit as a proportion of the total number of the eligible population who were invited to screen.
2. An invitee’s socioeconomic status area was classified by mapping their residential postcode (through a postal area) to the Australian Bureau of Statistics (ABS) Index of Relative Socio-economic Disadvantage (IRSD) for 2011. Those that could not be mapped were included in the ‘Unknown’ column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A1.5: Proportion of participants who indicated Aboriginal and Torres Strait Islander status, 2013–14

	NBCSP participants							2011 Census		
	Indigenous		Non-Indigenous		Not stated		Total	Indigenous	Non-Indigenous	Not stated
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent		
Males										
50 years	553	1.0	53,719	95.4	2,023	3.6	56,295	1.7	93.1	5.2
55 years	498	1.0	47,725	97.2	870	1.8	49,093	1.5	93.4	5.1
60 years	619	0.9	66,618	97.2	1,311	1.9	68,548	1.3	93.8	4.9
65 years	552	0.9	60,408	95.8	2,096	3.3	63,056	1.0	94.2	4.9
Total	*2,222*	*0.9*	*228,470*	*96.4*	*6,300*	*2.7*	*236,992*	*1.4*	*93.5*	*5.0*
Females										
50 years	696	1.1	62,436	96.6	1,472	2.3	64,604	1.9	94.2	3.9
55 years	534	0.9	55,708	97.8	724	1.3	56,966	1.6	94.5	4.0
60 years	688	0.9	78,719	97.9	1,031	1.3	80,438	1.4	94.6	3.9
65 years	602	0.9	68,422	96.7	1,712	2.4	70,736	1.1	94.7	4.2
Total	*2,520*	*0.9*	*265,285*	*97.3*	*4,939*	*1.8*	*272,744*	*1.5*	*94.5*	*4.0*
Persons										
50 years	1,249	1.0	116,155	96.1	3,495	2.9	120,899	1.8	93.7	4.5
55 years	1,032	1.0	103,433	97.5	1,594	1.5	106,059	1.5	93.9	4.5
60 years	1,307	0.9	145,337	97.6	2,342	1.6	148,986	1.3	94.2	4.4
65 years	1,154	0.9	128,830	96.3	3,808	2.8	133,792	1.0	94.4	4.5
Total	**4,742**	**0.9**	**493,755**	**96.9**	**11,239**	**2.2**	**509,736**	**1.5**	**94.0**	**4.5**

Notes

1. National Bowel Cancer Screening Program (NBCSP) percentages equal the number of people returning a completed FOBT who indicated their Aboriginal and Torres Strait Islander status as a proportion of all people returning an FOBT (regardless of whether they were correctly completed).
2. NBCSP Aboriginal and Torres Strait Islander status was reported by the participant on the returned participant details form. Participants who did not indicate Aboriginal and Torres Strait Islander status were included in the 'Not stated' column.
3. Indigenous status proportions. as recorded at the 2011 Australian Census of Population and Housing. are included for comparative purposes.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A1.6: Proportion of participants who indicated preferred language spoken at home, 2013–14

	NBCSP participants					2011 Census		
	Language other than English		English		Total	Language other than English	English	Not stated
	Number	Per cent	Number	Per cent	Number	Per cent		
Males								
50 years	8,342	14.8	47,953	85.2	56,295	16.4	78.3	5.3
55 years	7,703	15.7	41,390	84.3	49,093	15.8	79.1	5.1
60 years	9,684	14.1	58,864	85.9	68,548	14.4	80.8	4.8
65 years	7,631	12.1	55,425	87.9	63,056	14.5	80.8	4.7
Total	*33,360*	*14.1*	*203,632*	*85.9*	*236,992*	*15.4*	*79.6*	*5.0*
Females								
50 years	10,651	16.5	53,953	83.5	64,604	17.4	78.9	3.7
55 years	9,313	16.3	47,653	83.7	56,966	17.6	78.6	3.8
60 years	11,883	14.8	68,555	85.2	80,438	16.2	80.1	3.7
65 years	8,565	12.1	62,171	87.9	70,736	15.5	80.6	3.9
Total	*40,412*	*14.8*	*232,332*	*85.2*	*272,744*	*16.8*	*79.4*	*3.8*
Persons								
50 years	18,993	15.7	101,906	84.3	120,899	16.9	78.6	4.5
55 years	17,016	16.0	89,043	84.0	106,059	16.7	78.8	4.4
60 years	21,567	14.5	127,419	85.5	148,986	15.3	80.4	4.2
65 years	16,196	12.1	117,596	87.9	133,792	15.0	80.7	4.3
Total	**73,772**	**14.5**	**435,964**	**85.5**	**509,736**	**16.1**	**79.5**	**4.4**

Notes

1. NBCSP percentages equal the number of people returning a completed FOBT who indicated their preferred language spoken at home as a proportion of all people returning an FOBT (regardless of whether they were correctly completed).
2. NBCSP preferred language spoken at home was reported by the participant on the returned participant details form. Participants who did not indicate preferred language spoken at home were assumed to speak English.
3. Language spoken at home proportions as recorded at the 2011 Australian Census of Population and Housing are included for comparative purposes.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A1.7: Proportion of participants who indicated disability status, 2013–14

	NBCSP participants							2011 Census		
	Severe or profound activity limitation		No severe or profound activity limitation		Not stated		Total	Severe or profound activity limitation	No severe or profound activity limitation	Not stated
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent		
Males										
50 years	2,050	3.6	49,941	88.7	4,304	7.6	56,295	3.1	91.0	5.9
55 years	1,990	4.1	43,493	88.6	3,610	7.4	49,093	3.9	90.5	5.6
60 years	3,389	4.9	60,383	88.1	4,776	7.0	68,548	5.7	89.0	5.3
65 years	4,067	6.4	54,694	86.7	4,295	6.8	63,056	8.1	86.7	5.2
Total	*11,496*	*4.9*	*208,511*	*88.0*	*16,985*	*7.2*	*236,992*	*4.9*	*89.5*	*5.5*
Females										
50 years	2,829	4.4	58,049	89.9	3,726	5.8	64,604	3.3	92.4	4.3
55 years	2,803	4.9	50,960	89.5	3,203	5.6	56,966	4.3	91.4	4.3
60 years	4,299	5.3	71,969	89.5	4,170	5.2	80,438	5.5	90.4	4.2
65 years	4,109	5.8	63,074	89.2	3,553	5.0	70,736	6.2	89.5	4.4
Total	*14,040*	*5.1*	*244,052*	*89.5*	*14,652*	*5.4*	*272,744*	*4.7*	*91.1*	*4.3*
Persons										
50 years	4,879	4.0	107,990	89.3	8,030	6.6	120,899	3.2	91.7	5.1
55 years	4,793	4.5	94,453	89.1	6,813	6.4	106,059	4.1	91.0	4.9
60 years	7,688	5.2	132,352	88.8	8,946	6.0	148,986	5.6	89.7	4.7
65 years	8,176	6.1	117,768	88.0	7,848	5.9	133,792	7.1	88.1	4.8
Total	**25,536**	**5.0**	**452,563**	**88.8**	**31,637**	**6.2**	**509,736**	**4.8**	**90.3**	**4.9**

Notes

1. NBCSP percentages equal the number of people returning a completed FOBT who indicated their disability status as a proportion of all people returning an FOBT (regardless of whether they were correctly completed).
2. NBCSP disability status was reported by the participant on the participant details form. Participants who did not indicate disability status are included in the ‘Not stated’ column.
3. A ‘profound’ activity limitation indicates that a person always needs assistance with self-care, movement and/or communications activities. A ‘severe’ activity limitation indicates that a person sometimes needs assistance with these activities.
4. Activity limitation status proportions, as recorded at the 2011 Australian Census of Population and Housing, are included for comparative purposes.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A1.8: Participation rates for 2013-14 invitees, based on previous invitation and participation status

			Invitation round				
			Round 1	Round 2(a)			All
				Screened in round 1			
			Total	No	Yes	Total	Total
Males	50 years	Number	56,209	n.p.	n.p.	n.p.	56,295
		Per cent	25.4	n.p.	n.p.	n.p.	25.4
	55 years(b)	Number	2,144	13,551	33,398	46,949	49,093
		Per cent	25.9	14.9	69.4	33.8	33.3
	60 years(b)	Number	1,031	19,348	48,169	67,517	68,548
		Per cent	25.4	18.4	75.3	39.9	39.5
	65 years	Number	62,938	n.p.	n.p.	n.p.	63,056
		Per cent	38.4	n.p.	n.p.	n.p.	38.5
	Total	*Number*	*122,322*	*33,050*	*81,620*	*114,670*	*236,992*
		Per cent	*30.8*	*16.8*	*72.8*	*37.1*	*33.6*
Females	50 years	Number	64,517	n.p.	n.p.	n.p.	64,604
		Per cent	29.3	n.p.	n.p.	n.p.	29.3
	55 years(b)	Number	2,588	14,034	40,344	54,378	56,966
		Per cent	31.2	16.9	71.1	39.0	38.5
	60 years(b)	Number	1,319	18,507	60,612	79,119	80,438
		Per cent	30.3	20.2	76.3	46.2	45.8
	65 years	Number	70,608	n.p.	n.p.	n.p.	70,736
		Per cent	42.7	n.p.	n.p.	n.p.	42.7
	Total	*Number*	*139,032*	*32,689*	*101,023*	*133,712*	*272,744*
		Per cent	*34.9*	*18.7*	*74.1*	*43.0*	*38.5*
Persons	50 years	Number	120,726	n.p.	n.p.	n.p.	120,899
		Per cent	27.4	n.p.	n.p.	n.p.	27.4
	55 years(b)	Number	4,732	27,585	73,742	101,327	106,059
		Per cent	28.6	15.9	70.3	36.4	35.9
	60 years(b)	Number	2,350	37,855	108,781	146,636	148,986
		Per cent	28.0	19.2	75.9	43.1	42.7
	65 years	Number	133,546	n.p.	n.p.	n.p.	133,792
		Per cent	40.6	n.p.	n.p.	n.p.	40.6
	Total	**Number**	**261,354**	**65,739**	**182,643**	**248,382**	**509,736**
		Per cent	**32.9**	**17.7**	**73.5**	**40.0**	**36.0**

(a) Due to previous manual invitations, pilot program participation, or other reasons, a small number of 50 and 65 year olds were receiving a second invitation in 2013–14. These were excluded from this table.

(b) A small number of 55 and 60 year olds (less than 6% and 3% respectively) were receiving their first invitation in 2013-14. These are likely to be those newly registered at Medicare or DVA after 2008.

Note: Percentages equal people participating as a proportion of the total number of the eligible population who were invited to screen. This includes people who suspended or opted off.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

A2: Faecal occult blood test outcome tables

Table A2.1: FOBT results for correctly completed kits, by age and sex, 2013–14

	FOBT positive		FOBT negative		FOBT inconclusive		Total
	Number	**Per cent**	**Number**	**Per cent**	**Number**	**Per cent**	**Number**
Males							
50 years	3,923	7.1	51,252	92.9	17	—	55,192
55 years	3,384	7.0	44,853	93.0	10	—	48,247
60 years	5,350	7.9	62,175	92.1	13	—	67,538
65 years	6,703	10.8	55,423	89.2	11	—	62,137
Total	*19,360*	*8.3*	*213,703*	*91.7*	*51*	—	*233,114*
Females							
50 years	3,964	6.3	59,352	93.7	17	—	63,333
55 years	3,428	6.1	52,629	93.9	6	—	56,063
60 years	5,211	6.6	74,085	93.4	12	—	79,308
65 years	5,781	8.3	63,776	91.7	7	—	69,564
Total	*18,384*	*6.9*	*249,842*	*93.1*	*42*	—	*268,268*
Persons							
50 years	7,887	6.7	110,604	93.3	34	—	118,525
55 years	6,812	6.5	97,482	93.5	16	—	104,310
60 years	10,561	7.2	136,260	92.8	25	—	146,846
65 years	12,484	9.5	119,199	90.5	18	—	131,701
Total	**37,744**	**7.5**	**463,545**	**92.5**	**93**	**—**	**501,382**

Notes

1. Percentages equal the number of participants with FOBT results in each category in terms of 'positive', 'negative' and 'inconclusive' as a proportion of the total number of participants with correctly completed FOBTs.
2. For participants who returned more than 1 FOBT kit, a positive result was reported over any other result, and a negative result was reported over an inconclusive result.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A2.2: FOBT positivity rates, by screening round, age and sex, 2013–14

Screening round		Positive tests (number)	Valid results (number)	Positivity rate (per cent)
First screen	**Males**			
	50 years	3,921	55,167	7.1
	55 years	1,357	15,191	8.9
	60 years	1,963	19,737	9.9
	65 years	6,698	62,081	10.8
	Total	*13,939*	*152,176*	*9.2*
	Females			
	50 years	3,963	63,308	6.3
	55 years	1,135	16,122	7.0
	60 years	1,487	19,171	7.8
	65 years	5,777	69,499	8.3
	Total	*12,362*	*168,100*	*7.4*
	Persons			
	50 years	7,884	118,475	6.7
	55 years	2,492	31,313	8.0
	60 years	3,450	38,908	8.9
	65 years	12,475	131,580	9.5
	Total	**26,301**	**320,276**	**8.2**
Second screen	**Males**			
	50 years	n.p.	n.p.	n.p.
	55 years	2,027	33,046	6.1
	60 years	3,387	47,788	7.1
	65 years	n.p.	n.p.	n.p.
	Total	*5,421*	*80,887*	*6.7*
	Females			
	50 years	n.p.	n.p.	n.p.
	55 years	2,293	39,935	5.7
	60 years	3,724	60,125	6.2
	65 years	n.p.	n.p.	n.p.
	Total	*6,022*	*100,126*	*6.0*
	Persons			
	50 years	n.p.	n.p.	n.p.
	55 years	4,320	72,981	5.9
	60 years	7,111	107,913	6.6
	65 years	n.p.	n.p.	n.p.
	Total	**11,443**	**181,013**	**6.3**

(continued)

Table A2.2 (continued): FOBT positivity rates, by screening round, age and sex, 2013–14

Screening round		Positive tests (number)	Valid results (number)	Positivity rate (per cent)
All screens	**Males**			
	50 years	3,923	55,175	7.1
	55 years	3,384	48,237	7.0
	60 years	5,350	67,525	7.9
	65 years	6,703	62,126	10.8
	Total	*19,360*	*233,063*	*8.3*
	Females			
	50 years	3,964	63,316	6.3
	55 years	3,428	56,057	6.1
	60 years	5,211	79,296	6.6
	65 years	5,781	69,557	8.3
	Total	*18,384*	*268,226*	*6.9*
	Persons			
	50 years	7,887	118,491	6.7
	55 years	6,812	104,294	6.5
	60 years	10,561	146,821	7.2
	65 years	12,484	131,683	9.5
	Total	**37,744**	**501,289**	**7.5**

Note: Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A2.3: FOBT positivity rates, by state and territory, 2013–14

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males										
50 years	Positive tests	1,203	989	768	426	376	88	51	22	3,923
	Positivity rate	7.0	7.1	7.1	7.1	7.9	7.0	5.4	7.4	7.1
55 years	Positive tests	1,060	823	651	339	324	107	50	30	3,384
	Positivity rate	7.0	6.8	7.0	6.6	7.7	8.7	5.9	8.6	7.0
60 years	Positive tests	1,610	1,291	1,074	599	490	150	95	41	5,350
	Positivity rate	7.7	7.9	8.0	8.3	8.3	8.1	8.1	8.7	7.9
65 years	Positive tests	2,115	1,599	1,401	651	618	199	86	34	6,703
	Positivity rate	10.8	11.0	11.0	10.3	10.7	11.3	8.5	12.2	10.8
Total	*Positive tests*	*5,988*	*4,702*	*3,894*	*2,015*	*1,808*	*544*	*282*	*127*	*19,360*
	Positivity rate	*8.2*	*8.3*	*8.4*	*8.2*	*8.8*	*8.9*	*7.1*	*9.1*	*8.3*
Females										
50 years	Positive tests	1,187	1,082	765	406	355	94	57	18	3,964
	Positivity rate	6.2	6.5	6.3	6.1	6.3	6.1	5.1	5.3	6.3
55 years	Positive tests	1,066	891	616	346	317	106	66	20	3,428
	Positivity rate	6.1	6.3	5.7	6.0	6.4	6.9	6.2	5.6	6.1
60 years	Positive tests	1,610	1,254	1,007	532	524	159	90	35	5,211
	Positivity rate	6.6	6.3	6.5	6.4	7.4	7.1	6.5	7.5	6.6
65 years	Positive tests	1,828	1,426	1,115	543	575	187	89	18	5,781
	Positivity rate	8.5	8.3	8.0	8.0	8.8	8.7	7.6	7.6	8.3
Total	*Positive tests*	*5,691*	*4,653*	*3,503*	*1,827*	*1,771*	*546*	*302*	*91*	*18,384*
	Positivity rate	*6.9*	*6.9*	*6.7*	*6.7*	*7.3*	*7.3*	*6.4*	*6.5*	*6.9*
Persons										
50 years	Positive tests	2,390	2,071	1,533	832	731	182	108	40	7,887
	Positivity rate	6.6	6.8	6.7	6.6	7.0	6.5	5.2	6.3	6.7
55 years	Positive tests	2,126	1,714	1,267	685	641	213	116	50	6,812
	Positivity rate	6.5	6.5	6.3	6.3	7.0	7.7	6.1	7.1	6.5
60 years	Positive tests	3,220	2,545	2,081	1,131	1,014	309	185	76	10,561
	Positivity rate	7.1	7.0	7.2	7.3	7.8	7.5	7.3	8.1	7.2
65 years	Positive tests	3,943	3,025	2,516	1,194	1,193	386	175	52	12,484
	Positivity rate	9.6	9.5	9.4	9.1	9.7	9.9	8.0	10.1	9.5
Total	**Positive tests**	**11,679**	**9,355**	**7,397**	**3,842**	**3,579**	**1,090**	**584**	**218**	**37,744**
	Positivity rate	**7.5**	**7.5**	**7.5**	**7.4**	**8.0**	**8.0**	**6.7**	**7.8**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

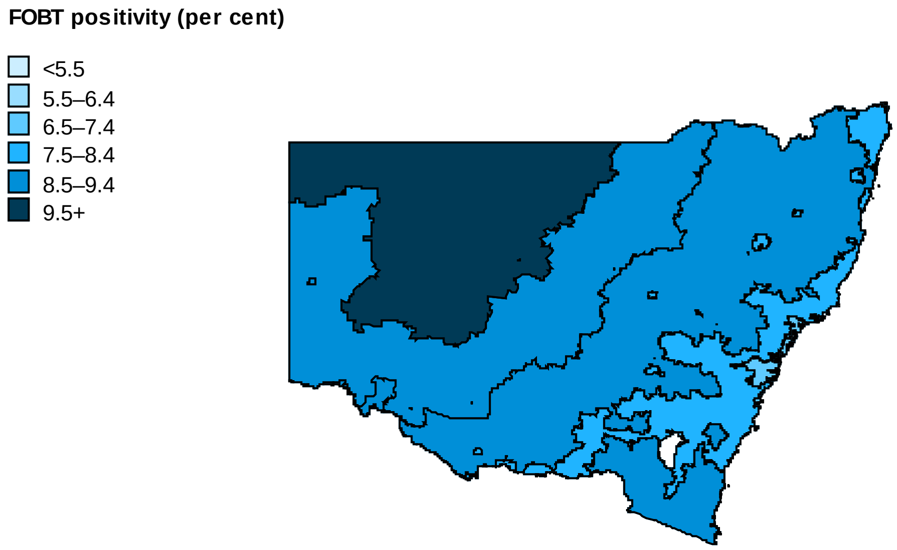
Table A2.4: FOBT positivity rates, by geographical region, 2013–14

		Remoteness area						
		Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Unknown**	**Total**
Males								
50 years	Positive tests	2,698	739	368	57	21	40	3,923
	Positivity rate	6.9	7.2	8.0	9.2	11.3	7.3	7.1
55 years	Positive tests	2,206	712	363	46	19	39	3,384
	Positivity rate	6.8	7.3	8.0	7.6	9.8	7.3	7.0
60 years	Positive tests	3,411	1,185	603	70	28	53	5,350
	Positivity rate	7.8	8.0	8.6	8.3	9.4	6.8	7.9
65 years	Positive tests	4,128	1,594	802	87	32	59	6,703
	Positivity rate	10.5	10.9	12.2	12.3	14.9	9.6	10.8
Total	*Positive tests*	*12,442*	*4,230*	*2,136*	*260*	*100*	*191*	*19,360*
	Positivity rate	*8.0*	*8.5*	*9.4*	*9.4*	*11.2*	*7.7*	*8.3*
Females								
50 years	Positive tests	2,770	769	338	46	11	30	3,964
	Positivity rate	6.3	6.3	6.2	7.0	5.4	6.0	6.3
55 years	Positive tests	2,258	736	356	40	13	26	3,428
	Positivity rate	6.0	6.2	6.7	6.0	5.9	5.0	6.1
60 years	Positive tests	3,352	1,183	557	50	25	44	5,211
	Positivity rate	6.5	6.7	7.2	6.3	8.7	5.8	6.6
65 years	Positive tests	3,661	1,381	622	55	21	40	5,781
	Positivity rate	8.2	8.3	9.0	8.5	12.2	6.6	8.3
Total	*Positive tests*	*12,042*	*4,069*	*1,872*	*191*	*69*	*140*	*18,384*
	Positivity rate	*6.8*	*6.9*	*7.4*	*6.9*	*8.0*	*5.9*	*6.9*
Persons								
50 years	Positive tests	5,468	1,508	706	103	32	70	7,887
	Positivity rate	6.6	6.7	7.0	8.1	8.2	6.7	6.7
55 years	Positive tests	4,463	1,448	719	86	31	65	6,812
	Positivity rate	6.4	6.7	7.3	6.8	7.8	6.2	6.5
60 years	Positive tests	6,763	2,368	1,160	120	53	97	10,561
	Positivity rate	7.1	7.3	7.8	7.3	9.1	6.3	7.2
65 years	Positive tests	7,789	2,976	1,424	143	53	99	12,484
	Positivity rate	9.3	9.5	10.6	10.5	13.7	8.1	9.5
Total	**Positive tests**	**24,484**	**8,299**	**4,009**	**452**	**169**	**331**	**37,744**
	Positivity rate	**7.4**	**7.7**	**8.3**	**8.2**	**9.6**	**6.8**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.
3. The residential postcodes of participants were mapped to remoteness areas in the 2011 Australian Statistical Geography Standard remoteness structure through a postal area correspondence. Those that could not be mapped were included in the 'Unknown' column.
4. Discrepancies may occur between totals and sums of the component items due to rounding—see 'Geographical classification', Appendix C.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

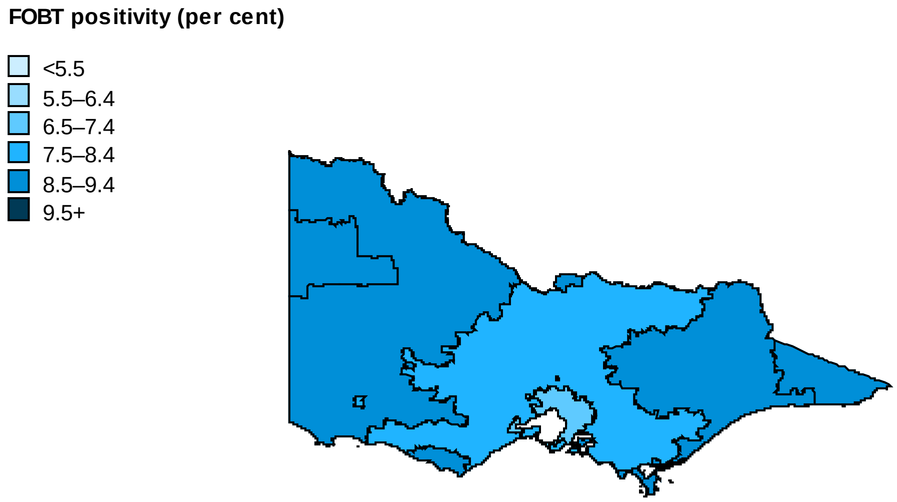


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1a: FOBT positivity, by remoteness area, New South Wales, 2013–14

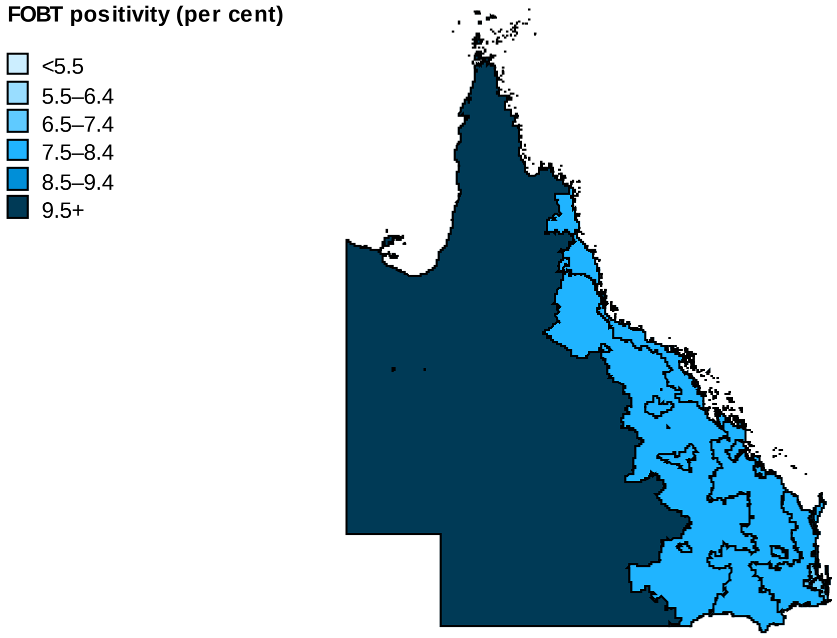


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1b: FOBT positivity, by remoteness area, Victoria, 2013–14

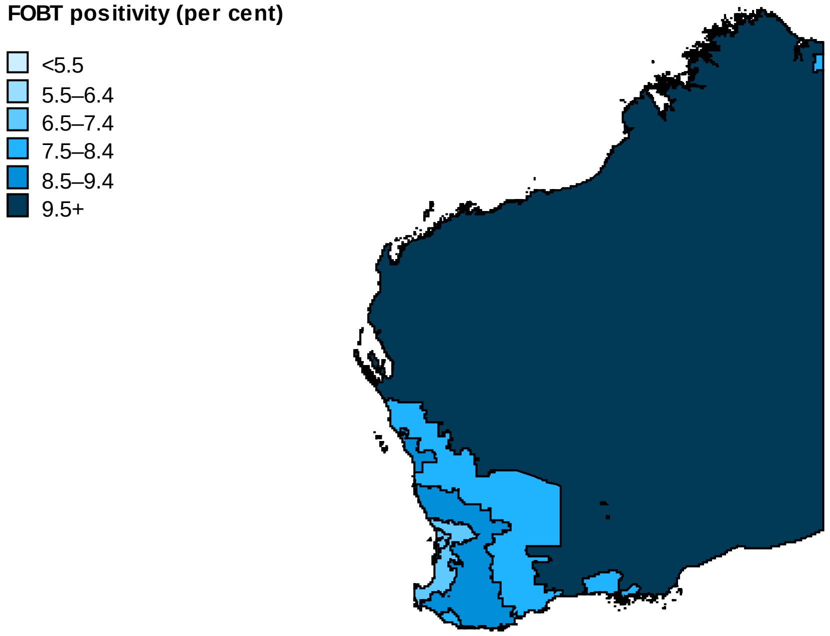


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1c: FOBT positivity, by remoteness area, Queensland, 2013–14

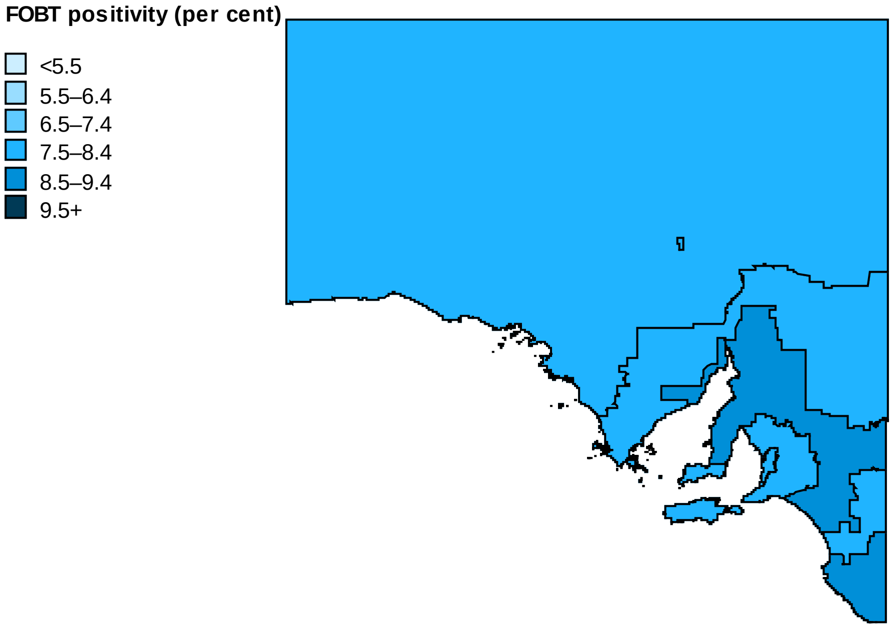


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1d: FOBT positivity, by remoteness area, Western Australia, 2013–14

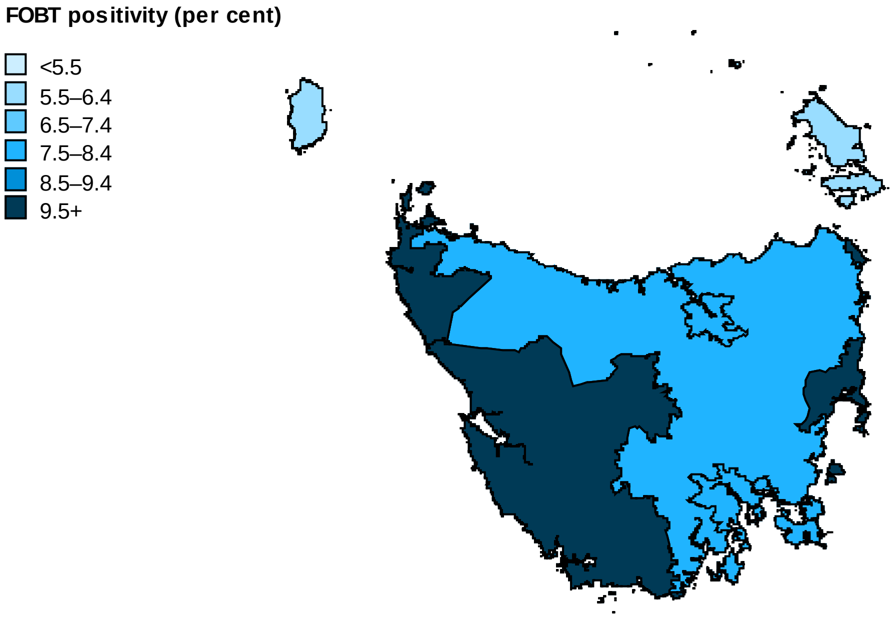


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1e: FOBT positivity, by remoteness area, South Australia, 2013–14

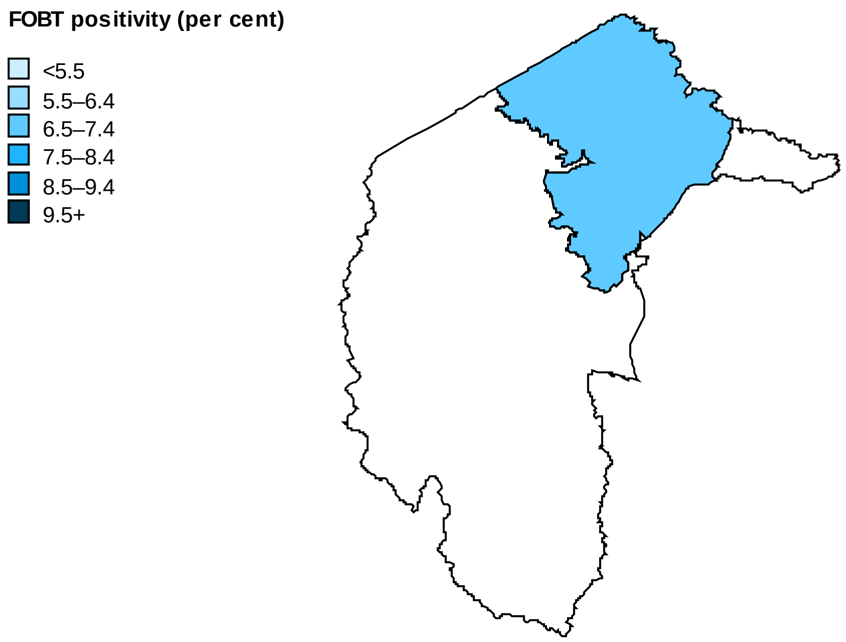


Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1f: FOBT positivity, by remoteness area, Tasmania, 2013–14

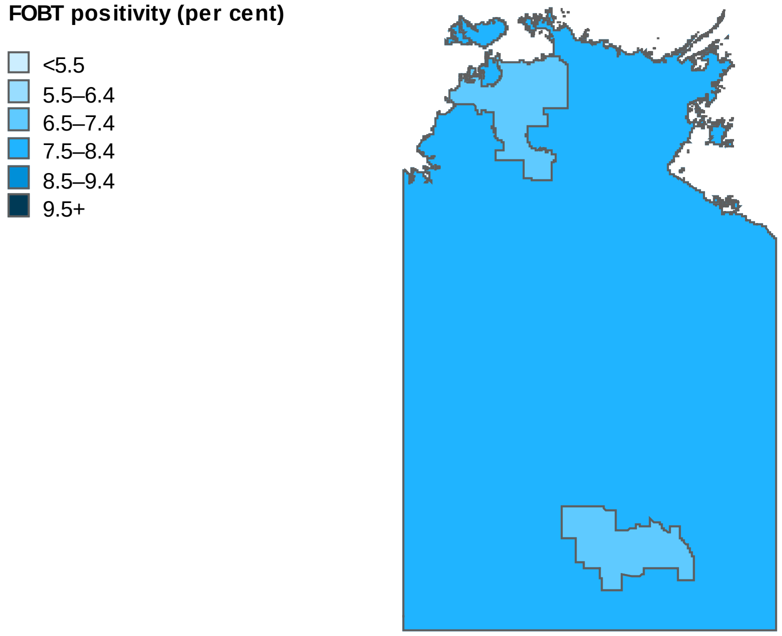


Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of positivity across that remoteness area.
3. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1g: FOBT positivity, by remoteness area, Australian Capital Territory, 2013–14



Notes

1. Rate per remoteness area is an average of positivity across that remoteness area.
2. Positivity rates rounded to 1 decimal place.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A2.1h: FOBT positivity, by remoteness area, Northern Territory, 2013–14

Table A2.5: FOBT positivity rates, by socioeconomic status area, 2013–14

		Socioeconomic status area						
		1 (lowest)	2	3	4	5 (highest)	Unknown	Total
Males								
50 years	Positive tests	791	743	757	798	787	47	3,923
	Positivity rate	8.4	7.6	7.0	6.8	6.2	6.6	7.1
55 years	Positive tests	715	721	709	604	591	44	3,384
	Positivity rate	8.0	7.7	7.5	6.3	5.8	6.5	7.0
60 years	Positive tests	1,127	1,145	1,031	1,054	927	66	5,350
	Positivity rate	8.9	8.3	7.8	7.9	6.8	6.7	7.9
65 years	Positive tests	1,512	1,458	1,356	1,223	1,076	78	6,703
	Positivity rate	12.5	11.2	11.2	10.3	8.8	9.9	10.8
Total	*Positive tests*	*4,145*	*4,067*	*3,853*	*3,679*	*3,381*	*235*	*19,360*
	Positivity rate	*9.6*	*8.8*	*8.5*	*7.9*	*6.9*	*7.4*	*8.3*
Females								
50 years	Positive tests	738	764	750	854	822	36	3,964
	Positivity rate	7.0	6.6	6.1	6.4	5.6	5.2	6.3
55 years	Positive tests	726	697	651	663	658	33	3,428
	Positivity rate	7.2	6.5	6.0	5.8	5.4	5.0	6.1
60 years	Positive tests	1,078	1,118	1,001	971	981	62	5,211
	Positivity rate	7.4	6.9	6.4	6.2	6.0	6.3	6.6
65 years	Positive tests	1,269	1,267	1,157	1,035	997	56	5,781
	Positivity rate	9.5	8.6	8.6	7.8	7.1	7.3	8.3
Total	*Positive tests*	*3,811*	*3,846*	*3,559*	*3,523*	*3,458*	*187*	*18,384*
	Positivity rate	*7.8*	*7.2*	*6.8*	*6.6*	*6.0*	*6.0*	*6.9*
Persons								
50 years	Positive tests	1,529	1,507	1,507	1,652	1,609	83	7,887
	Positivity rate	7.6	7.0	6.5	6.6	5.9	5.9	6.7
55 years	Positive tests	1,441	1,418	1,360	1,267	1,249	77	6,812
	Positivity rate	7.6	7.0	6.7	6.0	5.6	5.8	6.5
60 years	Positive tests	2,205	2,263	2,032	2,025	1,908	128	10,561
	Positivity rate	8.1	7.6	7.0	7.0	6.4	6.5	7.2
65 years	Positive tests	2,781	2,725	2,513	2,258	2,073	134	12,484
	Positivity rate	10.9	9.8	9.8	9.0	7.9	8.6	9.5
Total	**Positive tests**	**7,956**	**7,913**	**7,412**	**7,202**	**6,839**	**422**	**37,744**
	Positivity rate	**8.7**	**8.0**	**7.6**	**7.2**	**6.5**	**6.7**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.
3. A participant's socioeconomic status area was classified by mapping their residential postcode (through a postal area) to the ABS IRSD for 2011. Those that could not be mapped were included in the 'Unknown' column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A2.6: FOBT positivity rates, by Aboriginal and Torres Strait Islander status, 2013–14

		Indigenous	Non-Indigenous	Not stated	Total
Males					
50 years	Positive tests	73	3,691	159	3,923
	Positivity rate	13.6	7.0	8.3	7.1
55 years	Positive tests	58	3,253	73	3,384
	Positivity rate	12.1	6.9	8.8	7.0
60 years	Positive tests	86	5,127	137	5,350
	Positivity rate	14.4	7.8	11.0	7.9
65 years	Positive tests	86	6,348	269	6,703
	Positivity rate	16.1	10.6	13.6	10.8
Total	*Positive tests*	*303*	*18,419*	*638*	*19,360*
	Positivity rate	*14.1*	*8.2*	*10.7*	*8.3*
Females					
50 years	Positive tests	54	3,806	104	3,964
	Positivity rate	8.2	6.2	7.5	6.3
55 years	Positive tests	40	3,324	64	3,428
	Positivity rate	7.7	6.1	9.5	6.1
60 years	Positive tests	67	5,071	73	5,211
	Positivity rate	10.0	6.5	7.7	6.6
65 years	Positive tests	90	5,539	152	5,781
	Positivity rate	15.3	8.2	9.4	8.3
Total	*Positive tests*	*251*	*17,740*	*393*	*18,384*
	Positivity rate	*10.3*	*6.8*	*8.5*	*6.9*
Persons					
50 years	Positive tests	127	7,497	263	7,887
	Positivity rate	10.6	6.6	8.0	6.7
55 years	Positive tests	98	6,577	137	6,812
	Positivity rate	9.8	6.5	9.2	6.5
60 years	Positive tests	153	10,198	210	10,561
	Positivity rate	12.1	7.1	9.6	7.2
65 years	Positive tests	176	11,887	421	12,484
	Positivity rate	15.7	9.4	11.7	9.5
Total	**Positive tests**	**554**	**36,159**	**1,031**	**37,744**
	Positivity rate	**12.1**	**7.4**	**9.7**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.
3. NBCSP Aboriginal and Torres Strait Islander status was reported by the participant on the returned participant details form. Participants who did not indicate Aboriginal and Torres Strait Islander status were included in the ‘Not stated’ column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A2.7: FOBT positivity rates, by language spoken at home, 2013–14

		Language other than English	English	Total
Males				
50 years	Positive tests	635	3,288	3,923
	Positivity rate	7.8	7.0	7.1
55 years	Positive tests	527	2,857	3,384
	Positivity rate	7.0	7.0	7.0
60 years	Positive tests	771	4,579	5,350
	Positivity rate	8.1	7.9	7.9
65 years	Positive tests	820	5,883	6,703
	Positivity rate	11.0	10.8	10.8
Total	*Positive tests*	*2,753*	*16,607*	*19,360*
	Positivity rate	*8.4*	*8.3*	*8.3*
Females				
50 years	Positive tests	724	3,240	3,964
	Positivity rate	6.9	6.1	6.3
55 years	Positive tests	601	2,827	3,428
	Positivity rate	6.6	6.0	6.1
60 years	Positive tests	860	4,351	5,211
	Positivity rate	7.4	6.4	6.6
65 years	Positive tests	778	5,003	5,781
	Positivity rate	9.4	8.2	8.3
Total	*Positive tests*	*2,963*	*15,421*	*18,384*
	Positivity rate	*7.5*	*6.7*	*6.9*
Persons				
50 years	Positive tests	1,359	6,528	7,887
	Positivity rate	7.3	6.5	6.7
55 years	Positive tests	1,128	5,684	6,812
	Positivity rate	6.8	6.5	6.5
60 years	Positive tests	1,631	8,930	10,561
	Positivity rate	7.7	7.1	7.2
65 years	Positive tests	1,598	10,886	12,484
	Positivity rate	10.1	9.4	9.5
Total	**Positive tests**	**5,716**	**32,028**	**37,744**
	Positivity rate	**7.9**	**7.5**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.
3. NBCSP preferred language spoken at home was reported by the participant on the returned participant details form. Participants who did not indicate preferred language spoken at home were assumed to speak English.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A2.8: FOBT positivity rates, by disability status, 2013–14

		Severe or profound activity limitation	No severe or profound activity limitation	Not stated	Total
Males					
50 years	Positive tests	240	3,435	248	3,923
	Positivity rate	12.3	7.0	6.0	7.1
55 years	Positive tests	221	2,988	175	3,384
	Positivity rate	11.5	7.0	5.0	7.0
60 years	Positive tests	403	4,655	292	5,350
	Positivity rate	12.3	7.8	6.3	7.9
65 years	Positive tests	629	5,739	335	6,703
	Positivity rate	15.9	10.6	8.1	10.8
Total	*Positive tests*	*1,493*	*16,817*	*1,050*	*19,360*
	Positivity rate	*13.4*	*8.2*	*6.4*	*8.3*
Females					
50 years	Positive tests	258	3,544	162	3,964
	Positivity rate	9.5	6.2	4.5	6.3
55 years	Positive tests	267	3,002	159	3,428
	Positivity rate	9.8	6.0	5.2	6.1
60 years	Positive tests	442	4,556	213	5,211
	Positivity rate	10.6	6.4	5.3	6.6
65 years	Positive tests	501	5,049	231	5,781
	Positivity rate	12.6	8.1	6.8	8.3
Total	*Positive tests*	*1,468*	*16,151*	*765*	*18,384*
	Positivity rate	*10.8*	*6.7*	*5.4*	*6.9*
Persons					
50 years	Positive tests	498	6,979	410	7,887
	Positivity rate	10.7	6.6	5.3	6.7
55 years	Positive tests	488	5,990	334	6,812
	Positivity rate	10.5	6.4	5.1	6.5
60 years	Positive tests	845	9,211	505	10,561
	Positivity rate	11.4	7.0	5.8	7.2
65 years	Positive tests	1,130	10,788	566	12,484
	Positivity rate	14.3	9.3	7.5	9.5
Total	**Positive tests**	**2,961**	**32,968**	**1,815**	**37,744**
	Positivity rate	**12.0**	**7.4**	**5.9**	**7.5**

Notes

1. Positive tests equal the number of FOBTs that returned a positive result.
2. Positivity rate equals the number of participants with positive FOBT results as a percentage of the total number of participants with valid results. A valid result was either positive or negative; inconclusive results were excluded.
3. NBCSP disability status was reported by the participant on the participant details form. Participants who did not indicate disability status are included in the 'Not stated' column.
4. A 'profound' activity limitation indicates that a person always needs assistance with self-care, movement and/or communications activities. A 'severe' activity limitation indicates that a person sometimes needs assistance with these activities.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

A3: Primary health-care practitioner (PHCP) and colonoscopy follow-up tables and figures

Table A3.1: Crude PHCP follow-up after a positive FOBT result, by state and territory, 2013–14

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males										
50 years	Number	727	486	409	234	235	57	24	8	2,180
	Per cent	60.4	49.1	53.3	54.9	62.5	n.p.	n.p.	n.p.	55.6
55 years	Number	680	401	374	218	190	75	20	7	1,965
	Per cent	64.2	48.7	57.5	64.3	58.6	70.1	n.p.	n.p.	58.1
60 years	Number	1,033	702	616	373	323	101	52	19	3,219
	Per cent	64.2	54.4	57.4	62.3	65.9	67.3	n.p.	n.p.	60.2
65 years	Number	1,371	841	916	425	409	135	40	17	4,154
	Per cent	64.8	52.6	65.4	65.3	66.2	67.8	n.p.	n.p.	62.0
Total	*Number*	*3,811*	*2,430*	*2,315*	*1,250*	*1,157*	*368*	*136*	*51*	*11,518*
	Per cent	*63.6*	*51.7*	*59.5*	*62.0*	*64.0*	*67.6*	*48.2*	*40.2*	*59.5*
Females										
50 years	Number	759	582	478	258	240	62	31	10	2,420
	Per cent	63.9	53.8	62.5	63.5	67.6	n.p.	n.p.	n.p.	61.0
55 years	Number	719	474	392	223	195	68	38	10	2,119
	Per cent	67.4	53.2	63.6	64.5	61.5	64.2	n.p.	n.p.	61.8
60 years	Number	1,105	709	662	350	350	117	52	17	3,362
	Per cent	68.6	56.5	65.7	65.8	66.8	73.6	n.p.	n.p.	64.5
65 years	Number	1,246	843	744	371	403	128	50	11	3,796
	Per cent	68.2	59.1	66.7	68.3	70.1	68.4	n.p.	n.p.	65.7
Total	*Number*	*3,829*	*2,608*	*2,276*	*1,202*	*1,188*	*375*	*171*	*48*	*11,697*
	Per cent	*67.3*	*56.0*	*65.0*	*65.8*	*67.1*	*68.7*	*56.6*	*n.p.*	*63.6*
Persons										
50 years	Number	1,486	1,068	887	492	475	119	55	18	4,600
	Per cent	62.2	51.6	57.9	59.1	65.0	65.4	50.9	n.p.	58.3
55 years	Number	1,399	875	766	441	385	143	58	17	4,084
	Per cent	65.8	51.1	60.5	64.4	60.1	67.1	50.0	n.p.	60.0
60 years	Number	2,138	1,411	1,278	723	673	218	104	36	6,581
	Per cent	66.4	55.4	61.4	63.9	66.4	70.6	56.2	n.p.	62.3
65 years	Number	2,617	1,684	1,660	796	812	263	90	28	7,950
	Per cent	66.4	55.7	66.0	66.7	68.1	68.1	51.4	n.p.	63.7
Total	**Number**	**7,640**	**5,038**	**4,591**	**2,452**	**2,345**	**743**	**307**	**99**	**23,215**
	Per cent	**65.4**	**53.9**	**62.1**	**63.8**	**65.5**	**68.2**	**52.6**	**45.4**	**61.5**

Notes

1. Percentages equal the number of people having consulted a primary health-care practitioner (PHCP) after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.

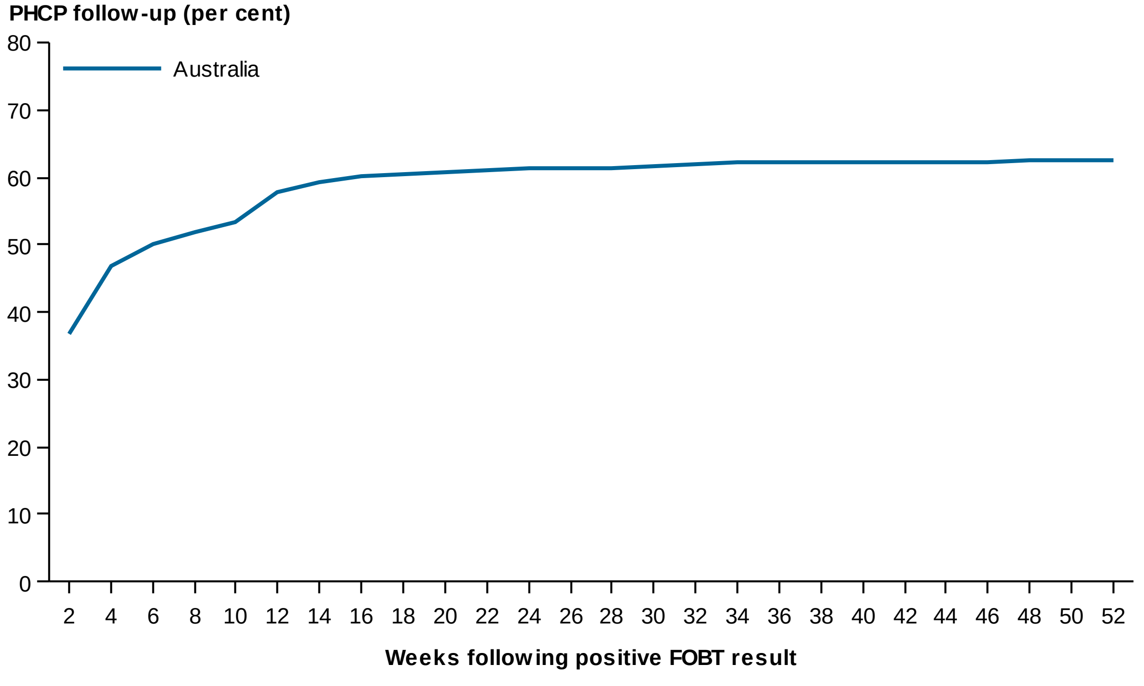
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.2: Kaplan–Meier PHCP follow-up at 26 and 52 weeks after a positive FOBT, by state and territory, 2013–14

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
26 weeks									
PHCP follow-up (per cent)	64.9	54.1	62.0	63.7	65.3	67.8	53.1	45.4	61.4
95% confidence interval	64.0–65.8	53.0–55.1	60.9–63.1	62.2–65.2	63.7–66.8	65.0–70.6	49.0–57.1	38.7–52.0	60.9–61.8
52 weeks									
PHCP follow-up (per cent)	66.7	54.7	62.8	64.9	66.2	68.6	53.8	51.4	62.5
95% confidence interval	65.8–67.5	53.6–55.7	61.7–63.9	63.4–66.5	64.7–67.8	65.9–71.4	49.6–58.0	38.8–64.1	62.0–62.9

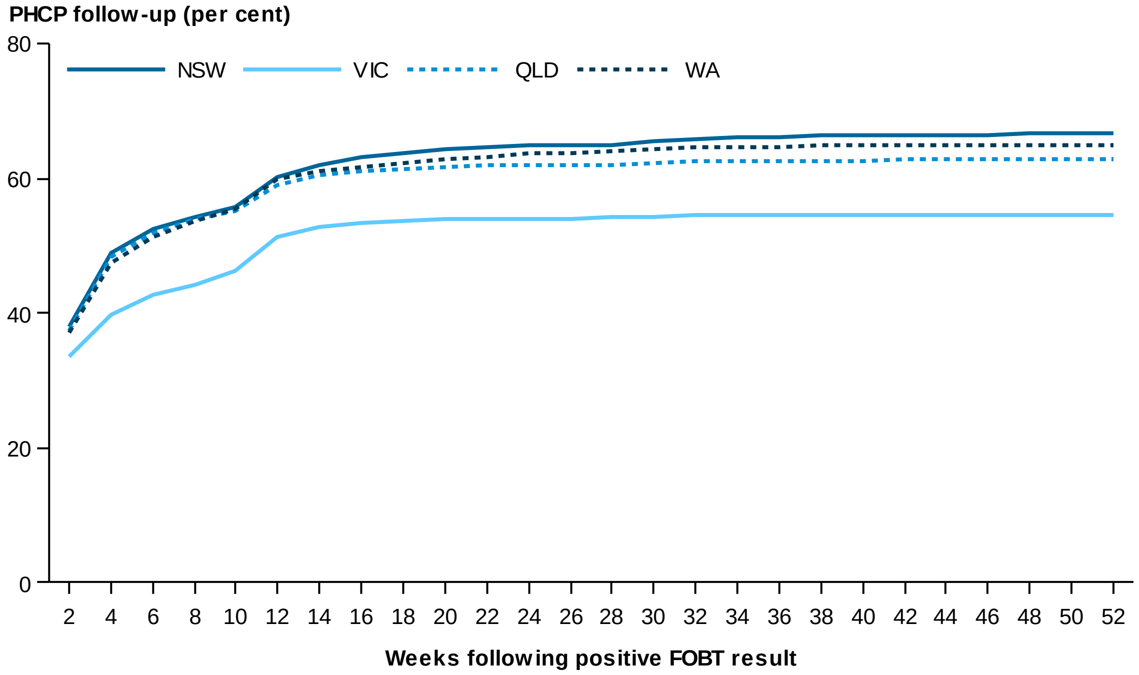
Note: PHCP follow-up rates equal the estimated Kaplan–Meier follow-up rate of people who consulted a PHCP as a proportion of the total number of people with positive FOBT results.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.



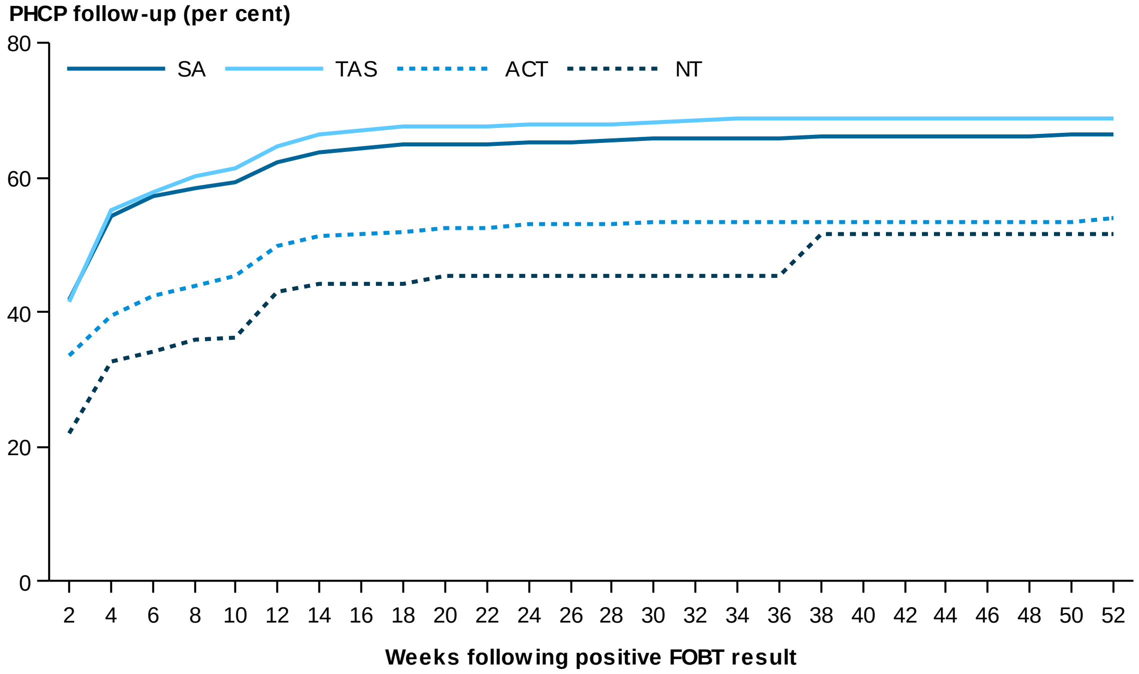
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.1a: PHCP follow-up rate after positive FOBT, using Kaplan–Meier estimates, Australia, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.1b: PHCP follow-up rate after positive FOBT, using Kaplan–Meier estimates, New South Wales, Victoria, Queensland and Western Australia, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.1c: PHCP follow-up rate after positive FOBT, using Kaplan–Meier estimates, South Australia, Tasmania, Australian Capital Territory and Northern Territory, 2013–14

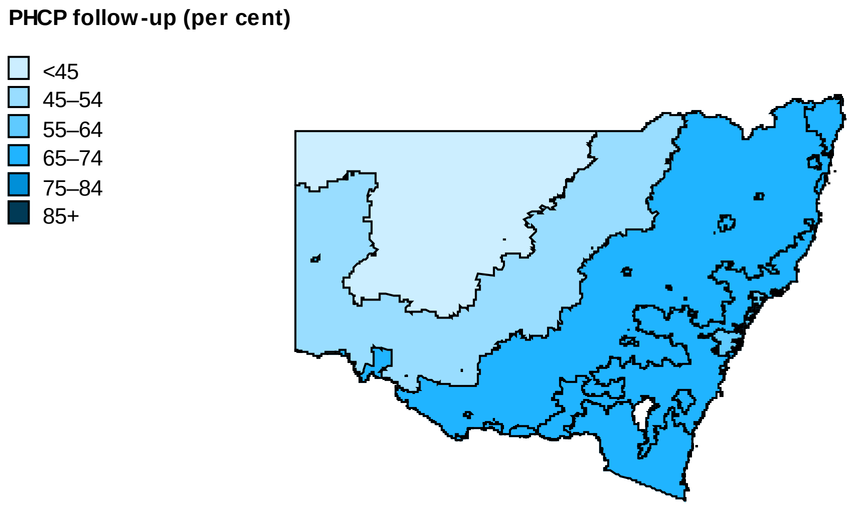
Table A3.3: Crude PHCP follow-up after a positive FOBT result, by remoteness area, 2013–14

		Remoteness area						
		Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Unknown**	**Total**
Males								
50 years	Number	1,458	452	210	30	9	20	2,180
	Per cent	54.0	61.3	57.2	n.p.	n.p.	n.p.	55.6
55 years	Number	1,245	445	210	29	14	21	1,965
	Per cent	56.5	62.6	58.0	n.p.	n.p.	n.p.	58.1
60 years	Number	1,997	751	385	42	15	29	3,219
	Per cent	58.5	63.4	63.8	n.p.	n.p.	n.p.	60.2
65 years	Number	2,492	1,012	543	51	19	36	4,154
	Per cent	60.4	63.5	67.7	n.p.	n.p.	n.p.	62.0
Total	*Number*	*7,192*	*2,661*	*1,349*	*153*	*57*	*106*	*11,518*
	Per cent	*57.8*	*62.9*	*63.2*	*58.6*	*57.0*	*55.5*	*59.5*
Females								
50 years	Number	1,637	497	229	33	7	17	2,420
	Per cent	59.1	64.7	67.7	n.p.	n.p.	n.p.	61.0
55 years	Number	1,360	472	237	26	5	17	2,119
	Per cent	60.3	64.2	66.7	n.p.	n.p.	n.p.	61.8
60 years	Number	2,125	792	373	34	9	29	3,362
	Per cent	63.4	66.9	66.9	n.p.	n.p.	n.p.	64.5
65 years	Number	2,362	924	440	35	10	25	3,796
	Per cent	64.5	66.9	70.9	n.p.	n.p.	n.p.	65.7
Total	*Number*	*7,484*	*2,686*	*1,279*	*128*	*32*	*88*	*11,697*
	Per cent	*62.2*	*66.0*	*68.3*	*67.0*	*n.p.*	*62.9*	*63.6*
Persons								
50 years	Number	3,096	950	439	63	16	37	4,600
	Per cent	56.6	63.0	62.2	61.1	n.p.	n.p.	58.3
55 years	Number	2,606	918	448	55	19	38	4,084
	Per cent	58.4	63.4	62.3	n.p.	n.p.	n.p.	60.0
60 years	Number	4,122	1,543	757	77	24	58	6,581
	Per cent	60.9	65.1	65.3	63.8	n.p.	n.p.	62.3
65 years	Number	4,854	1,936	984	86	29	61	7,950
	Per cent	62.3	65.1	69.1	60.4	n.p.	n.p.	63.7
Total	**Number**	**14,677**	**5,347**	**2,628**	**281**	**89**	**194**	**23,215**
	Per cent	**59.9**	**64.4**	**65.6**	**62.2**	**52.4**	**58.6**	**61.5**

Notes

1. Percentages equal the number of people having consulted a PHCP after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.
3. The residential postcodes of participants were mapped to remoteness areas in the 2011 Australian Statistical Geography Standard remoteness structure through a postal area correspondence. Those that could not be mapped were included in the ‘Unknown’ column.
4. Discrepancies may occur between totals and sums of the component items due to rounding—see ‘Geographical classification’, Appendix C.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

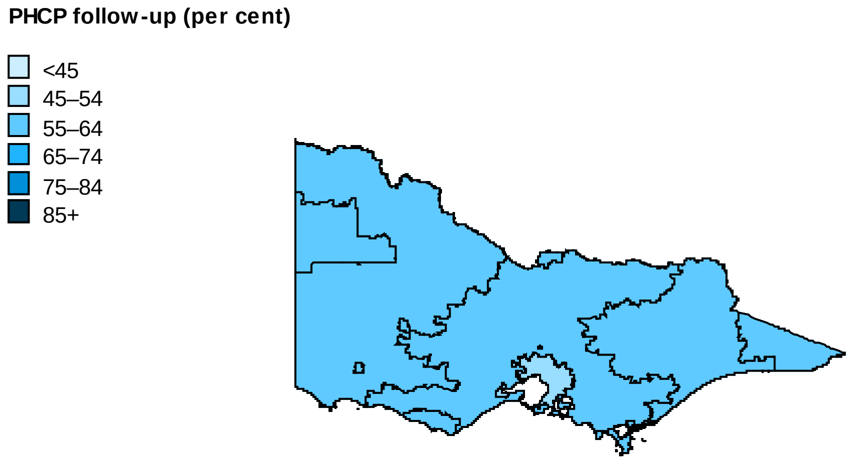


Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
3. PHCP follow-up rates rounded to integers.
4. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2a: PHCP follow-up, by remoteness area, New South Wales, 2013–14

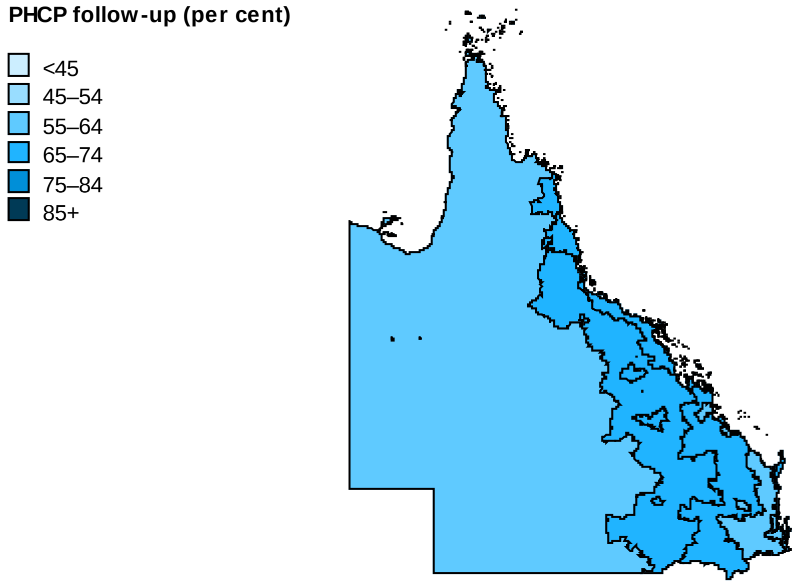


Notes

1. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
2. PHCP follow-up rates rounded to integers.
3. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2b: PHCP follow-up, by remoteness area, Victoria, 2013–14

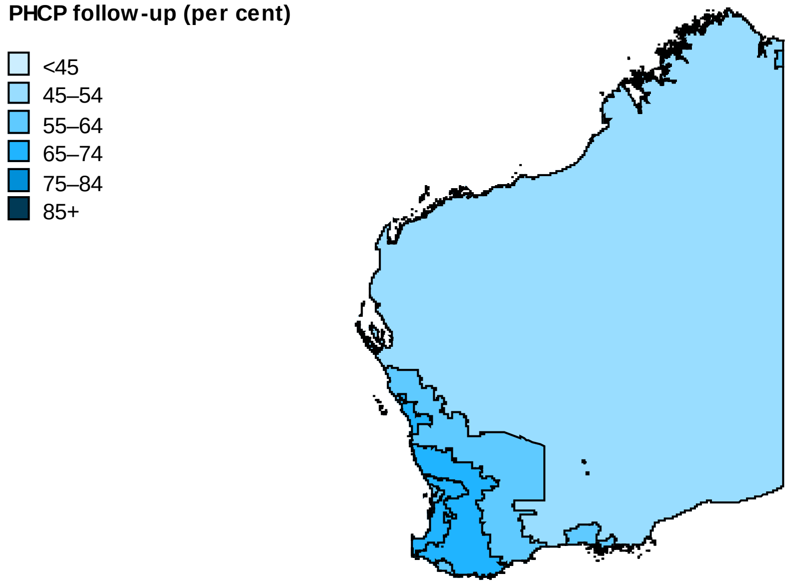


Notes

1. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
2. PHCP follow-up rates rounded to integers.
3. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2c: PHCP follow-up, by remoteness area, Queensland, 2013–14

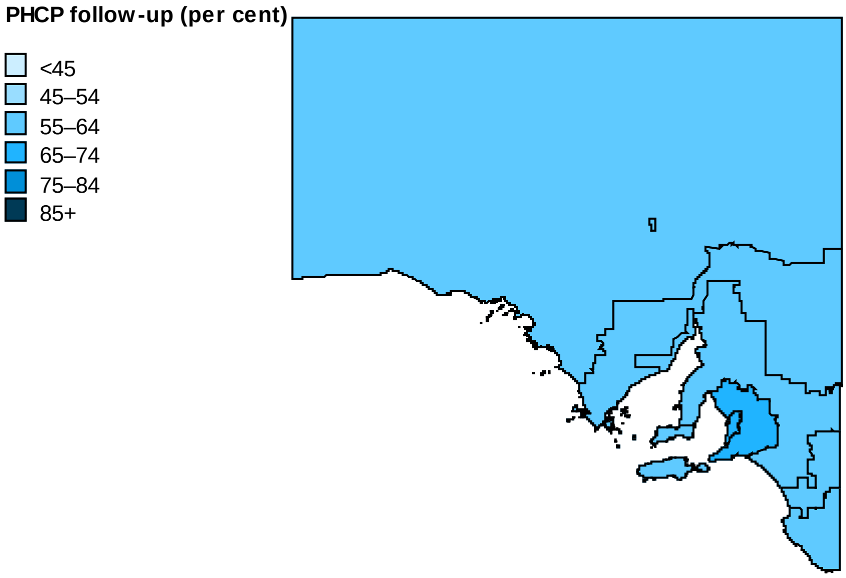


Notes

1. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
2. PHCP follow-up rates rounded to integers.
3. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2d: PHCP follow-up, by remoteness area, Western Australia, 2013–14

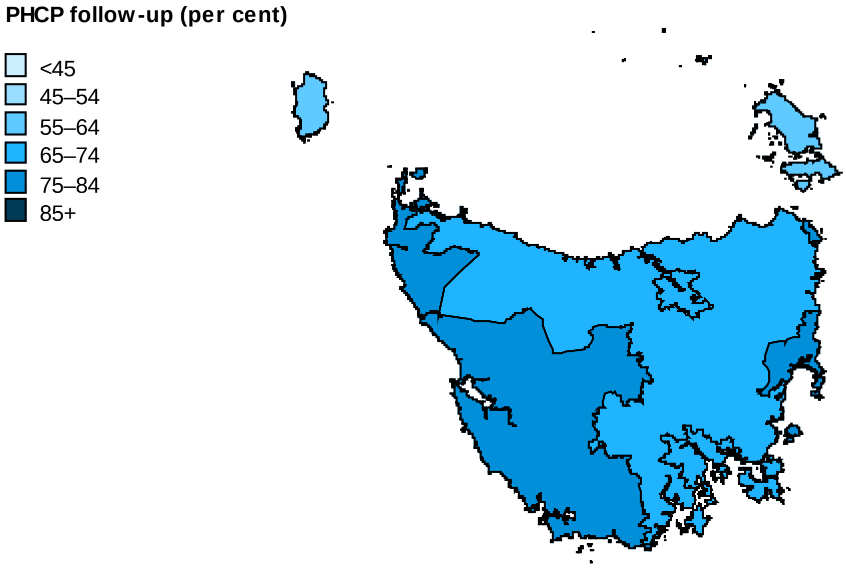


Notes

1. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
2. PHCP follow-up rates rounded to integers.
3. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2e: PHCP follow-up, by remoteness area, South Australia, 2013–14

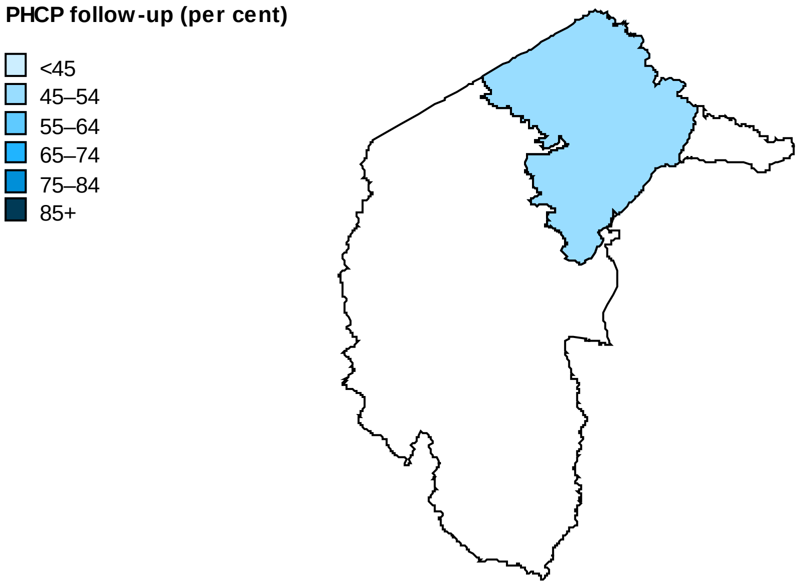


Notes

1. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
2. PHCP follow-up rates rounded to integers.
3. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2f: PHCP follow-up, by remoteness area, Tasmania, 2013–14

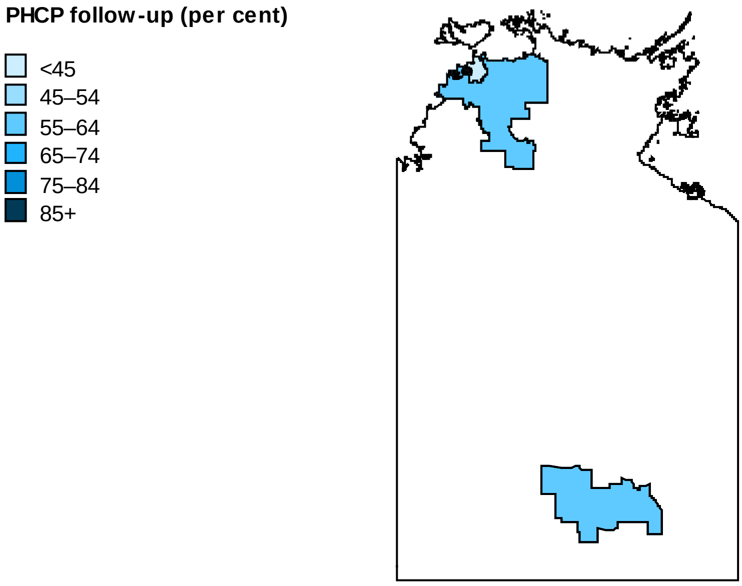


Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
3. PHCP follow-up rates rounded to integers.
4. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2g: PHCP follow-up, by remoteness area, Australian Capital Territory, 2013–14



Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of PHCP follow-up reported across that remoteness area.
3. PHCP follow-up rates rounded to integers.
4. Differences in PHCP follow-up rates across remoteness areas may involve differences in assessment form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.2h: PHCP follow-up, by remoteness area, Northern Territory, 2013–14

Table A3.4: Crude PHCP follow-up after a positive FOBT result, by socioeconomic status area, 2013–14

		Socioeconomic status area						
		1 (lowest)	**2**	**3**	**4**	**5 (highest)**	**Unknown**	**Total**
Males								
50 years	Number	454	431	422	418	431	24	2,180
	Per cent	57.4	58.0	55.7	52.4	54.8	n.p.	55.6
55 years	Number	386	449	428	331	345	26	1,965
	Per cent	54.0	62.3	60.4	54.8	58.4	n.p.	58.1
60 years	Number	679	725	619	609	550	37	3,219
	Per cent	60.2	63.3	60.0	57.8	59.3	n.p.	60.2
65 years	Number	970	904	833	737	664	46	4,154
	Per cent	64.2	62.0	61.4	60.3	61.7	n.p.	62.0
Total	*Number*	*2,489*	*2,509*	*2,302*	*2,095*	*1,990*	*133*	*11,518*
	Per cent	*60.0*	*61.7*	*59.7*	*56.9*	*58.9*	*56.6*	*59.5*
Females								
50 years	Number	467	463	467	516	487	20	2,420
	Per cent	63.3	60.6	62.3	60.4	59.2	n.p.	61.0
55 years	Number	441	437	411	409	400	21	2,119
	Per cent	60.7	62.7	63.1	61.7	60.8	n.p.	61.8
60 years	Number	672	756	654	592	645	43	3,362
	Per cent	62.3	67.6	65.3	61.0	65.7	n.p.	64.5
65 years	Number	816	853	764	667	659	37	3,796
	Per cent	64.3	67.3	66.0	64.4	66.1	n.p.	65.7
Total	*Number*	*2,396*	*2,509*	*2,296*	*2,184*	*2,191*	*121*	*11,697*
	Per cent	*62.9*	*65.2*	*64.5*	*62.0*	*63.4*	*64.7*	*63.6*
Persons								
50 years	Number	921	894	889	934	918	44	4,600
	Per cent	60.2	59.3	59.0	56.5	57.1	n.p.	58.3
55 years	Number	827	886	839	740	745	47	4,084
	Per cent	57.4	62.5	61.7	58.4	59.6	n.p.	60.0
60 years	Number	1,351	1,481	1,273	1,201	1,195	80	6,581
	Per cent	61.3	65.4	62.6	59.3	62.6	62.5	62.3
65 years	Number	1,786	1,757	1,597	1,404	1,323	83	7,950
	Per cent	64.2	64.5	63.5	62.2	63.8	61.9	63.7
Total	**Number**	**4,885**	**5,018**	**4,598**	**4,279**	**4,181**	**254**	**23,215**
	Per cent	**61.4**	**63.4**	**62.0**	**59.4**	**61.1**	**60.2**	**61.5**

Notes

1. Percentages equal the number of people having consulted a PHCP after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.
3. A participant's socioeconomic status area was classified by mapping their residential postcode (through a postal area) to the ABS IRSD for 2011. Those that could not be mapped were included in the 'Unknown' column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.5: Crude PHCP follow-up after a positive FOBT result, by Aboriginal and Torres Strait Islander status, 2013–14

		Indigenous	Non-Indigenous	Not stated	Total
Males					
50 years	Number	43	2,099	38	2,180
	Per cent	n.p.	56.9	23.9	55.6
55 years	Number	32	1,915	18	1,965
	Per cent	n.p.	58.9	n.p.	58.1
60 years	Number	54	3,127	38	3,219
	Per cent	n.p.	61.0	27.7	60.2
65 years	Number	59	4,017	78	4,154
	Per cent	n.p.	63.3	29.0	62.0
Total	*Number*	*188*	*11,158*	*172*	*11,518*
	Per cent	*62.0*	*60.6*	*27.0*	*59.5*
Females					
50 years	Number	30	2,365	25	2,420
	Per cent	n.p.	62.1	24.0	61.0
55 years	Number	19	2,073	27	2,119
	Per cent	n.p.	62.4	n.p.	61.8
60 years	Number	45	3,292	25	3,362
	Per cent	n.p.	64.9	n.p.	64.5
65 years	Number	60	3,677	59	3,796
	Per cent	n.p.	66.4	38.8	65.7
Total	*Number*	*154*	*11,407*	*136*	*11,697*
	Per cent	*61.4*	*64.3*	*34.6*	*63.6*
Persons					
50 years	Number	73	4,464	63	4,600
	Per cent	57.5	59.5	24.0	58.3
55 years	Number	51	3,988	45	4,084
	Per cent	n.p.	60.6	32.8	60.0
60 years	Number	99	6,419	63	6,581
	Per cent	64.7	62.9	30.0	62.3
65 years	Number	119	7,694	137	7,950
	Per cent	67.6	64.7	32.5	63.7
Total	**Number**	**342**	**22,565**	**308**	**23,215**
	Per cent	**61.7**	**62.4**	**29.9**	**61.5**

Notes

1. Percentages equal the number of people having consulted a PHCP after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.
3. NBCSP Aboriginal and Torres Strait Islander status was reported by the participant on the returned participant details form. Participants who did not indicate Aboriginal and Torres Strait Islander status were included in the 'Not stated' column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.6: Crude PHCP follow-up after a positive FOBT result, by language spoken at home, 2013–14

		Language other than English	English	Total
Males				
50 years	Number	342	1,838	2,180
	Per cent	53.9	55.9	55.6
55 years	Number	306	1,659	1,965
	Per cent	58.1	58.1	58.1
60 years	Number	454	2,765	3,219
	Per cent	58.9	60.4	60.2
65 years	Number	470	3,684	4,154
	Per cent	57.3	62.6	62.0
Total	*Number*	*1,572*	*9,946*	*11,518*
	Per cent	*57.1*	*59.9*	*59.5*
Females				
50 years	Number	413	2,007	2,420
	Per cent	57.0	61.9	61.0
55 years	Number	343	1,776	2,119
	Per cent	57.1	62.8	61.8
60 years	Number	558	2,804	3,362
	Per cent	64.9	64.4	64.5
65 years	Number	479	3,317	3,796
	Per cent	61.6	66.3	65.7
Total	*Number*	*1,793*	*9,904*	*11,697*
	Per cent	*60.5*	*64.2*	*63.6*
Persons				
50 years	Number	755	3,845	4,600
	Per cent	55.6	58.9	58.3
55 years	Number	649	3,435	4,084
	Per cent	57.5	60.4	60.0
60 years	Number	1,012	5,569	6,581
	Per cent	62.0	62.4	62.3
65 years	Number	949	7,001	7,950
	Per cent	59.4	64.3	63.7
Total	**Number**	**3,365**	**19,850**	**23,215**
	Per cent	**58.9**	**62.0**	**61.5**

Notes

1. Percentages equal the number of people having consulted a PHCP after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.
3. NBCSP preferred language spoken at home was reported by the participant on the returned participant details form. Participants who did not indicate preferred language spoken at home were assumed to speak English.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.7: Crude PHCP follow-up after a positive FOBT result, by disability status, 2013–14

		Severe or profound activity limitation	No severe or profound activity limitation	Not stated	Total
Males					
50 years	Number	136	1,998	46	2,180
	Per cent	56.7	58.2	18.5	55.6
55 years	Number	126	1,795	44	1,965
	Per cent	57.0	60.1	25.1	58.1
60 years	Number	243	2,883	93	3,219
	Per cent	60.3	61.9	31.8	60.2
65 years	Number	382	3,688	84	4,154
	Per cent	60.7	64.3	25.1	62.0
Total	*Number*	*887*	*10,364*	*267*	*11,518*
	Per cent	*59.4*	*61.6*	*25.4*	*59.5*
Females					
50 years	Number	149	2,236	35	2,420
	Per cent	57.8	63.1	21.6	61.0
55 years	Number	154	1,920	45	2,119
	Per cent	57.7	64.0	28.3	61.8
60 years	Number	276	2,997	89	3,362
	Per cent	62.4	65.8	41.8	64.5
65 years	Number	319	3,405	72	3,796
	Per cent	63.7	67.4	31.2	65.7
Total	*Number*	*898*	*10,558*	*241*	*11,697*
	Per cent	*61.2*	*65.4*	*31.5*	*63.6*
Persons					
50 years	Number	285	4,234	81	4,600
	Per cent	57.2	60.7	19.8	58.3
55 years	Number	280	3,715	89	4,084
	Per cent	57.4	62.0	26.6	60.0
60 years	Number	519	5,880	182	6,581
	Per cent	61.4	63.8	36.0	62.3
65 years	Number	701	7,093	156	7,950
	Per cent	62.0	65.7	27.6	63.7
Total	**Number**	**1,785**	**20,922**	**508**	**23,215**
	Per cent	**60.3**	**63.5**	**28.0**	**61.5**

Notes

1. Percentages equal the number of people having consulted a PHCP after a positive FOBT result as a proportion of the total number of people with positive FOBT results.
2. Reporting of PHCP follow-up is not mandatory; actual numbers of participant consultations may be underestimated.
3. NBCSP disability status was reported by the participant on the participant details form. Participants who did not indicate disability status are included in the ‘Not stated’ column.
4. A ‘profound’ activity limitation indicates that a person always needs assistance with self-care, movement and/or communications activities. A ‘severe’ activity limitation indicates that a person sometimes needs assistance with these activities.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.8: Symptoms reported to PHCPs after a positive FOBT result, 2013–14

		No symptoms	Recent onset rectal bleeding ≤6 months	Longer-standing rectal bleeding >6 months	Significant change in bowel habits	Iron deficiency anaemia	Abdominal pain	All participants reporting symptom status
Males								
50 years	Number	1,631	146	166	49	14	44	2,016
	Per cent	80.9	7.2	8.2	2.4	0.7	2.2	
55 years	Number	1,478	119	122	36	9	53	1,794
	Per cent	82.4	6.6	6.8	2.0	0.5	3.0	
60 years	Number	2,467	190	173	70	34	57	2,943
	Per cent	83.8	6.5	5.9	2.4	1.2	1.9	
65 years	Number	3,228	201	228	104	40	83	3,822
	Per cent	84.5	5.3	6.0	2.7	1.0	2.2	
Total	*Number*	*8,804*	*656*	*689*	*259*	*97*	*237*	*10,575*
	Per cent	*83.3*	*6.2*	*6.5*	*2.4*	*0.9*	*2.2*	
Females								
50 years	Number	1,796	134	152	77	58	102	2,254
	Per cent	79.7	5.9	6.7	3.4	2.6	4.5	
55 years	Number	1,585	113	101	100	24	87	1,944
	Per cent	81.5	5.8	5.2	5.1	1.2	4.5	
60 years	Number	2,510	190	164	116	36	128	3,076
	Per cent	81.6	6.2	5.3	3.8	1.2	4.2	
65 years	Number	2,856	206	176	141	51	166	3,486
	Per cent	81.9	5.9	5.0	4.0	1.5	4.8	
Total	*Number*	*8,747*	*643*	*593*	*434*	*169*	*483*	*10,760*
	Per cent	*81.3*	*6.0*	*5.5*	*4.0*	*1.6*	*4.5*	
Persons								
50 years	Number	3,427	280	318	126	72	146	4,270
	Per cent	80.3	6.6	7.4	3.0	1.7	3.4	
55 years	Number	3,063	232	223	136	33	140	3,738
	Per cent	81.9	6.2	6.0	3.6	0.9	3.7	
60 years	Number	4,977	380	337	186	70	185	6,019
	Per cent	82.7	6.3	5.6	3.1	1.2	3.1	
65 years	Number	6,084	407	404	245	91	249	7,308
	Per cent	83.3	5.6	5.5	3.4	1.2	3.4	
Total	**Number**	**17,551**	**1,299**	**1,282**	**693**	**266**	**720**	**21,335**
	Per cent	**82.3**	**6.1**	**6.0**	**3.2**	**1.2**	**3.4**	

Notes

1. Percentages equal the number of people reporting specific symptoms after a positive FOBT as a proportion of the total number of people who reported any symptoms.
2. Only participants who had a symptom status (including ‘no symptoms’) recorded in the assessment form question 2 were included in this analysis. There were 1,124 participants with missing data for this question excluded from the analysis.
3. Percentages can add to more than 100, as respondents may have reported more than 1 symptom.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.9: Referrals made by PHCPs after a positive FOBT result and subsequent consultation, 2013–14

		Colonoscopy	Double contrast barium enema	Sigmoidoscopy	CT colonography	Other	No referral	All PHCP visits
Males								
50 years	Number	2,058	1	—	2	26	93	2,180
	Per cent	94.4	—	—	0.1	1.2	4.3	
55 years	Number	1,832	1	2	2	30	98	1,965
	Per cent	93.2	0.1	0.1	0.1	1.5	5.0	
60 years	Number	2,974	2	2	3	55	183	3,219
	Per cent	92.4	0.1	0.1	0.1	1.7	5.7	
65 years	Number	3,810	2	6	6	77	253	4,154
	Per cent	91.7	—	0.1	0.1	1.9	6.1	
Total	*Number*	*10,674*	*6*	*10*	*13*	*188*	*627*	*11,518*
	Per cent	*92.7*	*0.1*	*0.1*	*0.1*	*1.6*	*5.4*	
Females								
50 years	Number	2,230	1	1	1	79	108	2,420
	Per cent	92.1	—	—	—	3.3	4.5	
55 years	Number	1,957	1	2	3	53	103	2,119
	Per cent	92.4	—	0.1	0.1	2.5	4.9	
60 years	Number	3,082	4	1	3	82	190	3,362
	Per cent	91.7	0.1	—	0.1	2.4	5.7	
65 years	Number	3,452	2	3	7	91	241	3,796
	Per cent	90.9	0.1	0.1	0.2	2.4	6.3	
Total	*Number*	*10,721*	*8*	*7*	*14*	*305*	*642*	*11,697*
	Per cent	*91.7*	*0.1*	*0.1*	*0.1*	*2.6*	*5.5*	
Persons								
50 years	Number	4,288	2	1	3	105	201	4,600
	Per cent	93.2	—	—	0.1	2.3	4.4	
55 years	Number	3,789	2	4	5	83	201	4,084
	Per cent	92.8	—	0.1	0.1	2.0	4.9	
60 years	Number	6,056	6	3	6	137	373	6,581
	Per cent	92.0	0.1	—	0.1	2.1	5.7	
65 years	Number	7,262	4	9	13	168	494	7,950
	Per cent	91.3	0.1	0.1	0.2	2.1	6.2	
Total	**Number**	**21,395**	**14**	**17**	**27**	**493**	**1,269**	**23,215**
	Per cent	**92.2**	**0.1**	**0.1**	**0.1**	**2.1**	**5.5**	

Notes

1. Percentages equal the number of people consulting a PHCP after a positive FOBT who received/did not receive referral for either colonoscopy or other examination as a proportion of the total number of follow-up consultations after a positive FOBT.
2. Referrals may sum to more than all follow-up PHCP visits, as more than 1 referral may be given to a person.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.10: PHCP referrals for colonoscopy or other examination after a positive FOBT result, by geographical location, 2013–14

		Colonoscopy		Other		No referral		All PHCP visits
		Number	**Per cent**	**Number**	**Per cent**	**Number**	**Per cent**	**Number**
Major cities	Males	6,642	92.4	142	2.0	408	5.7	7,192
	Females	6,853	91.6	204	2.7	427	5.7	7,484
	Persons	*13,495*	*92.0*	*346*	*2.4*	*835*	*5.7*	*14,677*
Inner regional	Males	2,487	93.4	47	1.8	127	4.8	2,661
	Females	2,482	92.4	75	2.8	128	4.8	2,686
	Persons	*4,969*	*92.9*	*122*	*2.3*	*256*	*4.8*	*5,347*
Outer regional	Males	1,257	93.1	21	1.6	71	5.3	1,349
	Females	1,161	90.8	42	3.3	76	6.0	1,279
	Persons	*2,417*	*92.0*	*63*	*2.4*	*148*	*5.6*	*2,628*
Remote	Males	141	92.2	3	2.2	9	5.6	153
	Females	116	90.1	7	5.1	6	4.8	128
	Persons	*256*	*91.2*	*10*	*3.5*	*15*	*5.2*	*281*
Very remote	Males	52	n.p.	3	n.p.	2	n.p.	57
	Females	30	n.p.	—	n.p.	1	n.p.	32
	Persons	*82*	*n.p.*	*3*	*n.p.*	*3*	*n.p.*	*89*
Unknown	Males	96	n.p.	—	—	10	n.p.	71
	Females	79	n.p.	6	n.p.	3	n.p.	88
	Persons	*175*	*90.2*	*6*	*3.1*	*13*	*6.7*	*194*

Notes

1. Percentages equal the number of people consulting a PHCP after a positive FOBT who received/did not receive referral for either colonoscopy or other examination as a proportion of the total number of follow-up consultations after a positive FOBT.
2. The residential postcodes of participants were mapped to remoteness areas in the 2011 Australian Statistical Geography Standard remoteness structure through a postal area correspondence. Those that could not be mapped were included in the 'Unknown' row.
3. Discrepancies may occur between totals and sums of the component items due to rounding—see 'Geographical classification', Appendix C.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.11: Reason for non-referrals for colonoscopy by PHCPs, 2013–14

		Bowel cancer previously diagnosed	Limited life expectancy	Recent colonoscopy (<18 months)	Patient declines colonoscopy	Significant comorbidity	Other medical condition(s)	All non-referred participants
Males								
50 years	Number	3	2	48	40	3	44	122
	Per cent	2.5	1.6	39.3	32.8	2.5	36.1	
55 years	Number	—	2	55	44	8	40	133
	Per cent	—	1.5	41.4	33.1	6.0	30.1	
60 years	Number	4	4	102	87	11	61	245
	Per cent	1.6	1.6	41.6	35.5	4.5	24.9	
65 years	Number	7	16	168	93	23	80	344
	Per cent	2.0	4.7	48.8	27.0	6.7	23.3	
Total	*Number*	*14*	*24*	*373*	*264*	*45*	*225*	*844*
	Per cent	*1.7*	*2.8*	*44.2*	*31.3*	*5.3*	*26.7*	
Females								
50 years	Number	—	1	65	60	11	75	190
	Per cent	—	0.5	34.2	31.6	5.8	39.5	
55 years	Number	2	1	68	53	7	53	162
	Per cent	1.2	0.6	42.0	32.7	4.3	32.7	
60 years	Number	1	5	120	102	19	67	280
	Per cent	0.4	1.8	42.9	36.4	6.8	23.9	
65 years	Number	2	3	172	94	19	89	344
	Per cent	0.6	0.9	50.0	27.3	5.5	25.9	
Total	*Number*	*5*	*10*	*425*	*309*	*56*	*284*	*976*
	Per cent	*0.5*	*1.0*	*43.5*	*31.7*	*5.7*	*29.1*	
Persons								
50 years	Number	3	3	113	100	14	119	312
	Per cent	1.0	1.0	36.2	32.1	4.5	38.1	
55 years	Number	2	3	123	97	15	93	295
	Per cent	0.7	1.0	41.7	32.9	5.1	31.5	
60 years	Number	5	9	222	189	30	128	525
	Per cent	1.0	1.7	42.3	36.0	5.7	24.4	
65 years	Number	9	19	340	187	42	169	688
	Per cent	1.3	2.8	49.4	27.2	6.1	24.6	
Total	**Number**	**19**	**34**	**798**	**573**	**101**	**509**	**1,820**
	Per cent	**1.0**	**1.9**	**43.8**	**31.5**	**5.5**	**28.0**	

Notes

1. Percentages equal the number of consultations for each reason (after a positive FOBT) that did not refer for colonoscopy as a proportion of the total number of positive FOBT consultations that did not refer for colonoscopy.
2. A participant may have multiple reasons for non-referral for colonoscopy indicated.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.12: Crude colonoscopy follow-up after a positive FOBT result, by state and territory, 2013–14

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males										
50 years	Number	707	641	553	238	253	71	27	3	2,493
	Per cent	58.8	64.8	72.0	55.9	67.3	n.p.	n.p.	n.p.	63.5
55 years	Number	619	537	451	196	227	85	31	9	2,155
	Per cent	58.4	65.2	69.3	57.8	70.1	79.4	n.p.	n.p.	63.7
60 years	Number	1,028	869	793	363	348	105	64	15	3,585
	Per cent	63.9	67.3	73.8	60.6	71.0	70.0	n.p.	n.p.	67.0
65 years	Number	1,397	1,112	1,087	385	448	162	63	14	4,668
	Per cent	66.1	69.5	77.6	59.1	72.5	81.4	n.p.	n.p.	69.6
Total	*Number*	*3,751*	*3,159*	*2,884*	*1,182*	*1,276*	*423*	*185*	*41*	*12,901*
	Per cent	*62.6*	*67.2*	*74.1*	*58.7*	*70.6*	*77.8*	*65.6*	*32.3*	*66.6*
Females										
50 years	Number	743	724	583	236	245	74	42	5	2,652
	Per cent	62.6	66.9	76.2	58.1	69.0	n.p.	n.p.	n.p.	66.9
55 years	Number	646	599	434	227	221	73	49	5	2,254
	Per cent	60.6	67.2	70.5	65.6	69.7	68.9	n.p.	n.p.	65.8
60 years	Number	1,035	903	762	351	377	127	70	11	3,636
	Per cent	64.3	72.0	75.7	66.0	71.9	79.9	n.p.	n.p.	69.8
65 years	Number	1,206	1,004	876	365	408	150	61	5	4,075
	Per cent	66.0	70.4	78.6	67.2	71.0	80.2	n.p.	n.p.	70.5
Total	*Number*	*3,630*	*3,230*	*2,655*	*1,179*	*1,251*	*424*	*222*	*26*	*12,617*
	Per cent	*63.8*	*69.4*	*75.8*	*64.5*	*70.6*	*77.7*	*73.5*	*n.p.*	*68.6*
Persons										
50 years	Number	1,450	1,365	1,136	474	498	145	69	8	5,145
	Per cent	60.7	65.9	74.1	57.0	68.1	79.7	63.9	n.p.	65.2
55 years	Number	1,265	1,136	885	423	448	158	80	14	4,409
	Per cent	59.5	66.3	69.9	61.8	69.9	74.2	69.0	n.p.	64.7
60 years	Number	2,063	1,772	1,555	714	725	232	134	26	7,221
	Per cent	64.1	69.6	74.7	63.1	71.5	75.1	72.4	n.p.	68.4
65 years	Number	2,603	2,116	1,963	750	856	312	124	19	8,743
	Per cent	66.0	70.0	78.0	62.8	71.8	80.8	70.9	n.p.	70.0
Total	**Number**	**7,381**	**6,389**	**5,539**	**2,361**	**2,527**	**847**	**407**	**67**	**25,518**
	Per cent	**63.2**	**68.3**	**74.9**	**61.5**	**70.6**	**77.7**	**69.7**	**30.7**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Record of a colonoscopy as part of the NBCSP is identified from colonoscopy report forms, histopathology report forms and/or Medicare claims.
3. As progression through the pathway to the colonoscopy stage may take some time, some participants may not have had sufficient time to have had a colonoscopy. Additionally, reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

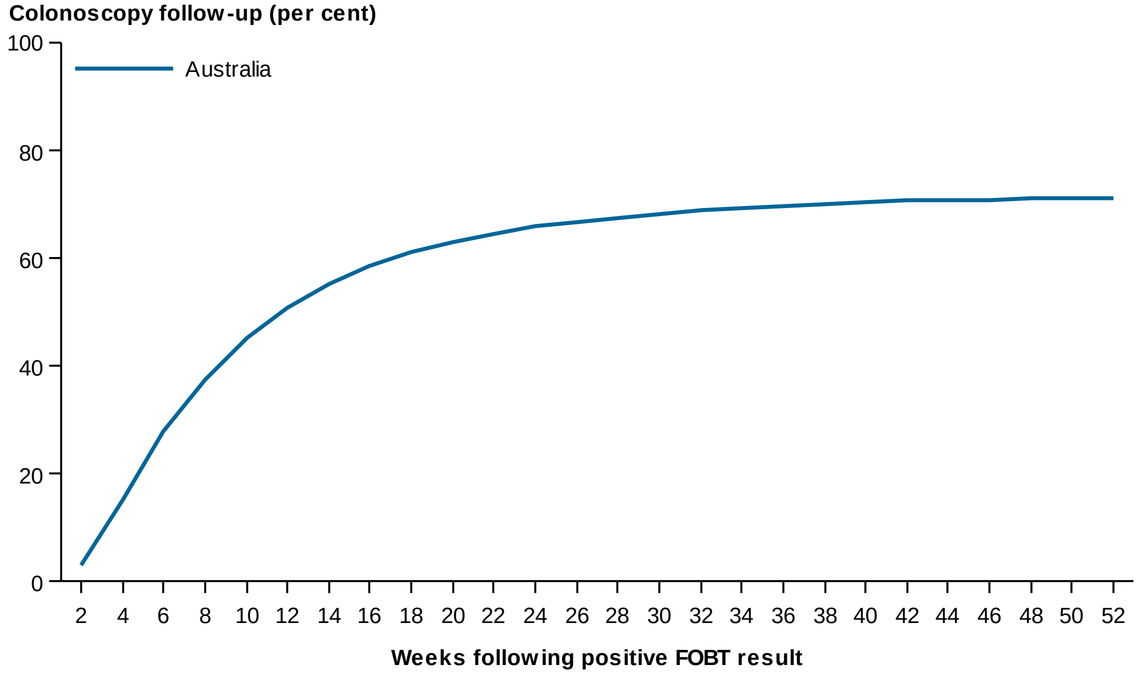
Table A3.13: Kaplan–Meier estimated colonoscopy follow-up per 100 people with positive FOBTs at 26 and 52 weeks since positive FOBT, by state and territory, 2013–14

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
26 weeks									
Colonoscopy follow-up (per cent)	61.9	67.8	74.9	61.1	68.7	76.8	68.9	32.7	66.8
95% confidence interval	61.0–62.8	66.9–68.8	73.9–75.9	59.5–62.6	67.1–70.2	74.2–79.3	65.0–72.8	26.0–39.4	66.3–67.3
52 weeks									
Colonoscopy follow-up (per cent)	66.9	70.4	80.4	64.8	75.3	80.9	74.1	32.7	71.2
95% confidence interval	65.9–67.8	69.4–71.4	79.3–81.5	63.2–66.5	73.7–76.9	78.4–83.5	70.1–78.0	26.0–39.4	70.7–71.7

(a) The crude rate was substituted as the estimated Kaplan–Meier rate was lower than the actual crude rate.

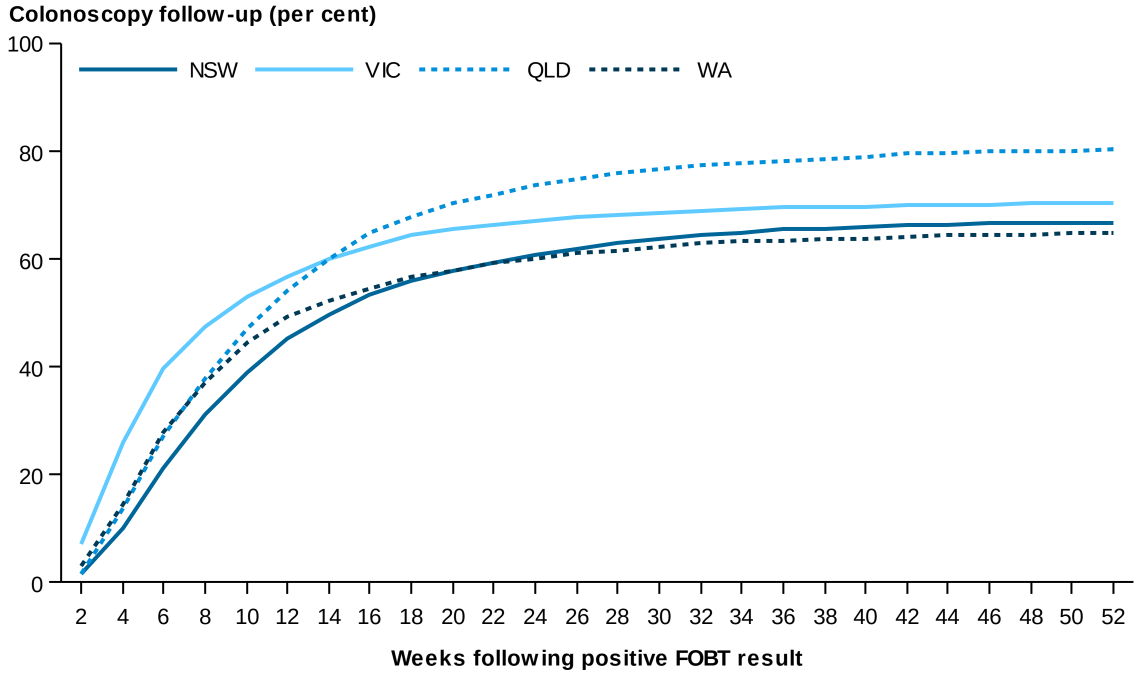
Note: Colonoscopy follow-up rates equal the estimated Kaplan–Meier follow-up rate of people who have had a colonoscopy as a proportion of the total number of people with positive FOBT results, including people who suspended or opted off the program.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.



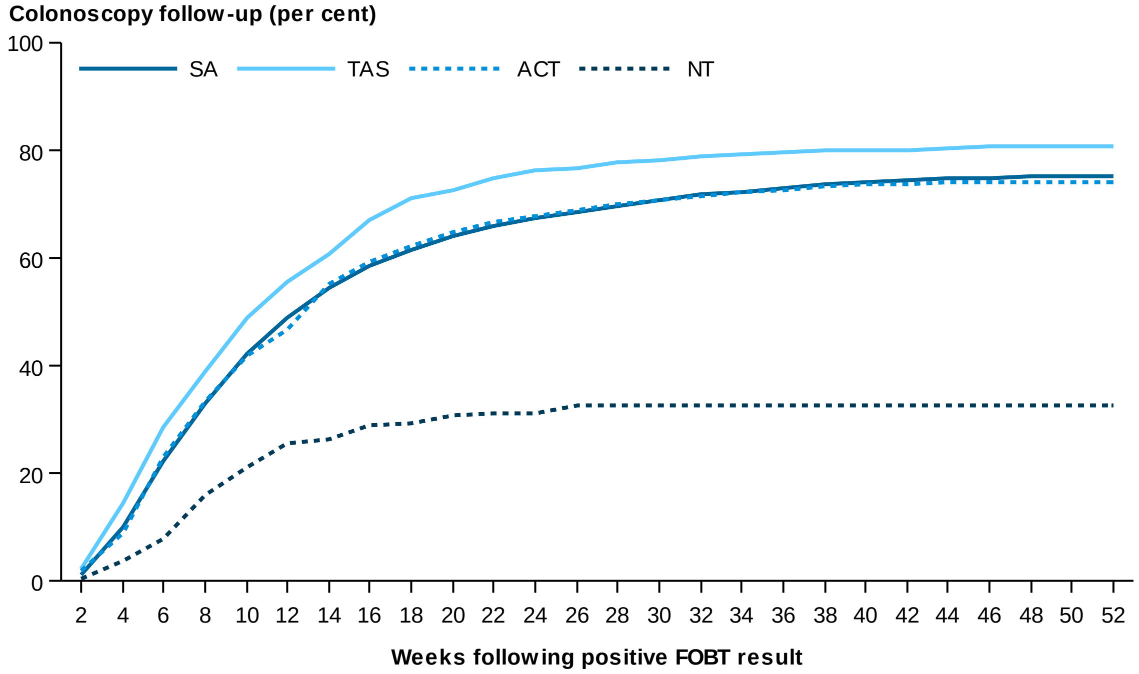
Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.3a: Colonoscopy follow-up after a positive FOBT, using Kaplan–Meier estimates, Australia, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.3b: Colonoscopy follow-up after a positive FOBT using Kaplan–Meier estimates, New South Wales, Victoria, Queensland and Western Australia, 2013–14



Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.3c: Colonoscopy follow-up after a positive FOBT using Kaplan–Meier estimates, South Australia, Tasmania, Australian Capital Territory and Northern Territory, 2013–14

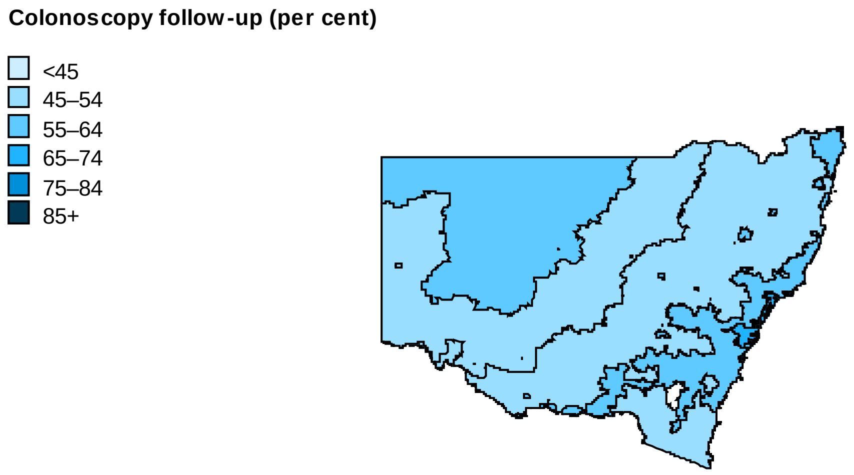
Table A3.14: Crude colonoscopy follow-up after a positive FOBT result, by remoteness area, 2013–14

		Remoteness area						
		Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Unknown**	**Total**
Males								
50 years	Number	1,787	450	202	24	11	19	2,493
	Per cent	66.2	60.9	54.9	n.p.	n.p.	n.p.	63.5
55 years	Number	1,478	424	198	20	9	25	2,155
	Per cent	67.0	59.6	54.5	n.p.	n.p.	n.p.	63.7
60 years	Number	2,407	738	370	37	9	24	3,585
	Per cent	70.6	62.3	61.4	n.p.	n.p.	n.p.	67.0
65 years	Number	2,986	1,076	512	38	16	40	4,668
	Per cent	72.3	67.5	63.8	n.p.	n.p.	n.p.	69.6
Total	*Number*	*8,658*	*2,688*	*1,282*	*120*	*45*	*108*	*12,901*
	Per cent	*69.6*	*63.6*	*60.0*	*46.0*	*45.1*	*56.5*	*66.6*
Females								
50 years	Number	1,933	481	200	20	7	12	2,652
	Per cent	69.8	62.5	59.1	n.p.	n.p.	n.p.	66.9
55 years	Number	1,562	442	207	24	5	14	2,254
	Per cent	69.2	60.1	58.3	n.p.	n.p.	n.p.	65.8
60 years	Number	2,450	794	328	29	8	26	3,636
	Per cent	73.1	67.1	59.0	n.p.	n.p.	n.p.	69.8
65 years	Number	2,673	938	401	30	11	22	4,075
	Per cent	73.0	67.9	64.5	n.p.	n.p.	n.p.	70.5
Total	*Number*	*8,617*	*2,655*	*1,136*	*103*	*31*	*74*	*12,617*
	Per cent	*71.6*	*65.2*	*60.7*	*54.0*	*n.p.*	*52.9*	*68.6*
Persons								
50 years	Number	3,720	930	402	45	18	31	5,145
	Per cent	68.0	61.7	56.9	43.3	n.p.	n.p.	65.2
55 years	Number	3,040	867	405	44	14	39	4,409
	Per cent	68.1	59.9	56.4	n.p.	n.p.	n.p.	64.7
60 years	Number	4,857	1,532	699	66	18	50	7,221
	Per cent	71.8	64.7	60.2	55.0	n.p.	n.p.	68.4
65 years	Number	5,659	2,014	913	68	27	62	8,743
	Per cent	72.6	67.7	64.1	47.9	n.p.	n.p.	70.0
Total	**Number**	**17,275**	**5,343**	**2,418**	**223**	**76**	**182**	**25,518**
	Per cent	**70.6**	**64.4**	**60.3**	**49.4**	**45.1**	**55.0**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.
3. The residential postcodes of participants were mapped to remoteness areas in the 2011 Australian Statistical Geography Standard remoteness structure through a postal area correspondence. Those that could not be mapped were included in the ‘Unknown’ column.
4. Discrepancies may occur between totals and sums of the component items due to rounding—see ‘Geographical classification’, Appendix C.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

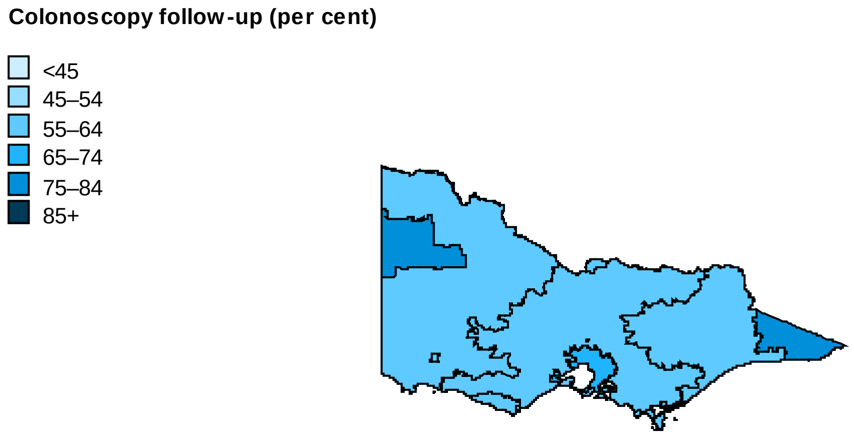


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4a: Colonoscopy follow-up, by remoteness area, New South Wales, 2013–14

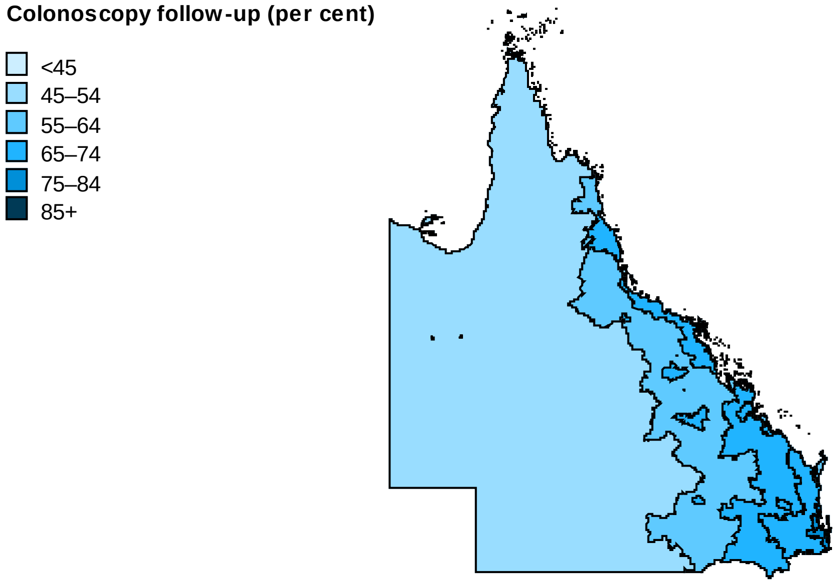


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4b: Colonoscopy follow-up, by remoteness area, Victoria, 2013–14

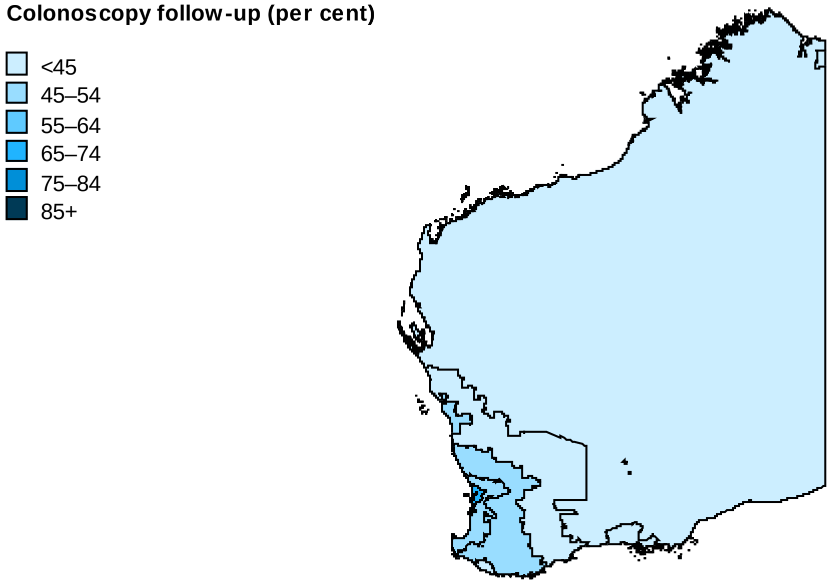


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4c: Colonoscopy follow-up, by remoteness area, Queensland, 2013–14

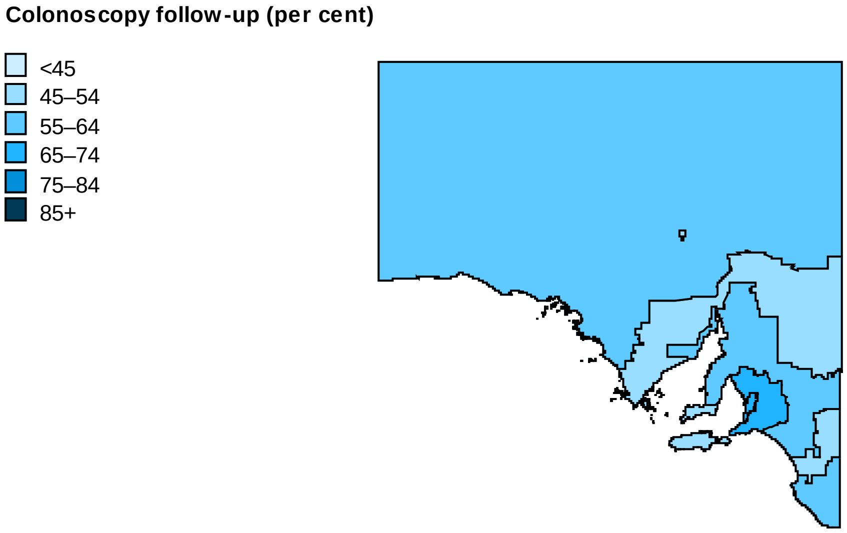


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4d: Colonoscopy follow-up, by remoteness area, Western Australia, 2013–14

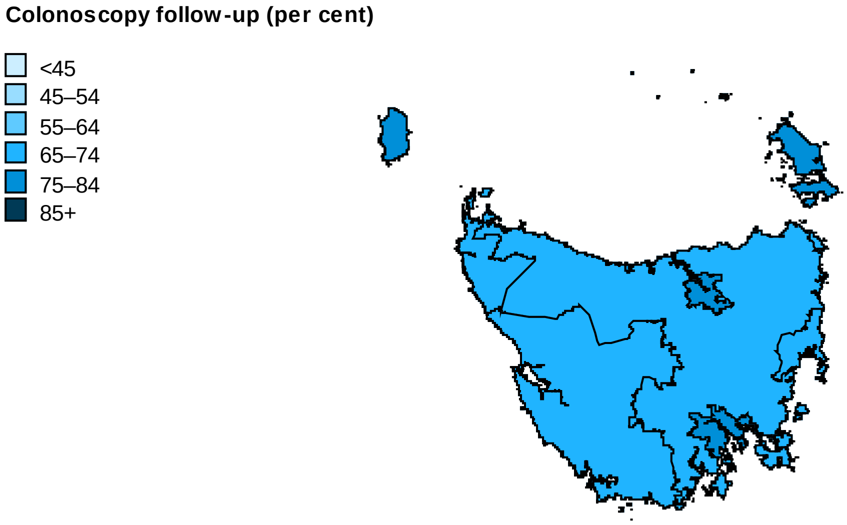


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4e: Colonoscopy follow-up, by remoteness area, South Australia, 2013–14

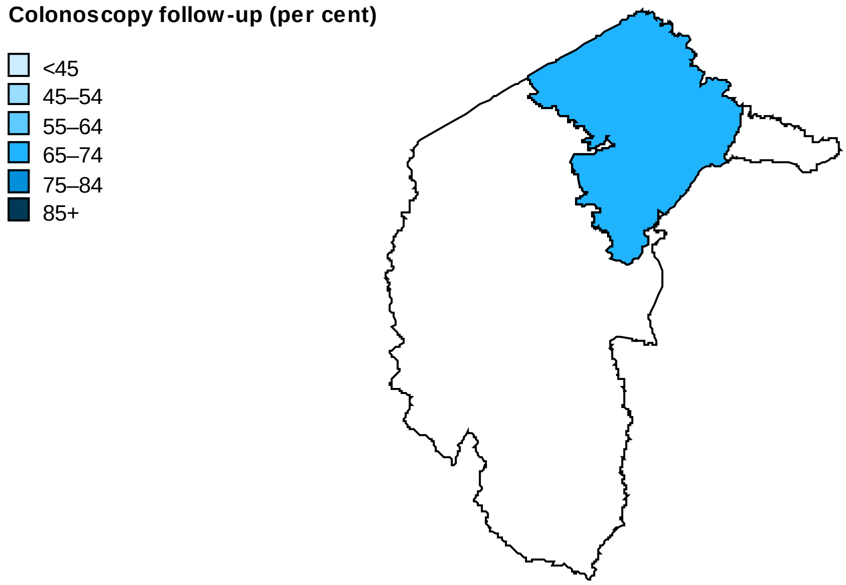


Notes

1. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
2. Colonoscopy follow-up rates rounded to integers.
3. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4f: Colonoscopy follow-up, by remoteness area, Tasmania, 2013–14

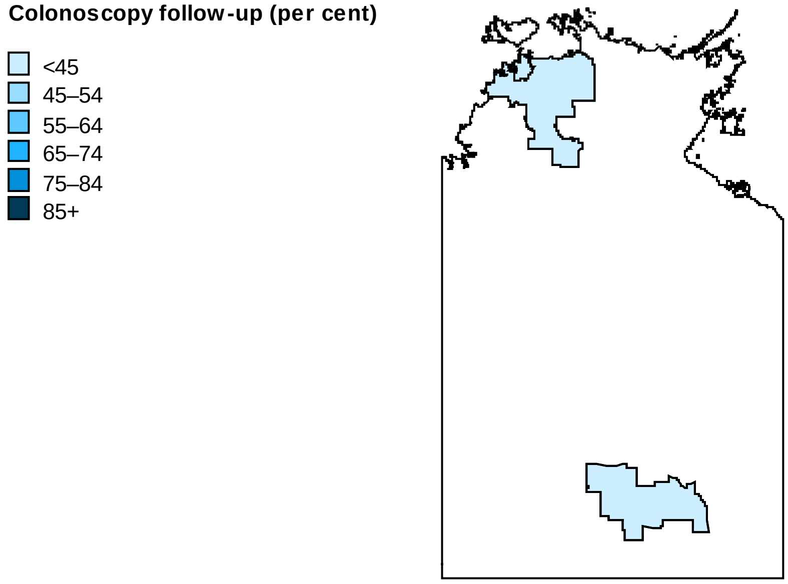


Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
3. Colonoscopy follow-up rates rounded to integers.
4. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4g: Colonoscopy follow-up, by remoteness area, Australian Capital Territory, 2013–14



Notes

1. Remoteness areas left unshaded contain data that are not publishable due to small numbers, confidentiality or other concerns.
2. Rate per remoteness area is an average of colonoscopy follow-up reported across that remoteness area.
3. Colonoscopy follow-up rates rounded to integers.
4. Differences in colonoscopy follow-up rates across remoteness areas may involve differences in form return only.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A3.4h: Colonoscopy follow-up, by remoteness area, Northern Territory, 2013–14

Table A3.15: Crude colonoscopy follow-up after a positive FOBT result, by socioeconomic status area, 2013–14

		Socioeconomic status area						
		1 (lowest)	**2**	**3**	**4**	**5 (highest)**	**Unknown**	**Total**
Males								
50 years	Number	448	467	464	524	568	22	2,493
	Per cent	56.6	62.9	61.3	65.7	72.2	n.p.	63.5
55 years	Number	418	417	456	422	414	28	2,155
	Per cent	58.5	57.8	64.3	69.9	70.1	n.p.	63.7
60 years	Number	690	741	708	735	681	30	3,585
	Per cent	61.2	64.7	68.7	69.7	73.5	n.p.	67.0
65 years	Number	978	945	968	915	808	54	4,668
	Per cent	64.7	64.8	71.4	74.8	75.1	n.p.	69.6
Total	*Number*	*2,534*	*2,570*	*2,596*	*2,596*	*2,471*	*134*	*12,901*
	Per cent	*61.1*	*63.2*	*67.4*	*70.6*	*73.1*	*57.0*	*66.6*
Females								
50 years	Number	453	467	512	602	602	16	2,652
	Per cent	61.4	61.1	68.3	70.5	73.2	n.p.	66.9
55 years	Number	407	444	433	470	480	20	2,254
	Per cent	56.1	63.7	66.5	70.9	72.9	n.p.	65.8
60 years	Number	646	742	733	712	765	38	3,636
	Per cent	59.9	66.4	73.2	73.3	78.0	n.p.	69.8
65 years	Number	799	877	819	755	791	34	4,075
	Per cent	63.0	69.2	70.8	72.9	79.3	n.p.	70.5
Total	*Number*	*2,305*	*2,530*	*2,497*	*2,539*	*2,638*	*108*	*12,617*
	Per cent	*60.5*	*65.8*	*70.2*	*72.1*	*76.3*	*57.8*	*68.6*
Persons								
50 years	Number	901	934	976	1,126	1,170	38	5,145
	Per cent	58.9	62.0	64.8	68.2	72.7	n.p.	65.2
55 years	Number	825	861	889	892	894	48	4,409
	Per cent	57.3	60.7	65.4	70.4	71.6	n.p.	64.7
60 years	Number	1,336	1,483	1,441	1,447	1,446	68	7,221
	Per cent	60.6	65.5	70.9	71.5	75.8	53.1	68.4
65 years	Number	1,777	1,822	1,787	1,670	1,599	88	8,743
	Per cent	63.9	66.9	71.1	74.0	77.1	65.7	70.0
Total	**Number**	**4,839**	**5,100**	**5,093**	**5,135**	**5,109**	**242**	**25,518**
	Per cent	**60.8**	**64.5**	**68.7**	**71.3**	**74.7**	**57.3**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.
3. A participant's socioeconomic status area was classified by mapping their residential postcode (through a postal area) to the ABS IRSD for 2011. Those that could not be mapped were included in the 'Unknown' column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.16: Crude colonoscopy follow-up after a positive FOBT result, by Aboriginal and Torres Strait Islander status, 2013–14

		Indigenous	Non-Indigenous	Not stated	Total
Males					
50 years	Number	35	2,385	73	2,493
	Per cent	n.p.	64.6	45.9	63.5
55 years	Number	31	2,092	32	2,155
	Per cent	n.p.	64.3	n.p.	63.7
60 years	Number	50	3,462	73	3,585
	Per cent	n.p.	67.5	53.3	67.0
65 years	Number	53	4,466	149	4,668
	Per cent	n.p.	70.4	55.4	69.6
Total	*Number*	*169*	*12,405*	*327*	*12,901*
	Per cent	*55.8*	*67.3*	*51.3*	*66.6*
Females					
50 years	Number	35	2,554	63	2,652
	Per cent	n.p.	67.1	60.6	66.9
55 years	Number	21	2,200	33	2,254
	Per cent	n.p.	66.2	n.p.	65.8
60 years	Number	43	3,550	43	3,636
	Per cent	n.p.	70.0	n.p.	69.8
65 years	Number	45	3,945	85	4,075
	Per cent	n.p.	71.2	55.9	70.5
Total	*Number*	*144*	*12,249*	*224*	*12,617*
	Per cent	*57.4*	*69.0*	*57.0*	*68.6*
Persons					
50 years	Number	70	4,939	136	5,145
	Per cent	55.1	65.9	51.7	65.2
55 years	Number	52	4,292	65	4,409
	Per cent	n.p.	65.3	47.4	64.7
60 years	Number	93	7,012	116	7,221
	Per cent	60.8	68.8	55.2	68.4
65 years	Number	98	8,411	234	8,743
	Per cent	55.7	70.8	55.6	70.0
Total	**Number**	**313**	**24,654**	**551**	**25,518**
	Per cent	**56.5**	**68.2**	**53.4**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.
3. NBCSP Aboriginal and Torres Strait Islander status was reported by the participant on the returned participant details form. Participants who did not indicate Aboriginal and Torres Strait Islander status were included in the 'Not stated' column.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.17: Crude colonoscopy follow-up after a positive FOBT result, by language spoken at home, 2013–14

		Language other than English	English	Total
Males				
50 years	Number	387	2,106	2,493
	Per cent	60.9	64.1	63.5
55 years	Number	316	1,839	2,155
	Per cent	60.0	64.4	63.7
60 years	Number	491	3,094	3,585
	Per cent	63.7	67.6	67.0
65 years	Number	532	4,136	4,668
	Per cent	64.9	70.3	69.6
Total	*Number*	*1,726*	*11,175*	*12,901*
	Per cent	*62.7*	*67.3*	*66.6*
Females				
50 years	Number	458	2,194	2,652
	Per cent	63.3	67.7	66.9
55 years	Number	381	1,873	2,254
	Per cent	63.4	66.3	65.8
60 years	Number	564	3,072	3,636
	Per cent	65.6	70.6	69.8
65 years	Number	507	3,568	4,075
	Per cent	65.2	71.3	70.5
Total	*Number*	*1,910*	*10,707*	*12,617*
	Per cent	*64.5*	*69.4*	*68.6*
Persons				
50 years	Number	845	4,300	5,145
	Per cent	62.2	65.9	65.2
55 years	Number	697	3,712	4,409
	Per cent	61.8	65.3	64.7
60 years	Number	1,055	6,166	7,221
	Per cent	64.7	69.0	68.4
65 years	Number	1,039	7,704	8,743
	Per cent	65.0	70.8	70.0
Total	**Number**	**3,636**	**21,882**	**25,518**
	Per cent	**63.6**	**68.3**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.
3. NBCSP preferred language spoken at home was reported by the participant on the returned participant details form. Participants who did not indicate preferred language spoken at home were assumed to speak English.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A3.18: Crude colonoscopy follow-up after a positive FOBT result, by disability status, 2013–14

		Severe or profound activity limitation	No severe or profound activity limitation	Not stated	Total
Males					
50 years	Number	126	2,267	100	2,493
	Per cent	52.5	66.0	40.3	63.5
55 years	Number	111	1,966	78	2,155
	Per cent	50.2	65.8	44.6	63.7
60 years	Number	224	3,207	154	3,585
	Per cent	55.6	68.9	52.7	67.0
65 years	Number	366	4,117	185	4,668
	Per cent	58.2	71.7	55.2	69.6
Total	*Number*	*827*	*11,557*	*517*	*12,901*
	Per cent	*55.4*	*68.7*	*49.2*	*66.6*
Females					
50 years	Number	147	2,417	88	2,652
	Per cent	57.0	68.2	54.3	66.9
55 years	Number	160	2,020	74	2,254
	Per cent	59.9	67.3	46.5	65.8
60 years	Number	254	3,263	119	3,636
	Per cent	57.5	71.6	55.9	69.8
65 years	Number	277	3,672	126	4,075
	Per cent	55.3	72.7	54.5	70.5
Total	*Number*	*838*	*11,372*	*407*	*12,617*
	Per cent	*57.1*	*70.4*	*53.2*	*68.6*
Persons					
50 years	Number	273	4,684	188	5,145
	Per cent	54.8	67.1	45.9	65.2
55 years	Number	271	3,986	152	4,409
	Per cent	55.5	66.5	45.5	64.7
60 years	Number	478	6,470	273	7,221
	Per cent	56.6	70.2	54.1	68.4
65 years	Number	643	7,789	311	8,743
	Per cent	56.9	72.2	54.9	70.0
Total	**Number**	**1,665**	**22,929**	**924**	**25,518**
	Per cent	**56.2**	**69.5**	**50.9**	**67.6**

Notes

1. Percentages of colonoscopies performed equal the number of people who have had a colonoscopy recorded after a positive FOBT as a proportion of the total number of people with positive FOBT results.
2. Reporting of colonoscopy follow-up is not mandatory. Therefore, actual numbers of participant colonoscopies may be underestimated.
3. NBCSP disability status was reported by the participant on the participant details form. Participants who did not indicate disability status are included in the 'Not stated' column.
4. A 'profound' activity limitation indicates that a person always needs assistance with self-care, movement and/or communications activities. A 'severe' activity limitation indicates that a person sometimes needs assistance with these activities.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

A4: Bowel abnormality detection tables

Table A4.1: Colonoscopy outcomes (excludes histopathology), 2013–14

		Colonoscopy outcome						
		Suspected cancer	**Polyp(s) ≥10 mm**	**Polyp(s) <10 mm**	**Other diagnoses**[a]	**No abnormality**	**Outcome not specified**	**All colonoscopy report forms**
Males								
50 years	Number	75	310	651	386	352	6	1,780
	Per cent	4.2	17.4	36.6	21.7	19.8	0.3	
55 years	Number	73	316	561	279	257	2	1,488
	Per cent	4.9	21.2	37.7	18.8	17.3	0.1	
60 years	Number	152	542	980	509	390	8	2,581
	Per cent	5.9	21.0	38.0	19.7	15.1	0.3	
65 years	Number	283	797	1,286	597	415	16	3,394
	Per cent	8.3	23.5	37.9	17.6	12.2	0.5	
Total	*Number*	*583*	*1,965*	*3,478*	*1,771*	*1,414*	*32*	*9,243*
	Per cent	*6.3*	*21.3*	*37.6*	*19.2*	*15.3*	*0.3*	
Females								
50 years	Number	58	196	549	453	608	7	1,871
	Per cent	3.1	10.5	29.3	24.2	32.5	0.4	
55 years	Number	46	165	495	410	460	6	1,582
	Per cent	2.9	10.4	31.3	25.9	29.1	0.4	
60 years	Number	102	309	855	717	625	9	2,617
	Per cent	3.9	11.8	32.7	27.4	23.9	0.3	
65 years	Number	168	406	1,025	769	597	10	2,975
	Per cent	5.6	13.6	34.5	25.8	20.1	0.3	
Total	*Number*	*374*	*1,076*	*2,924*	*2,349*	*2,290*	*32*	*9,045*
	Per cent	*4.1*	*11.9*	*32.3*	*26.0*	*25.3*	*0.4*	
Persons								
50 years	Number	133	506	1,200	839	960	13	3,651
	Per cent	3.6	13.9	32.9	23.0	26.3	0.4	
55 years	Number	119	481	1,056	689	717	8	3,070
	Per cent	3.9	15.7	34.4	22.4	23.4	0.3	
60 years	Number	254	851	1,835	1,226	1,015	17	5,198
	Per cent	4.9	16.4	35.3	23.6	19.5	0.3	
65 years	Number	451	1,203	2,311	1,366	1,012	26	6,369
	Per cent	7.1	18.9	36.3	21.4	15.9	0.4	
Total	**Number**	**957**	**3,041**	**6,402**	**4,120**	**3,704**	**64**	**18,288**
	Per cent	**5.2**	**16.6**	**35.0**	**22.5**	**20.3**	**0.3**	

(a) Other diagnoses include haemorrhoids, diverticular disease and inflammatory bowel disease.

Note: Only colonoscopies with an associated colonoscopy report form were included in this analysis; colonoscopies identified from histopathology report forms or Medicare claims only were not included.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A4.2: Overall diagnostic outcomes (including histopathology), by state and territory, 2013–14

					FOBT positive							
State/ territory		Invitations issued[a]	Number screened[b]	Total positive FOBT	Colonoscopy recorded[c]	No cancer or adenoma[d]	Polyps awaiting histo-pathology[e]	Confirmed diminutive adenoma[f]	Confirmed small adenoma[f]	Confirmed advanced adenoma[f]	Suspected cancer[g]	Confirmed cancer[h]
NSW	Number	477,356	158,527	11,679	4,890	2,485	1,229	518	5	435	156	62
	Per cent					50.8	25.1	10.6	0.1	8.9	3.2	1.3
Vic	Number	341,694	126,503	9,355	4,823	2,514	1,546	245	65	274	144	35
	Per cent					52.1	32.1	5.1	1.3	5.7	3.0	0.7
Qld	Number	282,790	100,408	7,397	4,538	1,825	1,522	318	81	611	145	36
	Per cent					40.2	33.5	7.0	1.8	13.5	3.2	0.8
WA	Number	138,922	53,263	3,842	1,500	583	739	47	8	61	61	1
	Per cent					38.9	49.3	3.1	0.5	4.1	4.1	0.1
SA	Number	107,255	45,551	3,579	1,898	942	538	129	51	175	55	8
	Per cent					49.6	28.3	6.8	2.7	9.2	2.9	0.4
Tas	Number	33,531	13,750	1,090	656	339	127	29	29	106	24	2
	Per cent					51.7	19.4	4.4	4.4	16.2	3.7	0.3
ACT	Number	23,157	8,837	584	325	128	118	36	—	29	10	4
	Per cent					39.4	36.3	11.1	—	8.9	3.1	1.2
NT	Number	10,850	2,897	218	39	23	8	3	—	—	4	1
	Per cent					n.p.	n.p.	n.p.	—	—	n.p.	n.p.
Australia	**Number**	**1,415,555**	**509,736**	**37,744**	**18,669**	**8,839**	**5,827**	**1,325**	**239**	**1,691**	**599**	**149**
	Per cent					**47.3**	**31.2**	**7.1**	**1.3**	**9.1**	**3.2**	**0.8**

(a) ‘Invitations issued’ equals the number of eligible people who were issued an invitation to screen in the NBCSP.

(b) ‘Number screened’ equals the number of people who completed an FOBT kit and had results forwarded to the Register.

(c) ‘Colonoscopy recorded’ includes colonoscopies recorded via the colonoscopy report and/or histopathology report forms. It does not include colonoscopies identified through Medicare claims.

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

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

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

(g) Cancer suspected at colonoscopy but not yet confirmed by histopathology.

(h) Cancer confirmed by histopathology.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Table A4.3: Overall diagnostic outcomes (including histopathology), by age and sex, 2013–14

					FOBT positive							
		Invitations issued[(a)]	Number screened[(b)]	Total positive FOBT	Colonoscopy recorded[(c)]	No cancer or adenoma[(d)]	Polyps awaiting histopathology[(e)]	Confirmed diminutive adenoma[(f)]	Confirmed small adenoma[(f)]	Confirmed advanced adenoma[(f)]	Suspected cancer[(g)]	Confirmed cancer[(h)]
Males												
50 years	Number	221,518	56,295	3,923	1,821	835	611	125	21	166	55	8
	Per cent					45.9	33.6	6.9	1.2	9.1	3.0	0.4
55 years	Number	147,334	49,093	3,384	1,531	622	544	114	27	163	49	12
	Per cent					40.6	35.5	7.4	1.8	10.6	3.2	0.8
60 years	Number	173,409	68,548	5,350	2,628	1,047	927	209	35	298	91	21
	Per cent					39.8	35.3	8.0	1.3	11.3	3.5	0.8
65 years	Number	163,971	63,056	6,703	3,485	1,195	1,261	311	53	443	166	56
	Per cent					34.3	36.2	8.9	1.5	12.7	4.8	1.6
Total	*Number*	*706,232*	*236,992*	*19,360*	*9,465*	*3,699*	*3,343*	*759*	*136*	*1,070*	*361*	*97*
	Per cent					*39.1*	*35.3*	*8.0*	*1.4*	*11.3*	*3.8*	*1.0*
Females												
50 years	Number	220,119	64,604	3,964	1,907	1,163	473	96	22	112	34	7
	Per cent					61.0	24.8	5.0	1.2	5.9	1.8	0.4
55 years	Number	147,866	56,966	3,428	1,609	965	413	85	17	92	31	6
	Per cent					60.0	25.7	5.3	1.1	5.7	1.9	0.4
60 years	Number	175,506	80,438	5,211	2,665	1,486	716	186	23	174	62	18
	Per cent					55.8	26.9	7.0	0.9	6.5	2.3	0.7
65 years	Number	165,832	70,736	5,781	3,023	1,526	882	199	41	243	111	21
	Per cent					50.5	29.2	6.6	1.4	8.0	3.7	0.7
Total	*Number*	*709,323*	*272,744*	*18,384*	*9,204*	*5,140*	*2,484*	*566*	*103*	*621*	*238*	*52*
	Per cent					*55.8*	*27.0*	*6.1*	*1.1*	*6.7*	*2.6*	*0.6*

(continued)

Table A4.3 (continued): Overall diagnostic outcomes (including histopathology), by age and sex, 2013–14

					FOBT positive							
		Invitations issued[a]	**Number screened**[b]	**Total positive FOBT**	**Colonoscopy recorded**[c]	**No cancer or adenoma**[d]	**Polyps awaiting histopathology**[e]	**Confirmed diminutive adenoma**[f]	**Confirmed small adenoma**[f]	**Confirmed advanced adenoma**[f]	**Suspected cancer**[g]	**Confirmed cancer**[h]
Persons												
50 years	Number	441,637	120,899	7,887	3,728	1,998	1,084	221	43	278	89	15
	Per cent					53.6	29.1	5.9	1.2	7.5	2.4	0.4
55 years	Number	295,200	106,059	6,812	3,140	1,587	957	199	44	255	80	18
	Per cent					50.5	30.5	6.3	1.4	8.1	2.5	0.6
60 years	Number	348,915	148,986	10,561	5,293	2,533	1,643	395	58	472	153	39
	Per cent					47.9	31.0	7.5	1.1	8.9	2.9	0.7
65 years	Number	329,803	133,792	12,484	6,508	2,721	2,143	510	94	686	277	77
	Per cent					41.8	32.9	7.8	1.4	10.5	4.3	1.2
Total	**Number**	**1,415,555**	**509,736**	**37,744**	**18,669**	**8,839**	**5,827**	**1,325**	**239**	**1,691**	**599**	**149**
	Per cent					**47.3**	**31.2**	**7.1**	**1.3**	**9.1**	**3.2**	**0.8**

(a) 'Invitations issued' equals the number of eligible people who were issued an invitation to screen in the NBCSP.

(b) 'Number screened' equals the number of people who completed an FOBT kit and had results forwarded to the Register.

(c) 'Colonoscopy recorded' includes colonoscopies recorded via the colonoscopy report and/or histopathology report forms. It does not include colonoscopies identified through Medicare claims.

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

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

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

(g) Cancer suspected at colonoscopy but not yet confirmed by histopathology.

(h) Cancer confirmed by histopathology.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

A5: Adverse event tables

Table A5.1: Adverse outcomes after investigation of positive FOBT by colonoscopy, 2013–14

			Adverse outcomes								
		Colonoscopies	Bleeding	Infection/ sepsis	Perforation	Reaction to sedation/ anaesthesia	Death	Other	Delayed discharge	Unplanned hospital admission within 30 days	Surgery required
Males	Number	12,901	29	—	—	7	—	16	13	14	1
	Per cent		0.2	—	—	0.1	—	0.1	0.1	0.1	—
Females	Number	12,617	12	—	2	1	—	8	7	9	1
	Per cent		0.1	—	—	—	—	0.1	0.1	0.1	—
Persons	**Number**	**25,518**	**41**	**—**	**2**	**8**	**—**	**24**	**20**	**23**	**2**
	Per cent		**0.2**	**—**	**—**	**—**	**—**	**0.1**	**0.1**	**0.1**	**0.0**

Notes

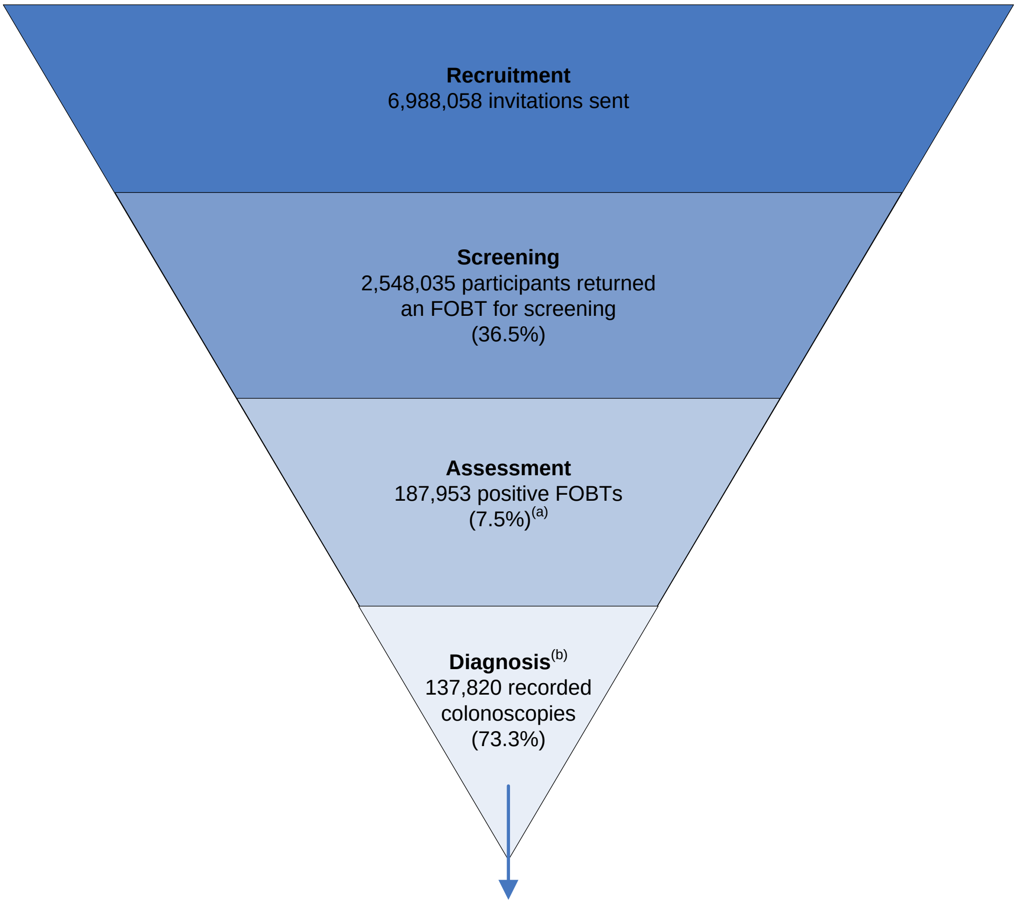
1. All participants known to have had a colonoscopy are included, including those only recorded through Medicare claim or histopathology data.
2. A colonoscopy may have more than 1 adverse event.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

A6: Additional NBCSP outcome data

Overall outcomes (August 2006–June 2014)

Overall data on invitees, and their progression through the pathway, have been applied to the *Population based screening framework* (APHDPCSS 2008) stages (Figure A6.1).



Recorded colonoscopy outcomes

No cancer or adenoma	79,125	(57.4%)
Polyp awaiting histopathology results	33,476	(24.3%)
Diminutive adenoma	6,441	(4.7%)
Small adenoma	2,495	(1.8%)
Advanced adenoma	12,294	(8.9%)
Suspected cancer	2,801	(2.0%)
Confirmed cancer	1,188	(0.9%)

(a) Based on the 2,513,632 participants who returned a valid FOBT.

(b) The number of recorded colonoscopies includes those identified through a Medicare claim, which may not have had associated outcome data available for analysis.

Notes

1. Invitees aged 50, 55, 60 and 65 were included; other aged invitees (for example, pilot invitees from phase 1) were excluded.
2. Adenoma classifications are described in Appendix B.
3. Figure is not to scale.

Source: National Bowel Cancer Screening Program Register as at 31 December 2014.

Figure A6.1: Overall NBCSP outcomes for invitees aged 50, 55, 60 and 65, August 2006–June 2014

Figure A6.1 in this report has been updated to take into account invitees who have received a second invitation—something the previous monitoring report did not. The current overall screening rate of 36.5% is lower than the 45.4% rate achieved in the pilot program, while the overall crude colonoscopy follow-up (diagnosis) rate of 73.3% is higher than that achieved in the pilot program (55.0%) (DoHA 2005).

Since the inception of the NBCSP in 2006, 3,989 participants have been diagnosed with a suspected or confirmed cancer and 12,294 more have been diagnosed with advanced adenomas. Additionally, 8,936 participants have been diagnosed with earlier-stage adenomas.

While the NBCSP only follows participants up to the point of definite diagnosis, and outcomes of treatment for these participants are unknown, it would be expected that the earlier treatment the NBCSP afforded these participants should improve their treatment outcomes. This may eventually be shown as reductions in bowel cancer incidence and mortality in the coming years.

Lastly, an increase in the rate of return of colonoscopy and histopathology report forms, would improve monitoring of the NBCSP and its invitees.

Updated outcomes for 2012–13 invitees

The previous monitoring report, *National Bowel Cancer Screening Program monitoring report: July 2012–June 2013* (AIHW 2014e), presented national statistics on key program activity, performance and outcome indicators for people invited from 1 July 2012 to 30 June 2013. The report used outcome data up until 31 December 2013, and those results are shown in the comparison table provided after the summary of this report (Table 1).

For many participants invited late in the period reported, limited follow-up data were available. The latest program data, to 31 December 2014, provide an extra 12 months of participation and documented follow-up outcomes for this cohort. Table A6.1 provides a comparison of the initial and updated statistics for these people invited from 1 July 2012 to 30 June 2013.

The changes reflected in the final column show slight increases in participation rates, as well as increases in outcome data related to additional follow-up form return. It is important to note, however, that while the values in this table are based on a larger amount of outcome data and may be considered final, follow-up information remains incomplete due to an unknown number of follow-up outcome forms—particularly those relating to histopathology—never being returned to the NBCSP Register.

Table A6.1: Initially reported and final performance measure outcomes, people aged 50, 55 and 65, 2012–13

Performance measure	Initial[(a)]	Final[(b)]
	Percentage of those invited to participate	
Overall participation rate	33.4	34.1
50 years	*27.4*	*28.2*
55 years	*33.2*	*33.8*
65 years	*41.6*	*42.3*
	Percentage of those who screened	
FOBT positivity rate	7.5	7.5
	Percentage of those with a positive screen	
PHCP follow-up rate	58.0	59.6
Colonoscopy follow-up rate	70.4	75.1
	Percentage of colonoscopy outcomes	
Suspected/confirmed cancers	3.2	3.3
Advanced adenomas	5.7	6.9
Small or diminutive adenomas	3.9	5.7
Polyps awaiting histopathology	41.2	37.2
No abnormality	46.0	46.9

(a) Initial values relate to those known for the 2012–13 invitees using data as reported in the previous monitoring report (AIHW 2014e).

(b) Final values relate to those known for the 2012–13 invitees using data as at 31 December 2014.

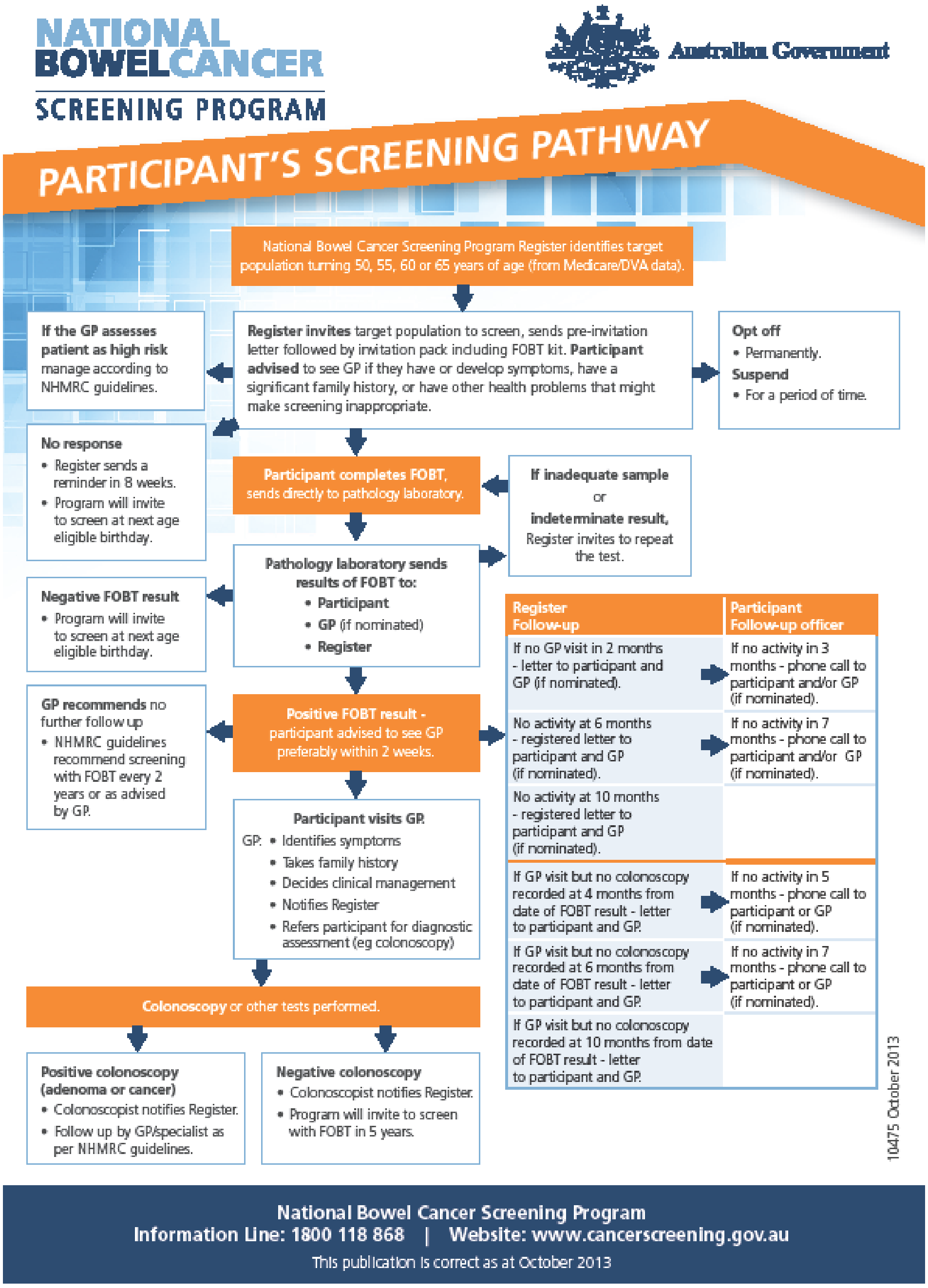
Notes

1. Participation is the percentage of eligible invitees who returned a completed FOBT kit, regardless of whether they later suspended their participation or opted off.
2. FOBT positivity equals the percentage of valid FOBT results that were positive, with valid results being either positive or negative; inconclusive results were excluded.
3. PHCP follow-up rate equals the percentage of people with a positive FOBT result who then consulted a PHCP and had an assessment form returned to the NBCSP Register.
4. Colonoscopy follow-up rate equals the percentage of people with a positive FOBT result who then had a colonoscopy recorded in the register.
5. Colonoscopy outcomes relate to the most accurate outcome data available for recorded colonoscopies.

Source: National Bowel Cancer Screening Program Register.

Appendix B: National Bowel Cancer Screening Program (NBCSP) information

NBCSP resources



NATIONAL BOWEL CANCER SCREENING PROGRAM

Australian Government

PARTICIPANT'S SCREENING PATHWAY

National Bowel Cancer Screening Program Register identifies target population turning 50, 55, 60 or 65 years of age (from Medicare/DVA data).

Register invites target population to screen, sends pre-invitation letter followed by invitation pack including FOBT kit. **Participant advised** to see GP if they have or develop symptoms, have a significant family history, or have other health problems that might make screening inappropriate.

If the GP assesses patient as high risk manage according to NHMRC guidelines.

Opt off
- Permanently.

Suspend
- For a period of time.

No response
- Register sends a reminder in 8 weeks.
- Program will invite to screen at next age eligible birthday.

Participant completes FOBT, sends directly to pathology laboratory.

If inadequate sample or **indeterminate result,** Register invites to repeat the test.

Pathology laboratory sends results of FOBT to:
- **Participant**
- **GP** (if nominated)
- **Register**

Negative FOBT result
- Program will invite to screen at next age eligible birthday.

Positive FOBT result - participant advised to see GP preferably within 2 weeks.

GP recommends no further follow up
- NHMRC guidelines recommend screening with FOBT every 2 years or as advised by GP.

Participant visits GP.

GP:
- Identifies symptoms
- Takes family history
- Decides clinical management
- Notifies Register
- Refers participant for diagnostic assessment (eg colonoscopy)

Register Follow-up	**Participant Follow-up officer**
If no GP visit in 2 months - letter to participant and GP (if nominated).	If no activity in 3 months - phone call to participant and/or GP (if nominated).
No activity at 6 months - registered letter to participant and GP (if nominated).	If no activity in 7 months - phone call to participant and/or GP (if nominated).
No activity at 10 months - registered letter to participant and GP (if nominated).	
If GP visit but no colonoscopy recorded at 4 months from date of FOBT result - letter to participant and GP.	If no activity in 5 months - phone call to participant or GP (if nominated).
If GP visit but no colonoscopy recorded at 6 months from date of FOBT result - letter to participant and GP.	If no activity in 7 months - phone call to participant or GP (if nominated).
If GP visit but no colonoscopy recorded at 10 months from date of FOBT result - letter to participant and GP.	

Colonoscopy or other tests performed.

Positive colonoscopy (adenoma or cancer)
- Colonoscopist notifies Register.
- Follow up by GP/specialist as per NHMRC guidelines.

Negative colonoscopy
- Colonoscopist notifies Register.
- Program will invite to screen with FOBT in 5 years.

10475 October 2013

National Bowel Cancer Screening Program
Information Line: 1800 118 868 | Website: www.cancerscreening.gov.au
This publication is correct as at October 2013

Note: This figure does not reflect the target population cohorts from 1 January 2015.

Source: Health (2015a). Reproduced with permission of the copyright owner.

Figure B.1: The NBCSP participant's screening pathway

NBCSP definitions

Target population

The NBCSP has been phased in gradually to ensure demand for services such as colonoscopy can be met. Table B.1 outlines the start dates of each phase, and the target age groups.

Table B.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.

Eligible population

The eligible population invited included those in the target population, as defined above, 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. Invitees who were outside the target ages or had a current address outside Australia were excluded from this report. People who chose to opt off or suspend participation were included in the eligible population.

Polyps

Colorectal (bowel) 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 may occur individually but it is common for a person to have multiple polyps. They occur more commonly in later life, and hereditary and dietary (lifestyle) factors may play a part. Polyps may become cancerous and are generally defined as 2 main types:

- hyperplastic—a type of polyp that has a low risk, if any, of developing into a cancer; however, people with multiple hyperplastic polyps are associated with an increased risk of bowel cancer
- adenoma (adenomatous)—a polyp that has a higher chance of becoming cancerous, as it contains molecular characteristics that are common with adenocarcinoma (see 'Adenoma classifications' below).

Polyp number, size and microscopic features may also predict the likelihood of a polyp becoming cancerous, with larger and flatter (non-stalked) polyps having the higher risk. During a colonoscopy, polyps are removed, thus lowering the risk of bowel cancer developing in the person.

Adenoma classifications

An adenoma (adenomatous polyp) is 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.

Although nearly all cancers in the colon (adenocarcinomas) arise from adenomas, only a small minority of adenomas (1 in 20 or fewer) progress to cancer (Ahnen & Macrae 2008). While most small tubular adenomas have a low risk of progressing to cancer, the risk is much higher in advanced adenomas.

Adenoma classifications were derived from information reported by colonoscopists and histopathologists, and were classified from highest risk (advanced) to lowest risk (diminutive), as listed below. Where a person had multiple adenomas, they were classified according to the adenoma having the highest risk.

Advanced adenoma

If any of the indicators of higher risk were present, the adenoma was classified as advanced:

- adenoma multiplicity—3 or more adenomas present at examination, regardless of histopathology or size
- adenoma size—a size of 10 millimetres or greater. The measurement is subject to certain problems with accuracy. Where colonoscopy and pathology reports differ in their recording of size, the larger size was used.
- high-grade dysplasia
- significant villous change or serrated—adenomas recorded as serrated, tubulovillous or villous on pathology reports.

Non-advanced adenomas

Small adenoma

A tubular or mixed adenoma between 5 millimetres and 9 millimetres.

Diminutive adenoma

A tubular or mixed adenoma smaller than 5 millimetres, or with no size recorded.

Appendix C: Data sources and classifications

Data sources

Multiple data sources were analysed to produce this report. These are summarised in Table C.1. All data used in this report were based on calendar years.

Table C.1: Data sources for information presented in this report

Measure	Data source
1 Participation	National Bowel Cancer Screening Program Register
2 FOBT outcomes	National Bowel Cancer Screening Program Register
3 Follow up of positive FOBT results	National Bowel Cancer Screening Program Register
4 Bowel abnormality detection	National Bowel Cancer Screening Program Register
5 Adverse events	National Bowel Cancer Screening Program Register
6 Incidence of bowel cancer (ICD-10 C18–20)	Australian Cancer Database (ACD), Australian Institute of Health and Welfare (AIHW)
7 Mortality from bowel cancer (ICD-9 153, 154.0–154.1, ICD-10 C18–20)	National Mortality Database (NMD), AIHW
8 Expenditure	AIHW Health Expenditure Database; Medicare Australia statistics
Population data	Australian June 2001 standard population; Estimated resident populations, Australian Bureau of Statistics (ABS); 2011 Census of Population and Housing, ABS

National Bowel Cancer Screening Program (NBCSP) Register data

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 from 1 July 2013 to 30 June 2014. It covers measures of participation, faecal occult blood test (FOBT) results, and follow-up investigations and outcomes. Analyses are presented by age, sex, state and territory, geographical region, socioeconomic status, Indigenous status, language spoken at home, and disability status.

Data Quality Statement: NBCSP screening data: 2013–14

Summary of key issues

- The NBCSP is managed by the Department of Health in partnership with state and territory governments. The NBCSP is monitored annually by the Australian Institute of Health and Welfare (AIHW). Results are compiled and reported at the national level by the AIHW in an annual NBCSP monitoring report.
- NBCSP data depend on the return of data forms from participants, general practitioners, colonoscopists and pathologists to the NBCSP Register. The register is maintained by the Department of Human Services. Data from the register are provided to the AIHW 6-monthly as de-identified unit record data.
- Analysis of remoteness and socioeconomic status are based on postcode of residential address of NBCSP invitees at the time of screening. Correspondences for these

disaggregations may be unavoidably older than the year(s) of screening data being reported, potentially leading to inaccuracies.

- Aboriginal and Torres Strait Islander status, preferred language spoken at home and disability status are self-reported by participating individuals.
- Exclusion of people screened outside the NBCSP will result in an underestimation of population screening rates in the target ages.
- Data return for later stages in the NBCSP screening pathway (GP, colonoscopy and pathology follow-up, as required) is not mandatory. Further, not all people who received a positive (abnormal) screening result may have had time to complete follow-up steps at the time of reporting. These factors may result in under-reporting of outcome data.
- Data may be suppressed for confidentiality and reliability reasons (for example, if the denominator is less than 100, or the rate could not be sensibly estimated).

Description

The NBCSP is managed by the Department of Health in partnership with state and territory governments. The NBCSP started in 2006 and uses national invitation and screening analysis processes. A 'usual care' model is then used for follow-up functions for those with a positive (abnormal) screening result; that is, these people are encouraged to see their doctor to discuss the test result and seek further diagnostic testing (such as colonoscopy) as required. Data from these follow-up functions are returned to the national NBCSP Register via non-mandatory form return.

Currently, people who are registered as Australian citizens or migrants in the Medicare enrolment file, or are registered with a Department of Veterans' Affairs gold card, receive a screening invitation at, or around, their 50th, 55th, 60th and 65th birthdays. From January 2015, program expansion to implement a biennial screening interval for those aged 50–74 will start. It is due to be completed by 2020.

NBCSP data depend on the return of data forms from participants, general practitioners, colonoscopists and pathologists to the NBCSP Register. The register is maintained by the Department of Human Services. Data from the register are provided to the AIHW 6-monthly as de-identified unit record data.

The NBCSP is monitored annually by the AIHW. Results are compiled and reported at the national level by the AIHW in an annual NBCSP monitoring report.

Institutional environment

The AIHW is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent corporate Commonwealth entity established in 1987, governed by a management Board, and accountable to the Australian Parliament through the Health portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The AIHW also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The AIHW works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988* (Cwlth), ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality.

For further information see the AIHW website, <www.aihw.gov.au>.

Under agreement with the Department of Health and AIHW, the Department of Human Services supply a de-identified snapshot of all NBCSP activity to the AIHW at 6-month intervals. The AIHW has been receiving these data, for reporting purposes, since 2006.

Relevance

NBCSP screening data are highly relevant for monitoring trends and outcomes from NBCSP screening participation. It is important to note that additional bowel cancer screening is undertaken outside of the NBCSP. Data on people screened outside the program are not routinely collected; therefore, the level of underestimation of overall bowel cancer screening in Australia is unknown.

Socioeconomic status Index of Relative Socio-economic Disadvantage (IRSD) rankings are calculated by postal area (POA) using a population-based method at the Australia-wide level. These ranked socioeconomic status POAs are then allocated to their relevant jurisdiction, meaning quintiles should contain similar socioeconomic groups across jurisdictions.

Timeliness

The data discussed in this data quality statement are for the period July 2013–June 2014 , and will first be made publically available in June 2015.

A snapshot of all NBCSP activity is made available to the AIHW regularly at 6-month intervals. However, as there is a time lag between issuing invitations and confirmed diagnosis of bowel cancer, the monitoring reports are based on outcomes of a cohort of people sent invitations in a given period—this is usually cut off about 6 months before the date of the data supply to allow for sufficient follow-up data for analysis.

Therefore, the reportable NBCSP data held at the AIHW at any given time is about 6 months behind the current date.

Accuracy

Self-reporting of Aboriginal and Torres Strait Islander, language spoken at home and disability status within the program means the accuracy of these data are dependent on correct, and complete, information from participants.

IRSD rankings are measured only at the time of the Australian Census of Population and Housing and are not available for about 18 months from the census date. Consequently, socioeconomic status for a geographical area may be up to 6 years out of date and not an accurate representation of the status of residents at the time the data are analysed.

An Australian Bureau of Statistics POA to remoteness correspondence and a POA to socioeconomic status correspondence are used to allocate persons screened to remoteness and socioeconomic status areas based on their postcode of residence. POAs are defined to match Australia Post postcodes as closely as possible, but for various reasons, they do not match identically. Socioeconomic status is calculated using a population-based method at the Australia-wide level.

The remoteness (and socioeconomic status) to POA correspondences are based on postal areas, boundaries and classifications as at the year of the last Australian census, which may have been up to 5 years earlier, and boundaries, socioeconomic status and remoteness regions may have changed over time, creating inaccuracies. New postal areas defined since the previous census will not have valid remoteness or socioeconomic status correspondence data available as they will not match the old postal areas.

NBCSP outcome data are via non-mandatory form return from GP visits, colonoscopies, histopathology, adverse events and surgical resection. The level of form return is unknown; therefore, there is an unknown amount of missing outcome data. This needs to be taken into consideration when reviewing NBCSP outcome analyses.

The data used in NBCSP monitoring reports allow for 6 months of follow-up time post-invitation. However, this may not be enough time for all people who had a positive screening result to have completed the screening pathway and had outcomes returned to the NBCSP Register. This may also result in some under-reporting of outcome data.

Some data cells have been suppressed for confidentiality and reliability reasons (for example, if the denominator is less than 100, or the rate could not be sensibly estimated).

Coherence
NBCSP screening data are reported and published annually by the AIHW. Any changes in reporting practices over time will be clearly noted within the monitoring reports; none have occurred to date. In future, the addition of extra screening ages and biennial rescreening are expected to affect results in most areas of the screening pathway. Further, the implementation of reporting using new performance indicators will start in 2016.

Interpretability
While the concept of participation in the NBCSP is easy to interpret, the NBCSP screening pathway and other concepts and statistical calculations are more complex and may be confusing to some users. All concepts are explained within the body of the reports presenting these data, along with footnotes to provide further details and caveats. The appendixes provide additional detail on the data sources and classifications, and on the statistical methods used.

Accessibility
The NBCSP annual monitoring reports, and any supplementary data, are available via the AIHW website where they can be downloaded free of charge. Users can request data not available online or in reports via the Cancer and Screening Unit of the AIHW on 02 6244 1000 or via email to <screening@aihw.gov.au>. Requests that take longer than half an hour to compile are charged for on a cost-recovery basis. General enquiries about AIHW publications can be made to the Digital and Media Communications Unit on 02 6244 1000 or via email to <info@aihw.gov.au>.

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This Data Quality Statement can be found on AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/608831>.

AIHW Australian Cancer Database

All forms of cancer, except basal and squamous cell carcinomas of the skin, are notifiable diseases in each Australian state and territory. This means there is legislation in each jurisdiction that requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry. An agreed subset of the data collected by these cancer registries is supplied annually to the AIHW, where the data are compiled into the Australian Cancer Database (ACD). The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2009 for all states and territories, and for 2010 and 2011 for all except NSW and the ACT.

The 2010 and 2011 incidence data for NSW and the ACT were not available for inclusion in the 2011 version of the ACD. The development of the new NSW Cancer Registries system has resulted in a delay in processing incidence data for 2010 onwards and therefore the most recent NSW data available for inclusion in the ACD are for 2009 (though their 2009 death-certificate-only cases were also not available and have been estimated as well). Full details about this situation are given at: <http://www.cancerinstitute.org.au/data-and-statistics/accessing-our-data/availability-of-nsw-central-cancer-registry-data>. As the coding of ACT cancer notifications is contracted to the NSW Cancer Registry, the most recent data available for the ACT are also for 2009.

The 2010 and 2011 incidence data for NSW and the ACT were estimated by the AIHW. These estimates were combined with the actual data supplied by the other 6 state and territory cancer registries to form the 2011 ACD. The detailed methodology by which data for NSW and the ACT were estimated for 2010 and 2011 is available in Appendix F of *Cancer in Australia: an overview 2014* (AIHW 2014f).

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

Data have been analysed using the year of diagnosis of cancer. This is a more accurate reflection of incidence during a particular year than the year of registration of cancer.

The Data Quality Statement for the ACD 2011 can be found on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/586979>.

AIHW National Mortality Database

The AIHW National Mortality Database (NMD) contains information provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System, and coded by the ABS, for deaths from 1964 to 2012. Registration of deaths is the responsibility of the state and territory registrars of births, deaths and marriages. These data are then collated and coded by the ABS and are maintained at the AIHW in the NMD.

In the NMD, the year of occurrence of the death, and the year in which the death was registered, are both provided. For the purposes of this report, actual mortality data are shown based on the year of occurrence of the death, except for the most recent year (2012), where the number of people whose death was registered is used. Previous investigation has shown that the year of death and its registration coincide for the most part. However, in some instances, deaths at the end of each calendar year may not be registered until the following year. Thus, year-of-death information for the latest available year is generally an underestimate of the actual number of deaths that occurred in that year.

In this report, deaths registered in 2010 and earlier are based on the final version of cause-of-death data; deaths registered in 2011 and 2012 are based on revised and preliminary versions, respectively, and are subject to further revision by the ABS.

A statement on data quality relating to the AIHW NMD is available at the following ABS website: Quality declaration summary, *Causes of death, 2012*, ABS cat. no. 3303.0 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/3303.0Quality%20Declaration02012?opendocument&tabname=Notes&prodno=3303.0&issue=2012&num=&view=>.

All states and territories have provision for the identification of Aboriginal and Torres Strait Islander deaths on their death registration forms. However, the coverage of deaths identified as Indigenous varies across states and territories and over time. While the identification of Indigenous deaths is incomplete in all state and territory registration systems, the ABS and AIHW assessed the adequacy of identification for analysis and:

- Western Australia, South Australia and the Northern Territory were found to have had adequate identification from 1991 onwards,
- Queensland was added as having adequate identification from 1998 onwards, and
- New South Wales was also deemed as having adequate identification from 2001 onwards (meaning 5 jurisdictions can be reported from 2001 onwards).

Data for Aboriginal and Torres Strait Islander deaths, state and territory and geographical location have been combined for the 5 years from 2008–2012 due to the small number of deaths from bowel cancer in some categories each year.

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 2013a).

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>.

ABS Population data

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 (SLA) 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>.

The ABS estimated (mid-year) resident population data were used to calculate incidence and mortality rates in this report. These data were sourced from *ABS Australian demographic statistics* (ABS cat. no. 3101.0).

Classifications

Geographical classification

The ability to access and provide a wide range of services is influenced by the distance between clients and providers, be it for the clients to travel to the service providers or for the providers to travel to deliver services close to a person's home. The geographical location of areas is therefore an important concept in planning and analysing the provision of services.

Geographical location was classified according to the ABS Australian Statistical Geography Standard (ASGS) 2011 Remoteness Structure, which groups geographical areas into 6 categories. These categories, called Remoteness Areas, are based on ASGS Statistical Area level 1 units and defined using the Accessibility/Remoteness Index for Australia (ARIA). ARIA is a measure of the remoteness of a location from the services provided by large towns or cities. Accessibility is judged purely on distance to one of the metropolitan centres. A higher ARIA score denotes a more remote location. The 6 Remoteness Areas are listed in Table C.2; the sixth, *Migratory*, is not used in this publication. The category *Major cities* includes Australia's capital cities, with the exceptions of Hobart and Darwin, which are classified as *Inner regional*. Further information is available on the ABS website at <http://www.abs.gov.au/websitedbs/D3310114.nsf/home/geography>.

Table C.2: Remoteness Areas of the Australian Statistical Geography Standard 2011

Region	Collection districts (CDs) within region
Major cities of Australia	CDs with an average ARIA index value of 0 to 0.2
Inner regional Australia	CDs with an average ARIA index value greater than 0.2 and less than or equal to 2.4
Outer regional Australia	CDs with an average ARIA index value greater than 2.4 and less than or equal to 5.92
Remote Australia	CDs with an average ARIA index value greater than 5.92 and less than or equal to 10.53
Very remote Australia	CDs with an average ARIA index value greater than 10.53
Migratory	Areas composed of offshore, shipping and migratory CDs

Residential address postcodes of participants were mapped to 2011 ASGS Remoteness Areas, ranging from *Major cities* to *Very remote* areas. As some postcodes can span different Remoteness Areas, a weighting for each Remoteness Area is attributed to the postcode. This can result in non-integer counts for remoteness classifications. For example, the Northern Territory postal area 0822 is classified as 69.3% *Very remote*, 15.9% *Remote* and 14.8% *Outer regional*. Participants with postcode 0822 have their counts apportioned accordingly.

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.

Socioeconomic classification

A person's health, and their ability to access and provide a wide range of services, is also influenced by the relative socioeconomic advantage and disadvantage of the area in which they live.

Socioeconomic classifications were based on the 2011 ABS Index of Relative Socio-economic Disadvantage (IRSD). Geographical areas are assigned a score based on attributes such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations. It does not refer to the socioeconomic situation of a particular individual, but instead refers to the area in which a person lives. A low score on this index means an area has more low-income families, people with little training and high unemployment, and may be considered disadvantaged relative to other areas with higher scores. However, such an area is also likely to contain some people who are relatively advantaged. When area-level indexes are used as proxy measures of individual-level socioeconomic advantage and disadvantage, many people are likely to be misclassified. Geographical areas may be excluded where no score is determined due to low populations or high levels of non-response in the underlying census.

In this report, socioeconomic status of a participant's area of residence was classified using the participant's residential postcode according to the IRSD for 2011. Socioeconomic status (based on IRSD rankings) were calculated with a postal area (POA) correspondence (previously called a concordance) using a population-based method at the Australia-wide level. Five socioeconomic groups, based on the level of the index, were used for analysis, where group 1 represents the most disadvantaged fifth of the population and group 5 the least disadvantaged. Participants whose postcode was not available in the socioeconomic status correspondence were included in an 'Unknown' column in the relevant tables. 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.

NBCSP classifications

See Appendix B for classifications specific to the NBCSP.

Appendix D: Statistical methods

Comparisons and tests of statistical significance

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

Crude rates

In contrast to age-specific, age-standardised, or Kaplan-Meier rates (below), a crude rate is simply defined as 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. For example, the crude participation rate is the proportion of the eligible people invited to participate in 2013–14 who return a completed faecal occult blood test (FOBT) kit by 31 December 2014. The crude colonoscopy follow-up is the proportion of people invited in 2013–14 with a positive FOBT result who proceeded to colonoscopy by 31 December 2014.

The crude proportions will generally underestimate the true proportions of the population who participated in the National Bowel Cancer Screening Program (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. For example, a person who has just received an invitation to screen may intend to participate in screening but may not have had time to do so. They will be counted in the denominator of the crude participation but not in the numerator. 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. A colonoscopy follow-up calculated during this lag includes them in the denominator but not in the numerator.

Age-specific rates

Age-specific rates were calculated by dividing 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-standardised rates

Rates are adjusted for age to help comparisons between populations that have different age structures—for example, between youthful and ageing communities. Two different methods are commonly used to adjust for age. In this publication, direct standardisation was used, in which age-specific rates were multiplied against a constant population (the Australian 2001 population). This effectively removes the influence of age structure on the summary rate, and is described as the age-standardised rate. The method used for this calculation comprises 3 steps:

- Calculate the age-specific rate for each age group.

- Calculate the expected number of cases in each 5-year age group by multiplying the age-specific rates by the corresponding standard population, and dividing by 100,000, giving the expected number of cases.
- Calculate the age-standardised rate by summing the expected number of cases in each age group, and dividing this sum by the total of the standard population used in the calculation and multiplying by 100,000.

The results of age standardisation depend directly on the constant population chosen. Care must be taken when comparing the reported age-standardised rates between countries because different constant populations may have been used in each case.

Confidence intervals

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

This report uses data that are based on administrative data sets that contain 'complete counts', not sample survey data. While confidence intervals could be used to describe variability that is due to non-sample errors in the data, practically it is not easy to do so accurately. Therefore, as the size of this error is difficult to determine, and to avoid providing confidence intervals that could be misleading, the AIHW instead recommends caution be exercised when interpreting small differences between rates. This is especially true where counts are small, and rates based on small counts will be noted (see 'Small counts' below).

In this report, 95% confidence intervals are only used in 'Section 2, Chapter 3 Follow-up of positive FOBT results' to determine if a statistically significant difference exists between compared Kaplan–Meier estimates. Where the confidence intervals do not overlap, the difference between values is greater than that which could be explained by chance and is regarded as statistically significant.

Kaplan–Meier estimates of participation and follow-up

Kaplan–Meier estimates are statistical methods that calculate a modelled rate based on the time it takes each individual invited for screening to move between points on the screening pathway. For example, participation is calculated by following each invited person and, for those who respond (by returning a completed FOBT kit), recording the time (in weeks) it took them to do so. This allows the calculation of an overall response rate over time from the date of invitation, calculated as if all invitations sent throughout a particular period were sent on the same date. Such Kaplan–Meier estimates represent valid estimates of the true FOBT participation. The Bowel Cancer Screening Pilot Program used Kaplan–Meier estimates of participation, attendance and follow-up. The use of Kaplan–Meier estimates in the NBCSP was endorsed by the Implementation Advisory Group, and allows direct comparison of participation, attendance and follow-up rates with the Bowel Cancer Screening Pilot Program.

In principle, the Kaplan–Meier estimate gives a result only at a specific point in time. The estimate is likely to grow for later points in time. However, inspection of these estimates shows that they reach a plateau, after which they have only a negligible increase. Kaplan–Meier estimates in this report were calculated at 26 weeks and 52 weeks for participation, and PHCP and colonoscopy follow-up.

The Kaplan–Meier estimates require that classifying variables be known for the population. For the purposes of this report, they can be calculated for participation classified by age, sex and jurisdiction. However, they cannot be used for participation classified by Aboriginal and Torres Strait Islander status, language group or disability status, which are not known for all the invited population. These variables are only known for those participants who identify themselves as a member of these groups on their returned participant details form. Therefore, the Kaplan–Meier estimates cannot be applied for these sub-groups.

Aboriginal and Torres Strait Islander status, language group status and disability status will be known for all people completing FOBT kits (at least to the extent that people self-identify as members of these groups). Hence, in principle, Kaplan–Meier estimates can be calculated for these groups for participation at subsequent points on the screening pathway. In practice, these calculations depend on sufficient numbers of people identifying as group members to allow the calculation of reliable estimates.

Confidentiality and reliability of data

The AIHW operates under a strict privacy regime which has its basis in section 29 of the *Australian Institute of Health and Welfare Act 1987* (AIHW Act) and the *Privacy Act 1988* (Privacy Act).

Section 29 of the AIHW Act requires that confidentiality of data relating to persons (living and deceased) and organisations be maintained. The Privacy Act governs confidentiality of information about living individuals.

As well as the protection offered by AIHW Act and the Privacy Act, personal information held by the AIHW is covered by a range of other Commonwealth, state and territory legislation.

The AIHW is committed to reporting that maximises the value of information released for users while being statistically reliable and meeting legislative requirements described above.

To ensure the confidentiality of its data, the AIHW has a range of policies, protocols and processes in place—the AIHW Policy on reporting to manage confidentiality and reliability (AIHW Confidentiality Policy) is one important example, as it deals with how data should be reported to ensure confidentiality.

AIHW Confidentiality Policy, a summary

The AIHW Confidentiality Policy contains 7 guidelines to assist those working with data to apply it to their outputs.

Guideline 1

It is AIHW policy that, if the data being considered have already been released publicly at the granularity AIHW intends to release, further confidentialisation is not required.

Guideline 2

Cells in tables where the value of the cell is the same as a row/column/wafer total (that is, all other cells in the row, column or wafer are zero) generally lead to disclosure of an additional attribute. It is AIHW policy that these cells need to be confidentialised unless the attribute that would be disclosed is deemed to be non-sensitive in the context of the data being published.

Guideline 3

It is AIHW policy that data on organisations must be confidentialised if 1 organisation contributes more than 85% of the total, or 2 organisations more than 90%, unless the attribute that would be disclosed is deemed to be non-sensitive in the context of the data being published or the organisation(s) have given consent to release.

Guideline 4

It is AIHW policy that guidelines 2 and 3 need to be applied so as to ensure that attribute confidentiality is maintained within tables and across tables within the same release. That is, when assessing whether a cell needs to be confidentialised, consideration needs to be given to whether there are other cells in that table, or other tables in the release, which may require consequential confidentialisation.

Guideline 5

Rates, averages and other statistics based on denominators of less than 100 are usually not reliable and it is AIHW policy that they should generally not be reported.

Guideline 6

It is AIHW policy that if data suppliers or clients require additional suppression rules be applied to an AIHW release in order to manage confidentiality or reliability, then these should be applied. Where such additional rules are applied they should be described in the release, and it should be noted that this approach is required by the data supplier.

Guideline 7

It is AIHW policy that, if a client wishes to be provided with data output (for example, tables) at a more detailed level than any of the above guidelines would allow, then they may apply to be provided output against which some or all of the above guidelines are not applied. Provision of this more detailed output would be subject to the client signing a confidentiality undertaking and agreeing that any publication of information (including in online data cubes) based on output released to them will comply with this policy.

Jurisdictional bowel cancer incidence data

Further to the AIHW Confidentiality Policy guideline 6, tables specifically showing bowel cancer incidence by state and territory had counts fewer than 5 suppressed. Incidence rates based on fewer than 5 cases were also suppressed. Suppressed values are marked with 'n.p.'

Glossary

adenoma: See Appendix B for details.

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 (AIHW 2014c).

asymptomatic: Without symptoms.

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

bowel cancer: Comprises cancer of the colon and cancer of the rectum. It is also known as colorectal cancer.

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.

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

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

colonoscopy follow-up rate: The proportion of people with a positive FOBT who subsequently had a colonoscopy.

colorectal cancer: See *bowel cancer*.

crude rate: See Appendix D for details.

CT colonography: A procedure that produces computed tomography (CT) pictures of the bowel by X-raying from many different angles.

double contrast barium enema: A type of bowel X-ray in which barium sulphate and air are added into the bowel to assist in detecting abnormal growths.

eligible population: For this report the eligible population comprised people invited to participate in screening in 2013–14, who were Australians registered as Australian citizens or migrants in the Medicare enrolment file, or are registered with a Department of Veterans' Affairs gold card, who turned 50, 55, 60 and 65 from 1 January 2013 to 30 June 2014, even if they had opted off or suspended their participation in the program.

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 condition 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 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. (See Appendix B for details of the participant screening pathway.)

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. Compare with *prevalence* (AIHW 2014c).

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 tenth 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: Abnormal changes consistent with cancer.

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

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

mortality: Death. For this publication specifically, see *cancer death*.

neoplasm: An abnormal ('neo', new) growth of tissue. Can be benign (not a cancer) or malignant (a cancer). Same as tumour (AIHW 2014c).

opt off: Invitees who do not wish to participate in the National Bowel Cancer Screening Program 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 National Bowel Cancer Screening Program by returning a completed FOBT kit and participant details form.

polyp: See Appendix B for details.

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.

positivity rate: Number of positive FOBT results as a percentage of the total number of valid FOBT results.

prevalence: The number or proportion (of cases, instances, and so forth) in a population at a given time. Compare with *incidence* (AIHW 2014c).

primary health-care practitioner (PHCP): Classified by the Department of Human Services (DHS) as a general practitioner or other primary health-care provider. This may include remote health clinics or specialists providing general practitioner services.

primary health-care practitioner follow-up rate: The proportion of people who were sent a positive FOBT result and who subsequently visit a primary health-care practitioner.

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.

sigmoidoscopy: Inspection of last portion of the bowel through either a rigid or flexible hollow tube.

significant difference: Rates are referred to as significantly different if their difference is calculated as statistically significant. That is, the *confidence intervals* of the rates do not overlap. See 'Confidence intervals' in Appendix D for more information.

socioeconomic status: See Appendix C for details.

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

target population: See Table B.1 (in Appendix B).

tumour: See *neoplasm*.

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

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

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Related publications

This report, *National Bowel Cancer Screening Program monitoring report: 2013–14* is part of a series. Earlier editions and any published subsequently can be downloaded for free from the Australian Institute of Health and Welfare (AIHW) website <www.aihw.gov.au/publications>. The website also includes information on ordering printed copies.

For those requiring further detail, additional Internet-only data tables are available at the AIHW *National Bowel Cancer Screening Program monitoring report: 2013–14 supplementary tables* webpage. This can also be downloaded for free from the AIHW website <www.aihw.gov.au/publications>.

The following AIHW publications relating to cancer and cancer screening may also be of interest:

- AIHW 2014. Cancer in Australia: an overview 2014. Cancer series no. 90. Cat. no. CAN 88. Canberra: AIHW.
- AIHW 2014. BreastScreen Australia monitoring report 2011–2012. Cancer series no. 86. Cat. no. CAN 83. Canberra: AIHW.
- AIHW 2015. Cervical screening in Australia 2012–2013. Cancer series no. 93. Cat. no. CAN 91. Canberra: AIHW.

Supplementary online data tables

Additional tables are available as online Excel tables at <www.aihw.gov.au>, under the 'Additional material' tab for this report. These tables contain detailed statistics for the incidence and mortality tables and figures presented in the body of the report.

There are 2 Excel files:

- Supplementary incidence chapter tables
- Supplementary mortality chapter tables.

This report presents statistics on the National Bowel Cancer Screening Program for Australians invited to take part between July 2013 and June 2014. Thirty six per cent (about 510,000) of those who were invited went on to participate in screening, of whom 7.5% (37,700) were found to require further assessment. One out of every 11 assessments detected an advanced adenoma (pre-cancerous lesion), and a bowel cancer was detected in 1 out of every 25 assessments.