

Glossary

Age-standardised rate: 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, which allows comparison of disease rates (AIHW 2006).

Asymptomatic: without symptoms.

Benign: not malignant.

Bowel cancer: comprises cancer of the colon and cancer of the rectum, collectively 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 in which some of the body's cells become defective, and begin to multiply out of control. These cells can invade and damage the area around them, and can also spread to other parts of the body to cause further damage (AIHW 2006).

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: 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.

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 visualising the outline of the bowel and detecting abnormal growths.

Eligible population: for this report monitoring people invited in 2008, Australians turning 50, 55 and 65 years of age between 1 January 2008 and 31 December 2008 who have not opted off or suspended participation in the Program.

False-positive: a test result that incorrectly indicates a person has the condition being tested when they do not have the condition.

FOBT: immunochemical faecal occult blood test – a self-administered test to detect blood in bowel motions, but not bowel cancer itself. The FOBT is analysed by a pathology laboratory, and results forwarded to the register participant and primary health care practitioner (if nominated). Pathologists categorise the returned FOBT into one of three 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, kit samples that have been taken more than 2 weeks apart, or a kit that has taken over 1 month in transit to arrive). 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 as either:

1. positive (blood is detected in at least one of two 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 (for example, of an illness or event) occurring during a given period (AIHW 2006).

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

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

Lymph node: mass of lymphatic tissue, often bean-shaped, that produces lymphocytes and through which lymph filters. These 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.

Mortality: see *Cancer death*.

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.

Positive predictive value: proportion of people with a positive FOBT 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.

Primary health care practitioner: classified by Medicare Australia as a general practitioner or other primary health care provider. This may include remote health clinics or other 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.

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.

Register: National Bowel Cancer Screening Program Register maintained by Medicare Australia.

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.

Sigmoidoscopy: inspection of last portion of the bowel through either a rigid or flexible hollow tube.

Significant difference: where rates are referred to as significantly different, or one rate is deemed significantly higher or lower than another, these differences are statistically significant. Rates are deemed statistically significantly different when their confidence intervals do not overlap, since their difference is greater than what could be explained by chance. 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: For the NBCSP, Australians turning 55 or 65 years of age between 1 May 2006 and 31 December 2008 (Phase 1), or Australians turning 50, 55 or 65 years of age between 1 January 2008 and 31 December 2010 (Phase 2).

Tumour: an abnormal growth of tissue. Can be benign (not a cancer) or malignant (a cancer) (AIHW 2006).

Underlying cause of death: the condition, disease or injury initiating the sequence of events leading directly to death; that is, the primary, chief, main or principal cause (AIHW 2006).

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

References

- ABS (Australian Bureau of Statistics) 2006. Causes of death, Australia, 2004. Cat. no. 3303.0 Canberra: ABS.
- ACN (Australian Cancer Network) Colorectal Cancer Guidelines Revision Committee 2005. Guidelines for the prevention, early detection and management of colorectal cancer. Sydney: Cancer Council Australia and Australian Cancer Network.
- Ahnen DJ & Macrae FA 2008. Approach to the patient with colonic polyps-1. Waltham: UpToDate Inc. Viewed 10 April 2009, <www.uptodate.com/home/clinicians/toc.do?full_url_key=true&tocKey=table_of_contents/gastroenterology/gastrointestinal_cancer>.
- AHTAC (Australian Health Technology Advisory Committee) 1997. Colorectal cancer screening. Canberra: Publications Production Unit, Department of Health and Family Services.
- AIHW (Australian Institute of Health and Welfare) 2006. Australia's health 2006. Cat. no. AUS 73. Canberra: AIHW.
- AIHW 2008. Australian Cancer Incidence and Mortality (ACIM) books, Colorectal. Canberra: AIHW. Viewed 30 April 2009, <www.aihw.gov.au/cancer/data/acim_books/colorectal.xls>.
- AIHW 2009. Australian Cancer Database. Canberra: AIHW.
- APHDPCSS (Australian Population Health Development Principal Committee Screening Subcommittee) 2008. Population based screening framework. Canberra: Commonwealth of Australia.
- Bingham SA, Norat T, Moskal A, Ferrari P, Slimani N, Clavel-Chapelon F, Kesse E, Nieters A, Boeing H, Tjønneland A, Overvad K, Martinez C, Dorronsoro M, Gonzalez CA, Ardanaz E, Navarro C, Quiros JR, Key TJ, Day NE, Trichopoulou A, Naska A, Krogh V, Tumino R, Palli D, Panico S, Vineis P, Bueno-de-Mesquita HB, Ocke MC, Peeters PHM, Berglund G, Hallmans G, Lund E, Skeie G, Kaaks R & Riboli E 2005. Is the association with fiber from foods in colorectal cancer confounded by folate intake? *Cancer Epidemiology, Biomarkers & Prevention* 14(6):1552-6.
- Cole SR, Smith A, Wilson C, Turnbull D, Esterman A & Young GP 2007. An advance notification letter increases participation in colorectal cancer screening. *Journal of Medical Screening* 14(2):73-75.
- DoHA (Department of Health and Ageing) 2005. The Australian Bowel Cancer Screening Pilot Program and beyond: final evaluation report. Screening monograph no. 6/2005. Canberra: DoHA.
- DoHA 2008. Bowel Cancer Screening Program: screening with a faecal occult blood test (FOBT). Canberra: DoHA. Viewed 29 April 2009, <www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/fobt>.
- Holman CDJ, Hatton WM, Armstrong BK & English DR 1987. Cancer mortality trends in Australia. Vol II 1910-1984. Perth: Health Department of Western Australia.
- Key TJ, Appleby PN, Spencer EA, Travis RC, Roddam AW & Allen NE 2009. Cancer incidence in vegetarians: results from the European Prospective Investigation into Cancer and Nutrition (EPIC-Oxford). *American Journal of Clinical Nutrition* 89(suppl):1S-7S.

- Morris M, Lacopetta B & Platell C 2007. Comparing survival outcomes for patients with colorectal cancer treated in public and private hospitals. *Medical Journal of Australia* 186(6):296-300.
- NHPAC (National Health Priority Action Council) 2006. National Service Improvement Framework for Cancer. Canberra: DoHA. Viewed 23 January 2009, <[http://www.health.gov.au/internet/main/publishing.nsf/Content/pq-ncds-cancer/\\$FILE/cancall.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/pq-ncds-cancer/$FILE/cancall.pdf)>
- NBCSP-QWG (National Bowel Cancer Screening Program-Quality Working Group) 2008. Proposals from the Quality Working Group for the National Bowel Cancer Screening Program draft report. Canberra: DoHA. Viewed 1 April 2009, <[http://www.health.gov.au/internet/screening/publishing.nsf/Content/D64721320298052FCA2574EB007F7524/\\$File/draft-qwg.pdf](http://www.health.gov.au/internet/screening/publishing.nsf/Content/D64721320298052FCA2574EB007F7524/$File/draft-qwg.pdf)>.
- Norat T, Bingham S, Ferrari P, Slimani N, Jenab M, Mazuir M, Overvad K, Olsen K, Tjønneland A, Clavel F, Boutron-Ruault M-C, Kesse E, Boeing H, Bergmann MM, Nieters A, Linseisen J, Trichopoulou A, Trichopoulos D, Tountas Y, Berrino F, Palli D, Panico S, Tumino R, Vineis P, Bueno-de-Mesquita HB, Peeters PHM, Engeset D, Lund E, Skeie G, Ardanaz E, González C, Navarro C, Quirós JR, Sanchez M-J, Berglund G, Mattisson I, Hallmans G, Palmqvist R, Day NE, Khaw K-T, Key TJ, San Joaquin M, Hémon B, Saracci R, Kaaks R & Riboli E 2005. Meat, fish, and colorectal cancer risk: the European Prospective Investigation into Cancer and nutrition. *Journal of the National Cancer Institute* 97:906-916.
- O'Connell JB, Maggard MA & Ko CY 2004. Colon cancer survival rates with the new American joint committee on cancer sixth edition staging. *Journal of the National Cancer Institute* 96(19):1420-1425.
- Parkin DM, Bray F, Ferlay J & Pisani P 2005. Global Cancer statistics, 2002. *CA: A Cancer Journal for Clinicians* 55:74-108.
- Strong K, Wald N, Miller A & Alwan A, on behalf of the World Health Organization Consultation Group 2005. Current concepts in screening for noncommunicable disease: World Health Organization Consultation Group Report on methodology of noncommunicable disease screening. *Journal of Medical Screening* 12:12-19.
- Wald NJ 2001. The definition of screening. *Journal of Medical Screening* 8:1.
- Weitz J, Koch M, Debus J, Hohler T, Galle PR & Buchler MW 2005. Colorectal cancer. *Lancet* 365:153-165.
- Wilson JMG & Jungner G 1968. Principals and practice of screening for disease. Public Health Papers No. 34. Geneva: World Health Organization. Viewed 27 January 2009, <whqlibdoc.who.int/php/WHO_PHP_34.pdf>.

List of tables

NBCSP phases and target populations	5
National Bowel Cancer Screening Program phase 1 rollout schedule, states and territories.....	5
Table 1.1: Crude participation, by state and territory: 2008.....	12
Table 1.2: Kaplan-Meier estimated participation rates at 26 and 52 weeks since invitation, by state and territory: 2008	13
Table 1.3: Trends in participation, by state and territory: 2006–2008	14
Table 1.4: Kaplan-Meier estimated participation rates at 26 and 52 weeks since invitation, by age: 2008.....	15
Table 1.5: Kaplan-Meier estimated participation rates at 26 and 52 weeks since invitation, by sex: 2008	16
Table 1.6: Crude participation, by geographic region: 2008	17
Table 1.7: Crude participation, by socioeconomic status: 2008	19
Table 1.8: Crude participation, by Aboriginal and Torres Strait Islander status: 2008	21
Table 1.9: Crude participation, by language spoken at home: 2008	22
Table 1.10: Crude participation, by disability status: 2008.....	23
Table 2.1: FOBT results, by age and sex: 2008.....	28
Table 2.2: FOBT positivity rates, by age and sex: 2008	29
Table 2.3: Trends in FOBT positivity rates, by age and sex: 2006–2008.....	29
Table 2.4: FOBT positivity rates, by state and territory: 2008	30
Table 2.5: FOBT positivity rates, by geographic region: 2008.....	31
Table 2.6: FOBT positivity rates, by socioeconomic status: 2008.....	32
Table 2.7: FOBT positivity rates, by Aboriginal and Torres Strait Islander status: 2008.....	33
Table 2.8: FOBT positivity rates, by language spoken at home: 2008.....	34
Table 2.9: FOBT positivity rates, by disability status: 2008	35
Table 3.1: Crude follow-up by primary health care practitioners following a positive FOBT result, by state and territory: 2008.....	41
Table 3.2: Kaplan-Meier documented primary health care practitioner follow-up per 100 positive FOBTs at 26 weeks since positive FOBT, by state and territory: 2008.....	42
Table 3.3: Trends in primary health care practitioner follow-up, by state and territory: 2006–2008.....	44
Table 3.4: Crude follow-up by primary health care practitioners following a positive FOBT result, by geographic region: 2008	45
Table 3.5: Crude follow-up by primary health care practitioners following a positive FOBT result, by socioeconomic status: 2008	46
Table 3.6: Crude follow-up by primary health care practitioners following a positive FOBT result, by Aboriginal and Torres Strait Islander status: 2008	47
Table 3.7: Crude follow-up by primary health care practitioners following a positive FOBT result, by language spoken at home: 2008	48

Table 3.8:	Crude follow-up by primary health care practitioners following a positive FOBT result, by disability status: 2008	49
Table 3.9:	Symptoms reported to primary health care practitioners following a positive FOBT result: 2008	50
Table 3.10:	Referrals for colonoscopy or other outcomes following a positive FOBT result and subsequent consultation with primary health care practitioner: 2008	51
Table 3.11:	Referrals for colonoscopy or other examination following a positive FOBT result, by geographic location: 2008	52
Table 3.12:	Reason for non-referrals for colonoscopy by primary health care practitioners: 2008	53
Table 3.13:	Crude colonoscopy follow-up following a positive FOBT result, by state and territory: 2008	59
Table 3.14:	Kaplan-Meier documented colonoscopy follow-up per 100 positive FOBTs at 26 weeks since positive FOBT, by state and territory: 2008.....	60
Table 3.15:	Trends in colonoscopy follow-up, by state and territory: 2006–2008.....	62
Table 3.16:	Crude colonoscopy follow-up following a positive FOBT result, by geographic location: 2008	63
Table 3.17:	Crude colonoscopy follow-up following a positive FOBT result, by socioeconomic status: 2008	64
Table 3.18:	Crude colonoscopy follow-up following a positive FOBT result, by Aboriginal and Torres Strait Islander status: 2008	65
Table 3.19:	Crude colonoscopy follow-up following a positive FOBT result, by language spoken at home: 2008.....	66
Table 3.20:	Documented colonoscopy follow-up following a positive FOBT result, by disability status: 2008	67
Table 4.1:	Colonoscopic diagnoses recorded on Colonoscopy Report forms (excludes histopathology): 2008	72
Table 4.2:	Preliminary overall participant summary outcomes, by state and territory: 2008	73
Table 4.3:	Preliminary overall participant summary outcomes, by age and sex: 2008.....	74
Table 4.4:	Cancer spread status, by age and sex: 2008	76
Table 5.1:	Adverse outcomes following investigation of positive FOBT by colonoscopy: 2008	78
Table 5.2:	Trends in adverse outcomes following investigation of positive FOBT by colonoscopy: 2007–2008	78
Table A.1a:	Number of new cases of bowel cancer, by age, Australia: 1992–2006, males	88
Table A.1b:	Number of new cases of bowel cancer, by age, Australia: 1992–2006, females	89
Table A.1c:	Number of new cases of bowel cancer, by age, Australia: 1992–2006, persons.....	90
Table A.2a:	Age-specific and age-standardised incidence rates for bowel cancer, Australia: 1992–2006, males	91
Table A.2b:	Age-specific and age-standardised incidence rates for bowel cancer, Australia: 1992–2006, females.....	92
Table A.2c:	Age-specific and age-standardised incidence rates for bowel cancer, Australia: 1992–2006, persons.....	93

Table A.3a:	Number of new cases of bowel cancer, by age, states and territories: 2002–2006, males	94
Table A.3b:	Number of new cases of bowel cancer, by age, states and territories: 2002–2006, females	95
Table A.3c:	Number of new cases of bowel cancer, by age, states and territories: 2002–2006, persons.....	96
Table A.4a:	Age-specific and age-standardised incidence rates for bowel cancer, states and territories: 2002–2006, males.....	97
Table A.4b:	Age-specific and age-standardised incidence rates for bowel cancer, states and territories: 2002–2006, females	98
Table A.4c:	Age-specific and age-standardised incidence rates for bowel cancer, states and territories: 2002–2006, persons	99
Table A.5a:	Number of new cases of bowel cancer, by age and region: 2002–2006, males.....	100
Table A.5b:	Number of new cases of bowel cancer, by age and region: 2002–2006, females	101
Table A.5c:	Number of new cases of bowel cancer, by age and region: 2002–2006, persons	102
Table A.6a:	Age-specific and age-standardised incidence rates for bowel cancer, by region: 2002–2006, males.....	103
Table A.6b:	Age-specific and age-standardised incidence rates for bowel cancer, by region: 2002–2006, females	104
Table A.6c:	Age-specific and age-standardised incidence rates for bowel cancer, by region: 2002–2006, persons	105
Table A.7a:	Number of deaths from bowel cancer, Australia: 1992–2006, males.....	106
Table A.7b:	Number of deaths from bowel cancer, Australia: 1992–2006, females	107
Table A.7c:	Number of deaths from bowel cancer, Australia: 1992–2006, persons	108
Table A.8a:	Age-specific and age-standardised mortality rates for bowel cancer, Australia: 1992–2006, males	109
Table A.8b:	Age-specific and age-standardised mortality rates for bowel cancer, Australia: 1992–2006, females	110
Table A.8c:	Age-specific and age-standardised mortality rates for bowel cancer, Australia: 1992–2006, persons.....	111
Table A.9a:	Number of deaths from bowel cancer, by age, states and territories: 2002–2006, males	112
Table A.9b:	Number of deaths from bowel cancer, by age, states and territories: 2002–2006, females	113
Table A.9c:	Number of deaths from bowel cancer, by age, states and territories: 2002–2006, persons.....	114
Table A.10a:	Age-specific and age-standardised mortality rates for bowel cancer, states and territories: 2002–2006, males.....	115
Table A.10b:	Age-specific and age-standardised mortality rates for bowel cancer, states and territories: 2002–2006, females	116
Table A.10c:	Age-specific and age-standardised mortality rates for bowel cancer, states and territories: 2002–2006, persons	117
Table A.11a:	Number of deaths from bowel cancer, by age and region: 2002–2006, males	118
Table A.11b:	Number of deaths from bowel cancer, by age and region: 2002–2006, females	119

Table A.11c:	Number of deaths from bowel cancer, by age and region: 2002–2006, persons.....	120
Table A.12a:	Age-specific and age-standardised mortality rates for bowel cancer, by region: 2002–2006, males.....	121
Table A.12b:	Age-specific and age-standardised mortality rates for bowel cancer, by region: 2002–2006, females	122
Table A.12c:	Age-specific and age-standardised mortality rates for bowel cancer, by region: 2002–2006, persons	123
Table A.13a:	Number of deaths from bowel cancer, by age and Aboriginal and Torres Strait Islander status, Queensland, Western Australia, South Australia, Northern Territory: 2002–2006	124
Table A.13b:	Age-standardised and age-specific mortality rates for bowel cancer, by Aboriginal and Torres Strait Islander status, Queensland, Western Australia, South Australia, Northern Territory: 2002–2006.....	125
Table B.1:	NBCSP phases and target populations	128
Table C.1:	Sources for data presented in this report	131
Table C.2:	Age- and sex-specific population percentages.....	132
Table C.3:	Remoteness areas for the Australian Standard Geographical Classification.....	134

List of figures

The beginnings of bowel cancer	1
Figure 1.1: Crude participation, by age and sex: 2008	10
Figure 1.2: Participation, by weeks since invitation using Kaplan-Meier estimates, by state and territory: 2008	13
Figure 1.3: Trends in participation, by state and territory: 2006–2008	14
Figure 1.4: Participation, by weeks since invitation using Kaplan-Meier estimates, by age: 2008	15
Figure 1.5: Participation, by weeks since invitation using Kaplan-Meier estimates, by sex: 2008	16
Figure 1.6: Crude participation, by geographic region: 2008	18
Figure 1.7: Crude participation, by socioeconomic status: 2008	20
Figure 2.1: FOBT positivity, by age and sex: 2008.....	26
Figure 3.1: Primary health care practitioner follow-up, by age and sex: 2008	39
Figure 3.2a: Primary health care practitioner follow-up rate, by weeks since positive FOBT using Kaplan-Meier estimates, Australia: 2008.....	42
Figure 3.2b: Primary health care practitioner follow-up rate, by weeks since positive FOBT using Kaplan-Meier estimates, New South Wales, Victoria, Queensland and Western Australia: 2008.....	43
Figure 3.2c: Primary health care practitioner follow-up rate, by weeks since positive FOBT using Kaplan-Meier estimates, South Australia, Tasmania, Australian Capital Territory and Northern Territory: 2008.....	43
Figure 3.3: Trends in primary health care practitioner follow-up, by state and territory: 2006–2008.....	44
Figure 3.4: Sources of colonoscopy follow-up data: 2008	55
Figure 3.5: Colonoscopy follow-up, by age and sex: 2008	56
Figure 3.6a: Colonoscopy follow-up, by weeks since positive FOBT using Kaplan-Meier estimates, Australia: 2008.....	60
Figure 3.6b: Colonoscopy follow-up, by weeks since positive FOBT using Kaplan-Meier estimates, New South Wales, Victoria, Queensland and Western Australia: 2008.....	61
Figure 3.6c: Colonoscopy follow-up, by weeks since positive FOBT using Kaplan-Meier estimates, South Australia, Tasmania, Australian Capital Territory and Northern Territory: 2008.....	61
Figure 3.7: Trends in colonoscopy follow-up, by state and territory: 2006–2008.....	62
Figure 4.1: NBCSP participant outcomes: 2008	71
Figure 6.1: Age-specific incidence rates of bowel cancer, Australia: 2006	80
Figure 6.2: Incidence and age-standardised incidence rates of bowel cancer, Australia: 1982–2006.....	81
Figure 7.1: Age-specific mortality rates for bowel cancer (ICD-10 C18–C20), Australia: 2006.....	83
Figure 7.2: Age-standardised mortality rates for bowel cancer, Australia: 1992–2006	84
Figure 7.3: Trends in mortality : incidence ratios for bowel cancer, Australia: 1982–2006.....	85

Figure 8.1:	Overall NBCSP outcomes for all invitees aged 50, 55 and 65 years: 2006–2008	86
Figure B.1:	The NBCSP participant’s screening pathway	126
Figure B.2:	The NBCSP phase 2 pre-invitation letter	127