Clinical practice guidelines for the prevention, early detection, and management of colorectal cancer: Population screening. Summary of Recommendations.

Preferred citation for the guideline publication: Cancer Council Australia Colorectal Cancer Screening Working Party. Clinical practice guidelines for the prevention, early detection and management of colorectal cancer: Population screening. Summary of Recommendations. September 2023. Sydney: Cancer Council Australia.

September 2023

Australian Government

National Health and Medical Research Council

The guideline recommendations on pages 3-8 of this document were approved by the Chief Executive Officer of the National Health and Medical Research Council (NHMRC) on 28 September 2023 under section 14A of the National Health and Medical Research Council Act 1992. In approving the guideline recommendations NHMRC considers that they meet the NHMRC standard for clinical practice guidelines. This approval is valid for a period of five years.

NHMRC is satisfied that the guideline recommendations are systematically derived, based on the identification and synthesis of the best available scientific evidence, and developed for health professionals practising in an Australian health care setting.

This publication reflects the views of the authors and not necessarily the views of the Australian Government.

Summary of recommendations for population screening

Population screening for colorectal cancer (CRC) is primarily directed at middle-aged people in good general health, with no symptoms that might indicate CRC, so that preventative measures or early treatment may be offered to improve health outcomes. Risk assessment methods to determine targeted screening strategies are addressed in the chapter on Risk and screening based on family history (hyperlink to be included).

These recommendations are intended to guide decision-making in determining who should take part in population screening for colorectal cancer. All recommendations and practice points included should be considered for implementation in practice.

Principles of clinical judgement and shared decision-making, using a culturally sensitive and safe approach, apply when implementing these guidelines.

These guidelines include evidence-based recommendations (EBR) and practice points. For each EBR except those based on modelling evaluation, the Working Party assigned a strength (weak or strong) in support of the EBR, after considering the volume, consistency, generalisability, applicability and clinical impact of the body of evidence using the NHMRC evidence statement form.

A strength was not assigned (N/A) to recommendations based on mathematical modelling evaluation because GRADE methodology does not cover this type of evidence. Recommendations and practice points were developed by Working Party members. The choice of recommendation and wording reflects the certainty of evidence (Refer development of recommendations and practice points, Appendix A).

The summary of recommendations for population screening can be downloaded as a separate document.

Colorectal cancer screening benefit

	Evidence-based recommendation	Strength
1	The recommended strategy for population screening in Australia, directed at those at average risk of colorectal cancer and without relevant symptoms, is immunochemical faecal occult blood testing every two years, starting at age 45 years and continuing to age 74 years. (Atkin, et al 2017, Holme, et al, 2018, Senore, et al, 2022, Miller, et al, 2019, Bretthauer, et al, 2022, Juul, et al, 2022)	Weak
	Evidence-based recommendation	Strength
2	The use of flexible sigmoidoscopy as a primary screening test is not recommended for population screening in the average-risk population. (Atkin, et al 2017, Holme, et al, 2018, Senore, et al, 2022, Miller, et al, 2019, Juul, et al, 2022).	Weak
	Evidence-based recommendation	Strength
3	The recommended age range for organised population screening is 45–74 years.	N/A
	Evidence-based recommendation	Strength
4	Although modelling indicated that it may be cost-effective, starting screening at age 40 is not recommended for population screening because at this age range there is a less favourable benefits to burden balance compared to screening for 45-74 years.	N/A
	Evidence-based recommendation	Strength
5	Extending the upper limit of the age range from 74 to 79 or 84 years is not recommended for population screening, because the likely benefits do not outweigh the burden (number of colonoscopies and associated risk), compared with screening for people aged 45–74 years.	N/A
	Practice Point	
6	For people aged 75-85 years who are fit, well and healthy, who request screening after a discussion with their health care professional about the benefits and potential harms of testing, health care professionals could consider offering an immunochemical faecal occult blood test[#]. #Screening offered to people not eligible to screen under the National Bowel Cancer Screening Program means that screening tests are provided by private pathology, screening status is not centrally recorded and follow-up for future screening is not centrally provided.	
	Practice Point	
7	In people aged 40-44 years who request screening after a discussion with their health care professional about the benefits and potential harms of testing, health care	

	professionals could consider offering an immunochemical faecal occult blood test[#] every two years during the lead-up to the first routine National Bowel Cancer Screening Program invitation. #Screening offered to people not eligible to screen under the National Bowel Cancer Screening Program means that screening tests are provided by private pathology, screening status is not centrally recorded and follow-up for future screening is not centrally provided.
	Practice Point
8	Every effort should be pursued to ensure equitable participation and ongoing quality improvement initiatives in population screening for colorectal cancer in the target age group of 45-74 years and ensure equity of access to culturally safe health care, including access to diagnostic assessment for National Bowel Cancer Screening Program participants with a positive screening test.

Colorectal cancer screening accuracy

	Evidence-based recommendation	Strength
9	An immunochemical faecal occult blood test is recommended as the screening modality for the detection of colorectal cancer in the average-risk population. (Burón et al, 2019, Chang et al, 2017, Brenner et al 2018, Digby 2016, Kim et al, 2017, Ribbing et al 2022, Shapiro et al, 2017, Zorzi et al, 2018)	Weak
	Evidence-based recommendation	Strength
10	The emerging faecal, blood or serum tests for cancer-specific biomarkers such as DNA are not recommended as population screening modalities for colorectal cancer at this time. (Bosch et al, 2019, Bretagne et al, 2021, Chiu et al, 2016, Imperiale et al, 2021, Jin et al 2022, Shapiro et al, 2017)	Weak
	Evidence-based recommendation	Strength
11	Population screening for colorectal cancer using immunochemical faecal occult blood testing every two years is recommended. It is not recommended that the frequency of screening within the National Bowel Cancer Screening Program be increased to yearly. (Bretagne et al, 2021, Burón, et al, 2019, Digby et al, 2016, Jensen et al, 2016, Ribbing et al, 2022)	Weak
	Practice Point	
12	Participation in a population screening program is not recommended for people with symptoms such as rectal bleeding or persistent change in bowel habit or with iron-deficiency anaemia, nor for those who should be having regular surveillance or screening based on colonoscopy (e.g., for past colorectal cancer or adenoma, chronic inflammatory	

	bowel disease, a strong family history of colorectal cancer, or a high-risk genetic cancer syndrome). (Chiu et al, 2016, Kim et al 2017)
	Practice Point
13	It is important that individuals undergo a high-quality diagnostic colonoscopy after a positive immunochemical faecal occult blood test. (Aniwan et al, 2017, Njor et al, 2022, Chiu et al 2016, Digby et al 2016, Ribbing et al, 2019). A colonoscopy which does not meet the clinical care standard warrants a repeat procedure usually initiated by the proceduralist. A high-quality colonoscopy is defined as adequate bowel preparation, complete intubation, as documented and made available in the proceduralist's report. The proceduralist should ensure that the colonoscopy aligns with the colonoscopy clinical care standard from the Australian Commission on Safety and Quality in Health Care (see ACSQHC).
	Practice Point
14	If a diagnostic colonoscopy after a positive immunochemical faecal occult blood test (iFOBT) is performed and its findings do not require further colonoscopy follow-up, the National Bowel Cancer Screening Program (NBCSP) participant should skip the next round of iFOBT screening through the NBCSP (in line with the Colonoscopy Surveillance Guidelines). Colorectal cancer will rarely occur within that interval.
	Practice Point
15	Participants with positive immunochemical faecal occult blood test (iFOBT) results should have follow-up investigation with the sole exception of cases in which there was a clear breach in sample collection protocol (i.e., menstrual blood contaminating the sample at collection). If there is a clear breach of protocol, repeat iFOBT testing is suggested within six weeks. However, this approach carries the risk of a misleading negative test result because low levels of bleeding from a cancer or adenoma may be intermittent, or unevenly distributed in the stools.
	Practice Point
16	To minimise the risk of psychological harm, colonoscopy should be performed promptly after a positive immunochemical faecal occult blood test. (Kirkøen et al, 2016)
	Practice Point
17	There is evidence that colonoscopy should be done within 120 days from the day of the positive immunochemical faecal occult blood test to minimise risk of advancing the severity of disease if cancer is present.

Participation in population screening for colorectal cancer

	Practice Point
18	Encouragement by health care professionals (including general practitioners (GPs), Aboriginal Health Workers (AHWs), Aboriginal Health Practitioners (AHPs), nurses and other primary health care professionals substantially boosts participation in colorectal cancer screening. Health care professionals play a key role in providing patients with screening advice. GP or clinic endorsement messages in advance of receiving a test kit, the use of GP or clinic reminder systems, leadership of AHWs and AHPs in health promotion activities and practice audits can improve participation rates (Dodd et al 2019, Goodwin et al 2020, Lee et al 2021). Increased participation in the National Bowel Cancer Screening Program (NBCSP) through encouragement and access through a variety of NBCSP kit distribution avenues will increase the program's effectiveness and cost-effectiveness.
	Practice Point
19	Health care professionals (including general practitioners, Aboriginal Health Workers, Aboriginal Health Practitioners, nurses and other primary health care professionals) have a very important role in managing the interface between population screening and personalised care (Dodd et al 2019, Goodwin et al 2020, Lee et al 2021). This role includes identifying and advising those who should opt out of the National Bowel Cancer Screening Program (NBCSP) because of the known elevated risk of colorectal cancer, presence of major comorbidities and limited life expectancy, those who should defer participation for several months because of recent surgery or major illness and the most appropriate avenue of NBCSP kit distribution available.
	Practice Point
20	Health care professionals (including general practitioners, Aboriginal Health Workers, Aboriginal Health Practitioners, nurses and other primary health care professionals) have a key role in advising patients who are at average or slightly above average risk that immunochemical faecal occult blood test is the preferred method of screening. They can advise on the various avenues of kit distribution through the National Bowel Cancer Screening Program. They should also discuss the relative harms and benefits of and discourage inappropriate use of colonoscopy as a screening method.
	Practice Point
21	Ongoing efforts to identify methods to improve colorectal cancer screening participation, access to screening kits through various distribution avenues, modify testing strategies and evaluate existing and new population screening modalities are needed and should be informed by real-world data and other well-designed local and international research, as appropriate.

Colorectal cancer screening for Aboriginal and Torres Strait Islander peoples

	Practice Point
22	Local access to culturally safe, targeted advice and support for colorectal cancer screening, diagnostic services and treatment should be provided through health care professionals to improve equity for Aboriginal and Torres Strait Islander peoples.
	Practice Point
23	Health care professionals must be adequately supported to provide culturally safe and sensitive information, verbally and in written form, about colorectal cancer screening and local services (including colonoscopies) to promote engagement in the complete colorectal cancer screening pathway.
	Practice Point
24	Ongoing efforts to improve engagement of Aboriginal and Torres Strait Islander peoples in colorectal cancer screening must continue and occur in partnership with Aboriginal and Torres Strait Islander peak health bodies to ensure equitable access to colorectal cancer screening services is achieved, as well as build community awareness of the importance of screening.

References

Aniwan S, Ratanachu Ek T, Pongprasobchai S, Limsrivilai J, Praisontarangkul OA, Pisespongsa P, et al. The Optimal Cut-Off Level of The Fecal Immunochemical Test For Colorectal Cancer Screening in a Country with Limited Colonoscopy Resources: A Multi-Center Study from Thailand. Asian Pac J Cancer Prev. 2017 Feb 1;18(2):405–12.

Atkin W, Wooldrage K, Maxwell Parkin D, Kralj-Hans I, MacRae E, Shah U, et al. Long-term effects of once-only flexible sigmoidoscopy screening after 17 years of follow-up: the UK Flexible Sigmoidoscopy Screening randomised controlled trial. Lancet 2017; 389: 1299-311.

Bosch LJW, Melotte V, Mongera S, Daenen KLJ, Coupe VMH, Van Turenhout ST, et al. Multitarget stool DNA test performance in an average-risk colorectal cancer screening population. American Journal of Gastroenterology. 2019;114(12):1909-18.

Brenner H, Qian J, Werner S. Variation of diagnostic performance of fecal immunochemical testing for hemoglobin by sex and age: results from a large screening cohort. Clinical epidemiology. 2018;10:381-9.

Bretagne JF, Carlo A, Piette C, Rousseau C, Cosson M, Lievre A. Significant decrease in interval colorectal cancer incidence after implementing immunochemical testing in a multiple-round guaiac-based screening programme. British Journal of Cancer. 2021;125(11):1494-502.

Bretthauer M, Løberg M, Wieszczy P, Kalager M, Emilsson L, Garborg K, et al. Effect of colonoscopy screening on risks of colorectal cancer and related death. N Engl J Med 2022; 387: 1547-56.

Burón A, Macià F, Andreu M, Pellisé M, Castells X, Grau J. Population-based colorectal cancer screening: Interval cancers and relationship with the quantitative faecal immunological for hemoglobin. Medicina clinica. 2019;152(8):303-6.

Chang LC, Shun CT, Hsu WF, Tu CH, Tsai PY, Lin BR, et al. Fecal Immunochemical Test Detects Sessile Serrated Adenomas and Polyps With a Low Level of Sensitivity. Clinical gastroenterology and hepatology : the official clinical practice journal of the American Gastroenterological Association. 2017;15(6):872-9.e1.

Chiu HM, Ching JY, Wu KC, Rerknimitr R, Li J, Wu DC, et al. A Risk-Scoring System Combined With a Fecal Immunochemical Test Is Effective in Screening High-Risk Subjects for Early Colonoscopy to Detect Advanced Colorectal Neoplasms. Gastroenterology. 2016;150(3):617-25.e3.

Digby J, Fraser CG, Carey FA, Lang J, Stanners G, Steele RJ. Interval cancers using a quantitative faecal immunochemical test (FIT) for haemoglobin when colonoscopy capacity is limited. Journal of medical screening. 2016;23(3):130-4.

Dodd N, Carey M, Mansfield E, Oldmeadow C, Evans TJ. Testing the effectiveness of a general practice intervention to improve uptake of colorectal cancer screening: a randomised controlled trial. Aust N Z J Public Health. 2019 Oct;43(5):464–9.

Goodwin B.C., Crawford-Williams F., Ireland M.J., March S. General practitioner endorsement of mail-out colorectal cancer screening: The perspective of nonparticipants. Translational Behavioral Medicine. 2020;10(2):366–74.

Holme O, Loberg M, Kalager M, Bretthauer M, Hernan MA, Aas E, et al. Long-term effectiveness of sigmoidoscopy screening on colorectal cancer incidence and mortality in women and men. Ann Intern Med 2018; 168: 775-782.

Imperiale TF, Kisiel JB, Itzkowitz SH, Scheu B, Duimstra EK, Statz S, et al. Specificity of the Multi-Target Stool DNA Test for Colorectal Cancer Screening in Average-Risk 45-49 Year-Olds: A Cross-Sectional Study. Cancer prevention research (Philadelphia, Pa). 2021;14(4):489-96.

Jensen CD, Corley DA, Quinn VP, Doubeni CA, Zauber AG, Lee JK, et al. Fecal Immunochemical Test Program Performance Over 4 Rounds of Annual Screening: A Retrospective Cohort Study. Annals of internal medicine. 2016;164(7):456-63.

Jin P, You P, Fang J, Kang Q, Gu F, Cai Y, et al. Comparison of Performance of Two Stool DNA Tests and a Fecal Immunochemical Test in Detecting Colorectal Neoplasm: A Multicenter Diagnostic Study. Cancer Epidemiology Biomarkers and Prevention. 2022;31(3):654-61.

Juul FE, Cross AJ, Schoen RE, Senore C, Pinsky P, Miller E, et al. 15-Year benefits of sigmoidoscopy screening on colorectal cancer incidence and mortality: a pooled analysis of randomized trials. Ann Intern Med 2022 doi: 10.7326/M22-0835.

Kim NH, Lee MY, Park JH, Park DI, Sohn CI, Choi K, et al. A Combination of Fecal Immunochemical Test Results and Iron Deficiency Anemia for Detection of Advanced Colorectal Neoplasia in Asymptomatic Men. Yonsei medical journal. 2017;58(5):910-7.

Kirkøen B, Berstad P, Botteri E, Dalén E, Nilsen J, Hoff G, et al. Acceptability of two colorectal cancer screening tests: pain as a key determinant in sigmoidoscopy. Endoscopy. 2017 Nov;49(11):1075–86.

Lee S.M., Obamiro K., Cooper A., Barnett T. General practitioner perspectives on barriers and enablers to bowel cancer screening in rural Tasmania: A thematic analysis of face-to-face interviews. Australian journal of general practice. 2021;50(3):158–63.

Miller EA, Pinsky PF, Schoen RE, Prorok PC, Church TR. Effect of flexible sigmoidoscopy on colorectal cancer incidence and mortality: long-term follow-up of the randomized US PLCO cancer screening trial. Lancet Gastroenterol Hepatol 2019; 4(2): 101-110.

Njor SH, Rasmussen M, Friis-Hansen L, Andersen B. Varying fecal immunochemical test screening cutoffs by age and gender: a way to increase detection rates and reduce the number of colonoscopies. Gastrointestinal Endoscopy. 2022;95(3):540-9.

Ribbing Wilén H, Blom J, Höijer J, Andersson G, Löwbeer C, Hultcrantz R. Fecal immunochemical test in cancer screening - colonoscopy outcome in FIT positives and negatives. Scandinavian journal of gastroenterology. 2019;54(3):303-10.

Ribbing Wilén H, Saraste D, Blom J. Interval cancers in a population-based screening program for colorectal cancer with gender-specific cut-off levels for fecal immunochemical test. Journal of medical screening. 2022;29(3):156-65.

Senore C, Riggi E, Armaroli P, Bonelli L, Sciallero S, Zappa M, et al. Long-term follow-up of the Italian flexible sigmoidoscopy screening trial. Ann Intern Med 2022; 175: 36-45.

Shapiro JA, Bobo JK, Church TR, Rex DK, Chovnick G, Thompson TD, et al. A Comparison of Fecal Immunochemical and High-Sensitivity Guaiac Tests for Colorectal Cancer Screening. The American journal of gastroenterology. 2017;112(11):1728-35.

Zorzi M, Hassan C, Capodaglio G, Narne E, Turrin A, Baracco M, et al. Divergent Long-Term Detection Rates of Proximal and Distal Advanced Neoplasia in Fecal Immunochemical Test Screening Programs: A Retrospective Cohort Study. Annals of internal medicine. 2018;169(9):602-9.