

### Clinical Practice Guidelines for Bowel Screening in New Zealand



Citation: Te Whatu Ora – Health New Zealand. 2023. *Clinical Practice Guidelines for Bowel Screening in New Zealand*. Wellington: Te Whatu Ora – Health New Zealand.

Published in May 2023 by Te Whatu Ora – Health New Zealand PO Box 793, Wellington 6140, New Zealand

ISBN 978-1-99-106717-3 (online)

#### Te Whatu Ora

Health New Zealand

This document is available at tewhatuora.govt.nz



This work is licensed under the Creative Commons Attribution 4.0 International licence. In essence, you are free to: share ie, copy and redistribute the material in any medium or format; adapt ie, remix, transform and build upon the material. You must give appropriate credit, provide a link to the licence and indicate if changes were made.

### Foreword

The National Bowel Screening Programme (NBSP) marks a significant investment in reducing disease and death from one of New Zealand's biggest cancer killers. The NBSP is our first screening programme for both men and women and, when fully implemented, is expected to detect 500 to 700 early-stage cancers every year.

The development of these clinical practice guidelines aims to embed best practice clinical management across the screening pathway and ensure quality and consistency. It is indeed a pleasure to see the NBSP become a reality, and our thanks goes to all the members of the various committees, representing the relevant professional colleges and bodies that have contributed over the last almost 20 years to getting us to this point.

We must also acknowledge the Waitematā District team, supported by the National Screening Unit, which so ably conducted the bowel screening pilot. The pilot provided a valuable learning experience and vital data that enabled us to set the parameters for a successful national programme. This programme now sits alongside other screening programmes in the National Screening Unit, within Te Whatu Ora.

Finally, I want to acknowledge Dr Harold Neal (Principal Scientific Advisor, Clinicians Screening) and Joyce Brown (Principal Technical Specialist, Clinicians Screening) who, with the support of Dr Jane O'Hallahan (Clinical Director, Clinicians Screening), embraced the challenge of drafting and managing the development of these guidelines. Thank you also to the clinical colleagues who provided input and comment.

It has been a privilege to be involved from the outset in New Zealand's journey to bowel screening, and it remains a privilege to be the first clinical director of the NBSP. The key driver to implement this programme has always been the desire to reduce the toll of this devastating disease on individuals and families. It's hard to imagine a more compelling motivation. Thank you.

Dr Susan Parry

Gastroenterologist

### Contents

Foreword	3
Part A: Introduction	5
Background	5
Overview of the National Bowel Screening Programme	6
Equity	8
Key findings from the Waitematā District area Bowel Screening Pilot	9
Part B: The Guidelines	11
Using the guidelines	11
Guidance on surveillance for people at increased risk of bowel cancer	12
Glossary	13
Recommendations	16
R1 Recommendations: Equity and screening for priority groups	16
R2 Recommendations: Information to participants	18
R3 Recommendations: Primary health care and general practice	20
R4 Recommendations: The faecal immunochemical test	24
R5 Recommendations: Colonoscopy and computed tomography colonography	26
R6 Recommendations: Histopathology	53
References	55
Appendix 1: Grading evidence	63
Appendix 2: Equity checklist for the National Bowel Screening Programme	65
Resources	67

### **Part A: Introduction**

#### Background

New Zealand has one of the highest rates of bowel cancer in the western world, and bowel cancer is the second highest cause of cancer death in the country (Te Aho o Te Kahu 2021).<sup>1</sup>

Lung cancer and colorectal cancer account for the highest number of cancer deaths each year (around 1,700 and 1,200 respectively).

Bowel screening every two years can help save lives by helping identify the presence of a cancer at an early stage. People who are diagnosed with early-stage bowel cancer and receive treatment early, have a 90 percent chance of long-term survival. Bowel screening can also detect polyps, which may develop into a cancer over a number of years. Most polyps can be easily removed, thus reducing the risk of bowel cancer developing.

- Bowel cancer fulfils the National Screening Unit (NSU) criteria for a population-based cancer screening programme.
- Population screening for bowel cancer is for those at average risk of developing the cancer.
- Guidelines to identify and manage those who are at moderate or potentially increased risk of developing bowel cancer should accompany a population screening programme.
- The initial National Health Committee working party on population screening for colorectal cancer (CRC) in 1998 did not recommend screening for bowel cancer but recommended that guidelines for the surveillance of groups at increased risk of colorectal cancer be developed for New Zealand. This recommendation was completed, and the guidelines were first published in 2004.<sup>2</sup>
- The working party also recommended the establishment of a national familial bowel cancer registry. The New Zealand Familial Gastrointestinal Cancer Registry, funded by the Ministry of Health (the Ministry), was launched in 2009, following an establishment project to combine the Auckland and Canterbury research registries.

<sup>&</sup>lt;sup>1</sup> Te Aho o Te Kahu. 2021. *He Pūrongo Mate Pukupuku o Aotearoa 2020, The State of Cancer in New Zealand 2020* 

<sup>&</sup>lt;sup>2</sup> The first guidelines were published by the New Zealand Guidelines Group for the Ministry of Health as: Guidelines for the Surveillance of Groups at Increased Risk of Colorectal Cancer. They were updated in 2012 as Guidance on Surveillance for People at Increased Risk of Colorectal Cancer (available from the Ministry of Health's website at: <u>www.health.govt.nz/system/files/documents/publications/colorectalcancer-surveillance-guidance.pdf).</u>

- In 2006, the NSU Working Party on Population Screening for CRC recommended a pilot study be conducted, using an immunochemical faecal occult blood test (FOBT), now termed faecal immunochemical test (FIT).
- The Waitematā District bowel screening pilot (BSP) commenced in October 2011 and offered a biennial FIT test with a threshold for positivity at 75 ng Hb/mL buffer to those aged 50–74 years.
- Colonoscopy capacity is a key concern for population bowel cancer screening programmes with the consequence that most countries initially roll out bowel screening to a restricted age range.

#### Overview of the National Bowel Screening Programme

The National Bowel Screening Programme (NBSP) is one of the three nationally-based cancer screening programmes coordinated by the NSU within the Ministry.

The NBSP currently screens eligible participants aged 60 to 74 years<sup>3</sup>. every two years. The primary screening test is the FIT,<sup>4</sup> which detects faecal occult blood with a positive FIT threshold of  $\ge$  200 ng Hb/mL buffer (Ministry of Health 2017).

The programme has a number of separate components, and successful bowel screening requires a high standard of quality at each step in the screening pathway, from invitation and recall through to bowel screening self-sampling, laboratory testing, colonoscopy (or computed tomography colonography, CTC) and the management and information systems that support these processes.

The National Coordination Centre (NCC) manages and sends screening invitations, coordinates the processing, analysis and management of completed FIT tests/results and advises the local DHB endoscopy service of all positive results. The DHBs are responsible for delivering colonoscopies (or CT Colonography where indicated) as well as subsequent surgical and cancer treatment. Primary health care is an important part of the NBSP pathway. It plays a key role in encouraging participation, helping achieve equity and raising awareness of bowel cancer symptoms and family history of bowel cancer. General practitioners and practice nurses discuss and manage positive test results with their patients.

<sup>&</sup>lt;sup>3</sup> For more details on the setting of the age range for the programme, see *Age Range and Positivity Threshold for the National Bowel Screening Programme* (Ministry of Health 2017).

<sup>&</sup>lt;sup>4</sup> FIT is a non-invasive screening test (home based self-sampling) with a better participation rate compared with invasive screening tests such as flexible sigmoidoscopy. FIT has a substantially higher yield of CRCs and is predicted to have a greater impact on CRC mortality than either gFOBT or one-off sigmoidoscopy (Firth et al 2016).

#### Figure 1: Basic screening pathway

Self-collected FIT sample - participants aged 60-74 years



### Equity

Equity is an essential component of a quality screening programme (National Screening Unit 2015b). The World Health Organization (WHO) defines equity as the absence of avoidable, unnecessary and unjust differences in the health of groups of people (Ministry of Health 2002; Whitehead 1990; Whitehead and Dahlgren 2006).

A key priority for the NBSP is achieving equitable access to and through the bowel screening pathway. Māori, Pacific peoples and those living in areas of deprivation (NZDep 9 and 10) have been identified as priority groups for the NBSP. This is because of a number of factors: ongoing broader health inequities experienced by these groups; lower participation in the bowel screening pilot and the potential to improve survival due to earlier detection.

To achieve the aim of equitable access in bowel screening, equity is considered at all levels of the programme and across all providers. We expect the programme to achieve equity not only in participation but also in other quality indicators, such as timely progress along the screening pathway. The programme supports evidence-based initiatives, as well as testing innovative approaches that are designed to meet the needs of priority populations. Strong leadership for equity is another important element throughout the programme.

The National Bowel Cancer Working Group (NBCWG) has identified actions for clinicians in addition to screening, which address the inequities in bowel cancer survival between Māori and non-Māori. The NBCWG Māori Equity Statement has a 'get it right for Māori, get it right for all' focus (NBCWG 2017).<sup>5</sup> The actions include early referral, referral for chemotherapy, management of comorbidities, high-quality smoking cessation treatment, socioeconomic support and advocating for Māori patients. These actions can influence earlier detection and improved quality of care, both of which contribute to improving survival rates for Māori (Hill et al 2010a).

<sup>&</sup>lt;sup>5</sup> For more information, see the Ministry's webpage National Bowel Cancer Working Group documents, URL: <u>www.health.govt.nz/about-ministry/leadership-ministry/expert-groups/national-bowel-cancer-working-group-documents</u>

### Key findings from the Waitematā District area Bowel Screening Pilot

- In the first screening round (Round 1) a total of 121,798 people were invited to take part, and 69,176 people (56.8 percent) returned a correctly completed kit (and documentation) that could be tested by the laboratory. In the second screening round (Round 2), a total of 130,094 people were invited, and 71,810 people (55.2 percent) returned a correctly completed kit. In the third screening round (Round 3; first nine months of 2016 – 1 January to 30 September), 48,524 people were invited, and 26,621 people (54.9 percent) returned a correctly completed kit.
- 2. The participation rate for Round 1 of 56.8 percent was higher than the internationally acceptable minimum participation rate of 45.0 percent for first screening rounds.
- 3. For people for whom Round 2 was their first screen, due to reaching the participation age or moving into the pilot area, participation was low compared with Round 1 (a rate of 47 percent compared with 56.8 percent). This may be because the average age of a person in this group was 53 years, and participation is known to be much lower in younger age groups. Initial results from Round 3 show a similar participation rate for people for whom Round 3 was their first screen (46 percent).
- 4. Only 25 percent of the people who were invited in Round 1 but either did not complete their kit correctly or did not take part went on to participate in Round 2. Likewise, 20 percent of the people who were invited in Round 1 and/or Round 2 but either did not complete their kit correctly or did not take part went on to participate in Round 3. A similar pattern is evident in international data; if a person did not take part in an initial screening round, they were less likely to take part when invited in subsequent rounds.
- 5. It was very likely that people who had successfully taken part in Round 1 (returning a kit that could be tested by the laboratory) would return a successful kit in Round 2. The participation rate for this group of people was 85 percent, and this is towards the higher range reported internationally. Round 3 returnees had a similarly high-percentage participation rate at 82 percent.
- 6. Māori, Pacific peoples and Asians were all less likely to participate in the pilot than Europeans in all three rounds. Participation rates in Round 1 were 30 percent for Pacific people, 46 percent for Māori, 54 percent for Asians and 60 percent for Europeans. Round 2 of the pilot was used to trial new initiatives to increase participation in Māori and Pacific peoples. Participation rates in Round 2 declined slightly in Asians and Europeans, stayed the same for Māori and increased for Pacific

peoples – but at 37 percent, the rate for Pacific peoples was still much lower than that for other groups.

- 7. There was also evidence of a social gradient in participation, with people who live in more socioeconomically deprived areas being less likely to participate.
- 8. Initiatives that increased participation in bowel screening for Māori and Pacific peoples included providing a community laboratory drop-off option for test kits, which increased participation by approximately 3 percent, and active follow-up via telephone reminders, which increased participation by approximately 7 percent for Māori and 5 percent for Pacific peoples (Sandiford et al 2017). Other strategies that have been trialled, but with no noticeable improvements in participation rates, include pay for performance incentives in primary health care and including an instructional DVD in test kits (see Litmus et al 2016). The outcomes of these strategies were robustly measured during the pilot by a small group with epidemiological expertise.
- 9. The positivity rate refers to the percentage of people returning a completed test kit who were reported to have a positive FIT during the first and subsequent screening rounds between 1 January 2012 and 30 September 2016. Māori and Pacific participants had slightly higher proportions of positive tests compared with other participants (8.1 percent and 7.5 percent for Māori and Pacific peoples respectively compared with 6.4 percent for Asian and 6.1 percent for European/Other).
- 10. Māori participants had the highest proportion of cancer or advanced adenoma detected compared with all other ethnicities. Nearly 14 out of 1,000 Māori participants screened with a FIT result available were diagnosed with either an advanced adenoma or cancer compared with around 12 for European/Other, 9 for Pacific and 8 for Asian participants.
- 11. The positive predictive value for any abnormality detected was highest for Māori and European/Other participant groups (57 percent each) followed by Asian and Pacific people (52 percent and 47 percent respectively).

For more details about the results of this pilot, see the Ministry's Bowel Screening Pilot results webpage URL: www.health.govt.nz/our-work/preventative-health-wellness/screening/bowel-screening-pilot/bowel-screening-pilot-results (updated 16 June 2017).

### Part B: The Guidelines

#### **Using the guidelines**

These guidelines are intended for use by clinicians and health professionals working in primary health care and DHBs that provide health care services to NBSP participants. The guidelines describe best clinical practices and consist of systematically developed recommendations designed to assist clinicians and participants in shared decision-making. The recommendations bring together the best available evidence and will be reconsidered and revised when new evidence warrants their modification.

The guidelines are presented as recommendations supported by a grade of evidence for each recommendation. Details of the information sources and grading of evidence are included in the reference list and Appendix 1.

The recommendations are formatted as per the following examples.

#### **Example recommendations**

#### **Evidence based**

R6.02	<i>Evidence-based recommendation</i> (NICE 2017; Ministry of Health 2018b)
Molecular testing	
strategies	Offer testing to all people with colorectal cancer when first diagnosed, using immunohistochemistry for mismatch repair proteins or microsatellite instability testing to identify tumours with deficient DNA mismatch repair and to guide further sequential testing for Lynch syndrome.

#### **Consensus based**

R.5.45	Consensus-based recommendation (NZGG 2011)
Follow-up of cancer resection	Participants treated for cancer are no longer part of the screening programme. The use of faecal occult blood testing as part of colorectal cancer follow-up is not recommended.

#### **Practice point**

R1.03	<i>Practice points</i> (Litmus et al 2016, chapter 5: Equity; Minister of Health 2016)
Culturally competent	
services	Culturally appropriate service delivery is an integral requirement in the provision of health services.
	Bowel screening services must be provided in an environment that respects the culture, dignity and autonomy of people.

## Guidance on surveillance for people at increased risk of bowel cancer

*Guidance on Surveillance for People at Increased Risk of Colorectal Cancer 2011* (NZGG 2011)<sup>6</sup> provides information to help users identify and manage participants who are at moderate or potentially increased risk of developing bowel cancer.

Updated polyp surveillance<sup>7</sup> guidelines have been published by Te Aho o Te Kahu in 2020.

<sup>6</sup> Available from the Ministry of Health website at URL:

www.health.govt.nz/system/files/documents/publications/colorectal-cancer-surveillanceguidance.pdf

<sup>&</sup>lt;sup>7</sup> Te Aho o Te Kahu. 2020. Update on polyp surveillance guidelines Dec 2020. URL:<u>https://teaho.govt.nz/static/reports/update-polyp-surveillance-guidelines.pdf</u>

#### Glossary

These guidelines use technical terminology that will be familiar to many health professionals but may be foreign to those outside the health system. The glossary provided here explains frequently used terms and abbreviations.

Bowel cancer	Cancer that develops in the colon (the longest part of the large intestine) and/or the rectum (the last several inches of the large intestine before the anus)
	Also called colorectal cancer
BSP	Waitematā District bowel screening pilot programme
Colonoscope	A thin, tube-like instrument used to examine the inside of the colon
	Has a light and a lens for viewing
Colonoscopist	A health professional with expertise in colonoscopy
Colonoscopy	Examination of the inside of the colon, using a colonoscope inserted into the rectum
Colorectal cancer (CRC)	Bowel cancer
Computed tomography colonography (CTC)	A method to examine the inside of the colon by taking a series of X-rays, using a computer to make 2-dimensional (2-D) and 3-D pictures of the colon from the X-rays
CT colonography reporting and data system (C-RADS)	A method for standardising CT colonography reporting
DNA	Did not attend
Dysplasia	A term used to describe the presence of abnormal cells within a tissue or organ
	Dysplasia is not cancer, but it may become cancer.
EC	European Commission
EGGNZ	The Endoscopy Guidance Group for New Zealand
EMR	Endoscopic mucosal resection
ESGE	European Society of Gastrointestinal Endoscopy
FIT	Faecal immunochemical test

GA	General anaesthetic
HGD	High-grade dysplasia
Histopathology	The study of tissues and cells under the microscope
НР	Hyperplastic polyp
Immunohistochemistry	A laboratory method that uses antibodies to check under the microscope for certain antigens (markers) in a sample of tissue
Microsatellite instability and mismatch repair	Changes that can occur in the DNA of cells
MRT	Medical radiation technologist
Multidisciplinary meeting (MDM)	Multidisciplinary meeting of a team that includes a number of doctors and other health care professionals who are experts in different specialties
NBCWG	National Bowel Cancer Working Group
NBSP	National Bowel Screening Programme
NCC	National coordination centre for the NBSP
NEQIP	National Endoscopy Quality Improvement Programme
NHSBCSP	National Health Service Bowel Cancer Screening Programme (UK)
NICE	National Institute for Health and Care Excellence
NSU	National Screening Unit
NZFGCS	New Zealand Familial Gastrointestinal Cancer Service
NZGG	The New Zealand Guidelines Group: an independent, not-for-profit organisation set up in 1999 to promote the use of evidence in the delivery of health and disability services. The NZGG went into voluntary liquidation in mid-2012.
Polyp	A growth that protrudes from a mucous membrane A colon polyp is an abnormal growth of tissue in the lining of the bowel.

Polypectomy	Removal of a polyp
Polyposis	The development of numerous polyps
PPV	Positive predictive value
RANZCR	Royal Australian and New Zealand College of Radiologists
SL	Serrated lesion
SP	Serrated polyp
SSL	Sessile serrated lesion
SSP	Sessile serrated polyp
TSA	Traditional serrated adenoma
WHO	World Health Organization

### Recommendations

# **R1 Recommendations: Equity and screening for priority groups**

R1.01 Commitment to equity in health outcomes	Practice points (Ministry of Health 2021; Ministry of Health 2011b)
	A key priority for the NBSP is achieving equitable access to and through the bowel screening pathway across all population groups.
	To achieve equitable participation and quality throughout the screening pathway, different approaches and resources are needed to support priority group participants to be screened and access assessment and treatment services.
	For the NBSP, priority groups are Māori, Pacific peoples and those living in areas of deprivation (NZDep 9 and 10) within the eligible age range for screening.
	Providers are expected to use evidence-based strategies to support equal access and quality of care for priority groups. Evidence-based strategies include:
	partnerships with primary health care
	workforce diversity
	equity driven health promotion
	after-hours colonoscopy access (and mobile services)
	monitoring and evaluation.
	For more information, see:
	Final Evaluation Report of the Bowel Screening Pilot: Screening Rounds One and Two (Litmus et al 2016).
	Equity Options Report for the Bowel Screening Programme (available from NSU on request)
	Equity checklist for the National Bowel Screening Programme (Appendix 2).

R1.02 Responsiven ess to Māori	Practice points (Ministry of Health 2020)
	Services must recognise the principles of the Treaty of Waitangi and be responsive to the needs of Māori.
	The principles of partnership, participation and protection underpin the relationship between the Government and Māori under the Treaty of Waitangi.
	Partnership involves working together with iwi, hapū, whānau and Māori communities to develop strategies for Māori health gain and appropriate health and disability services.
	Participation requires Māori to be involved at all levels of the health and disability sector, including in decision-making, planning, development and delivery of health and disability services.
	Protection involves the Government working to ensure Māori have at least the same level of health as non-Māori and safeguarding Māori cultural concepts, values and practices.
R1.03 Culturally competent services	Practice points (Litmus et al 2016, chapter 5: Equity; Minister of Health 2016)
	Culturally appropriate service delivery is an integral requirement in providing health services.
	Bowel screening services must be provided in an environment that respects the culture, dignity and autonomy of people.
R1.04 Practical	Evidence-based recommendations (NBCWG 2017)
considerations for clinicians	A general practitioner, nurse or Māori or Pacific health provider endorsing the programme and encouraging participation can increase priority populations' participation.
	Advocate for your priority group participants by:
	taking into account different levels of health literacy and presenting information in a language and a manner that is culturally appropriate and easy to understand
	referring the participants as appropriate to available support services that can support their participation through the screening pathway.

### **R2 Recommendations: Information to**

#### participants

R2.01 Information	Practice points (NBSP)
bowel screening programme (NBSP)	NBSP resources are available to assist in explaining all aspects of the bowel screening programme and include:
	the objectives and benefits of participating in the NBSP, including the letters and information participants receive from the NBSP
	enrolment in the NBSP, including how a participant may cancel their enrolment in the NBSP, if they wish to do so
	who can access the information stored on the NBSP register
	how information can be used following enrolment in the NBSP
	the process and implications of a participant declining to participate or withdrawing from the NBSP.
R2.02 Information on bowel cancer screening	Practice points (NBSP)
	NBSP resources are available in a range of languages to assist in explaining all aspects of the bowel cancer screening, including: <sup>8</sup>
	risk factors
	the importance of having regular bowel screening tests, even if no symptoms are present
	the benefits and limitations of bowel screening
	the difference between a screening test <sup>9</sup> and a diagnostic test, explaining that the bowel screening test is a screening test only and has limitations, such as the possibility of a false positive or false negative result; however regular testing increases the likelihood of abnormalities being detected
	the importance of reporting any abnormal symptoms, such as bleeding, to their doctor immediately, even if they have had a

<sup>&</sup>lt;sup>8</sup> Languages include Māori, Cook Island Māori, Samoan, Tongan, Niuean, Chinese, Korean and Hindi. For more information, see the 'Contact us for help' webpage on the Time to Screen website, URL: www.timetoscreen.nz/bowel-screening/help-in-other-languages

<sup>&</sup>lt;sup>9</sup> A screening test is undertaken when a participant has no symptoms, whereas a diagnostic test is usually performed when a participant has symptoms and requires a diagnosis.

	recent negative faecal immunochemical test (FIT) screening test.
R2.03 Information on the faecal immunochemical test (FIT) test	<ul> <li>Practice points (NBSP)</li> <li>NBSP resources are available in a range of languages to assist in explaining all aspects of the bowel FIT screening, including: details of the test</li> <li>the procedure for taking and submitting the sample</li> </ul>
	how and when results will be provided what the results mean and subsequent recall and follow-up accuracy of the test, including false positive and false negative test results.

# R3 Recommendations: Primary health care and general practice

#### **Recommendations: Providing the NBSP**

See also the *Quick Reference Guide for Primary Healthcare Teams* (National Screening Unit 2018).

R3.01 Eligibility to participate in the NBSP	<b>Consensus-based evidence</b> (NBSP; Ministry of Health 2015; Public Health England with NHS England Public Health Commissioning 2017)
	Eligible participants are people aged 60–74 years who are eligible for free health care in New Zealand.
	Eligible participants are rescreened every two years whilst in the eligible age range.
	FIT screening is currently not recommended for people over the age of 74 years due to the increasing comorbidity in this age range.
	FIT screening is not recommended for people with symptoms requiring clinical investigation.
	<i>Practice points</i> (Public Health England with NHS England Public Health Commissioning 2017; NBSP)
	Exclusion to screening includes but is not limited to people who:
	have had a colonoscopy within the last five years
	have undergone total removal of their large bowel
	have had, or are currently receiving, treatment for bowel cancer
	are in a bowel polyp or bowel cancer surveillance programme
	are currently receiving treatment for ulcerative colitis or Crohn's disease or are under specialist surveillance
	are currently seeing a doctor for bowel cancer symptoms.
	Eligible participants with exclusion criteria are managed appropriately; when participants are temporality ineligible, providers advise them when they will become re-eligible to return to screening.

R3.02 Informing the eligible population about the NBSP and screening	<i>Practice points</i> (European Commission 2012; NBSP)
	General practices, public health organisations (PHOs) and DHBs collaborate in communications and community engagement activities promoting the NBSP.
	Primary health care:
	• provides eligible participants with information and resources about the NBSP that are evidence based, consistent and cover:
	<ul> <li>the potential benefits and risks of screening</li> <li>the significance of positive and negative FIT results</li> <li>the fact that providers will offer a colonoscopy or CTC if the screening test result is positive</li> </ul>
	communicates the NBSP key messages to eligible participants <sup>10</sup>
	provides written and verbal communication about the NBSP that is clear, consistent and appropriate.
R3.03 Informing the	<i>Practice point</i> (European Commission 2012; NBSP)
FIT result	The primary health care team tells the participant their positive FIT result within 10 working days and refers participants with a positive FIT for colonoscopy.
	Participants with negative FIT test results are notified directly via a letter from the NCC.
R3.04 Advising and managing	<i>Practice points</i> (European Commission 2012; NBSP; see also R5.01–R5.10)
exceptions, eg, may not be eligible/suitable for the NBSP, are ineligible but return a	The general practice:
	<ul> <li>provides advice for participants seeking information about their eligibility<sup>11</sup> because of their:</li> </ul>
positive FIT test and decline/cannot be contacted for colonoscopy	<ul> <li>symptoms or past medical history, including extensive inflammatory bowel disease, such as ulcerative colitis, for more than 10 years</li> </ul>

<sup>10</sup> For more information, see the home page for 'Bowel screening' on the Time to Screen website, URL: www.timetoscreen.nz/bowel-screening

<sup>11</sup> The booklet *All about Bowel Screening* provides information about the National Bowel Screening Programme and is sent to people who have been invited to take part in the NBSP. It is published by the Ministry of Health and is available for download from the Time to Screen website at URL: www.timetoscreen.nz/assets/Uploads/HE1202-NBSP-All-about-Bowel-Screening-broc-FA2.pdf (HE1202, March 2018).

	- family history of bowel cancer (see also <b>R3.05</b> )
	<ul> <li>advises and manages participants who are unsuitable for or decline diagnostic services</li> <li>manages participants who return a positive FIT test and are subsequently found to be ineligible for the NBSP in accordance with NBSP interim quality standards</li> <li>works with the NBSP DHB endoscopy unit to follow up their participants who cannot be notified of their positive result, cannot be contacted for a pre-assessment or do not attend their scheduled diagnostic procedure (colonoscopy or CTC).</li> </ul>
R3.05 Family history of bowel cancer	<i>Consensus-based recommendations</i> (European Commission 2012)
	People with a family history of bowel cancer should complete the FIT and discuss bowel cancer risk factors with their primary health care provider team as follows:
	<ul> <li>Those with low to average risk should continue with screening.</li> <li>Those with moderate risk require referral for surveillance</li> </ul>
	<ul> <li>Those with moderate fisk require referrance surveinance colonoscopy.</li> <li>Those with potentially high risk should be referred to the NZFGCS. <sup>12,</sup></li> </ul>
R3.06 Participant	Practice point (NBSP)
numerical FIT result	The participant, or primary health care provider on their behalf, can request the numerical result from the NBSP by contacting the NCC. The NCC will advise the NBSP of the result, which the NBSP sends out by letter.
R3.07 Histopatholog	Practice points (NBSP)
y and post- colonoscopy results	The general practice does not receive a copy of the histopathology result directly and is not responsible for determining appropriate follow-up as this is managed by the NBSP. However, when correspondence from the DHB is received advising of proposed actions on the basis of the histopathology result, this should be managed in the general practice usual manner, eg, added to their reminder system. Ideally, the general practice clinical notes should contain the histopathology report for completeness.
	Note: The DHB clinical lead / lead endoscopist takes responsibility for assessing and arranging appropriate

<sup>12</sup> See the New Zealand Familial Gastrointestinal Cancer Service (NZFGCS) at URL: https://www.nzfgcs.co.nz/

management, such as treatment, surveillance, communication of the outcome and follow-up action to the participant and their
general practice.

#### **Recommendations: Maximising equitable participation**

R3.08 Offering all eligible participants	<i>Practice points</i> (NBSP)
participate in the NBSP	<ul> <li>initiates discussions with eligible participants who have not participated in the NBSP</li> <li>informs eligible participants who have not received an invitation that they are able to self-enrol (or the team can enrol the participant on their behalf); priority participants will be sent an invitation immediately</li> <li>informs participants that they may withdraw or be temporarily suspended from the NBSP at their request. This can be actioned by the participant or by the team on their behalf.</li> </ul>
R3.09 Achieving equitable participation for all	<i>Practice points</i> (NBSP) The primary health care team:
population groups	<ul> <li>promotes a high level of equitable participation for all population groups with a focus on the NBSP priority groups:</li> </ul>
	<ul> <li>Māori</li> <li>Pacific people</li> <li>those living in deprived areas (NZDep 9 and 10)</li> </ul>
	uses quality improvement processes to focus on equity for maximising participation and considers equity impacts for any changes to processes
	works collaboratively with the NBSP NCC to actively follow up priority participants who:
	<ul> <li>have not returned their FIT test kit in four weeks</li> <li>have returned a spoilt kit / need a repeat kit completed</li> <li>have returned three consecutive spoilt tests.</li> </ul>

#### R4 Recommendations: The faecal immunochemical test

The faecal immunochemical test (FIT) is the primary screening test for the NBSP. If the FIT is negative, the participant is returned for two yearly FIT screening. If the FIT is positive, the participant has a higher likelihood of having a colorectal abnormality or cancer, and therefore, they are referred for colonoscopy (or computed tomography colonography, CTC) to exclude or confirm disease.

NOTE: Guidelines for managing positive FIT test results are covered under R3 Recommendations: Primary health care and general practice and R5 Recommendations: Colonoscopy and computed tomography colonography.

R4.01 Reporting FIT results	<b>Consensus-based recommendation</b> (European Commission 2012; NBSP)
	The FIT is a screening test and reported as negative or positive in order to recommend the participant either continue routine screening (ie, negative result) or be referred for colonoscopy (ie, positive test). This is in keeping with current international practice (Allison et al 2014).
R4.02 FIT positive	Practice point (NBSP)
	The FIT threshold for a positive test results is $\ge 200$ ng Hb/mL buffer (Ministry of Health 2017). This is equivalent to $\ge 40 \ \mu$ g Hb/gram faeces for OC Sensor Diana analysis (Robertson et al 2017).
R4.03 FIT sample not	Practice points (NBSP)
	The NCC mails a NBSP pro-forma reminder letter if a FIT test is not received four weeks after it was sent. Active follow-up commences for priority participants who have not returned a FIT test at the time the reminder letter is sent.
	If a participant does not respond, they are recalled two years from the date when the initial invitation was made.
R4.04 FIT samples that	Practice points (NBSP)
('spoilt' or technical failed tests)	Spoilt and technical failed tests indicate a failure to obtain a result and are not themselves results.
	The NCC mails the participant a replacement FIT kit and NBSP pro-forma letter that explains the reason and significance of a spoilt result. If the participant does not re-

	send a FIT sample, they are recalled two years from the date when the initial invitation was made. The NCC actively follows up all priority participants who return a spoilt test and all participants who return three consecutive spoilt tests.
R4.05 Referral for a positive FIT test	<b>Consensus-based recommendation</b> (European Commission 2012) Referral for colonoscopy (or CTC if indicated) is recommended.
R4.06 Recall for a negative FIT test	<i>Consensus-based recommendation</i> (European Commission 2012) Recall for screening in two years is recommended.
R4.07 False positive and false negative FIT results	<b>Consensus-based recommendation</b> (European Commission 2012, NBSP) All screening tests will have false positive and false negative results. Participant outcomes following a positive or negative FIT test are monitored by quality systems to minimise and manage these risks appropriately.

# R5 Recommendations: Colonoscopy and computed tomography colonography

#### **Colonoscopy definitions**

The following definitions have been modified from *Surveillance and Management of Groups at Increased Risk of Colorectal Cancer* (NZGG 2004).

#### Screening colonoscopy

Screening is the examination of asymptomatic or well individuals in order to classify them as unlikely or likely to have a disease. A national screening programme is an example of a population preventive strategy where everyone in a particular age group is invited to participate. A population preventive strategy has the potential to identify a high proportion of individuals with early disease in a population. In a screening programme, this proportion is dependent on the uptake of screening and the sensitivity of the test. In the NBSP, colonoscopy is only performed for those who have returned a positive FIT result.

#### Surveillance colonoscopy

Surveillance colonoscopy, as opposed to screening, refers to monitoring individuals known to have a disease or to be at increased risk of contracting a disease. Recommendations are made on the follow-up and management of individuals identified to be at increased risk of developing colorectal cancer, and therefore the term surveillance rather than screening is appropriate. A greater proportion of this group could potentially benefit from surveillance because the prevalence of the disease is likely to be higher.

### Recommendations: Referral for colonoscopy or CTC and pre-assessment

R5.01 Referral for colonoscopy	Practice points (NBSP)
	Participants with a positive screening test are provided with every opportunity to undergo colonoscopy (or CTC if indicated) within 45 days of their positive FIT.
	Their primary health care provider advises the participant of their positive FIT result and refers them for colonoscopy within 10 working days of receiving the positive test result. (See R5.04 for referrals not received by 10 working days).
R5.02 Referral for CTC (see also R5.24)	<i>Practice points</i> (NBSP; NZGG 2011; RANZCR 2013; RANZCR 2020)

	Participants deemed unfit for colonoscopy are offered the first available appointment for a CTC within 45 days of receiving a positive FIT.
	If a participant is temporarily unfit, the endoscopy clinical lead will determine when that participant becomes fit (ie, on a case- by-case basis).
R5.03 Contacting a	Practice points (NBSP)
colonoscopy pre- assessment after referral by primary health care	If the endoscopy unit has received a referral from primary health care, the unit should contact the participant within 5 working days after the 10-working day cut-off (ie, within 15 days of receiving notification of a positive FIT result).
	The endoscopy unit makes at least three attempts to call the participant within the five working days including at least one call out of hours.
	Pre-assessment is done by telephone before a colonoscopy appointment is booked, unless a face-to-face appointment is thought necessary or is requested by the participant. (See also R5.11 and R5.12 for details about the pre-assessment process.)
R5.04 Contacting	<i>Practice points</i> (European Commission 2012; NBSP)
have not been	All participants with a positive FIT result who:
referred within 10 working days	have not been referred for colonoscopy within 10 working days, or
	do not have a named primary health care provider, or
	have indicated that they do not want their primary health care provider advised of their results
	are contacted by the endoscopy unit via phone for pre- assessment within five working days.
	If they have not been advised of their positive result, the endoscopy nurse will advise them and then offer a pre-assessment.
	The endoscopy unit makes at least three attempts to call the participant within five working days (after the 10-day cut-off), including at least one call out of hours.
R5.05 Positive FIT	Practice point (NBSP)
exclusion criteria	If a participant takes the FIT test even though they do not meet the criteria and the result is positive, review the exclusion criteria as part of pre-assessment. The responsibility for

	determining a participant's ongoing involvement in the NBSP sits with the clinical or endoscopy lead.
R5.06 Positive FIT and evidence of previous colonoscopy within the last five years	Practice points (NBSP) If a colonoscopy has been performed more than two years and less than five years ago (in New Zealand or overseas), a colonoscopy is offered unless there are other clinical reasons why this may not be appropriate. For participants who have had a colonoscopy less than two years ago, the decision to offer a repeat colonoscopy rests with the clinical lead endoscopist if: the report of the previous colonoscopy is available, adequate and complete, the participant will be recalled within five years of the previous colonoscopy was incomplete, the lead endoscopist should consider proceeding with a colonoscopy.

### Recommendations: Participants with a positive FIT who do not proceed to colonoscopy

R5.07 Participant with a positive FIT test cannot be contacted by 15 days	Practice points (NBSP)
	The endoscopy unit will have already made at least three attempts to call the participant within five working days of the positive FIT, including at least one call out of hours.
	If no contact has been made after 15 working days since a positive FIT result, the unit sends a proforma letter on day 16 to the participant and their designated health care provider (if known, even if they have indicated that they do not want their health care provider to be informed) advising them that the participant has a positive result and requesting the participant make contact with the endoscopy unit to discuss next steps.
	DHBs are strongly encouraged to also refer participants with no known primary health care provider and all priority populations to their outreach services when the letter is sent on day 16.
	If, after 12 weeks, the participant has not been contacted or made contact, the unit sends another proforma to the participant and their designated primary health care provider (if known, even if they have indicated that they do not want their health care provider to be informed), requesting the participant contact

	their GP. They are also advised that they may still contact the endoscopy unit.
	If contact is not established at six months from positive FIT, the NCC will place the participant on a two-yearly recall.
	If the participant contacts the endoscopy unit or NCC after six months from positive FIT but within the two-yearly recall period, they will be advised to see their primary health care provider again for a re-referral for colonoscopy and to provide updated medical information on the referral letter.
	If the participant contacts the endoscopy unit for a colonoscopy six months or longer after a positive FIT, the NCC will need to re-open their screening episode.
R5.08 Participant	Practice points (NBSP)
with a positive FTT test declines colonoscopy referral	If the participant declines a colonoscopy, referral for a CTC should be offered by a clinician with CTC experience to ensure the participant can make an informed consent.
	If the participant declines a colonoscopy and CTC, the NCC should place them on two-yearly recall (from the date when the initial invitation was made).
	The participant can be re-referred at any time within the two- yearly recall period.
	If the participant contacts the endoscopy unit or NCC within the two-yearly recall period, they will be advised to see their primary health care provider again for a re-referral for colonoscopy and to provide updated medical information on the referral letter.
	If the participant has repeated positive FIT results for each screening round but on each occasion declines colonoscopy/CTC, the issue is escalated to the endoscopy clinical lead at the DHB.
R5.09 Participant with a positive FIT test chooses to withdraw or go on two-yearly recall	Practice points (NBSP)
	Participants may elect to withdraw from the NBSP.
	Participants may elect to either opt out or be placed on hold pending a two-year recall.
	Participants may re-engage with the NBSP at any time provided they still meet the eligibility criteria.
R5.10 Participant does not attend colonoscopy	<i>Practice point</i> (NBSP)

Participants who DNA their colonoscopy appointment are actively followed up by the colonoscopy unit for a rescheduled appointment in accordance with DHB DNA protocols.

#### **Recommendations: Pre-assessment for colonoscopy**

R5.11 Pre- assessment for colonoscopy	Practice points (NBSP; NZGG 2011)
	Participants with a positive screening test are provided with every opportunity to undergo preassessment for colonoscopy (or CTC if indicated) within 45 days of receiving a positive FIT.
	Pre-assessment is an essential step to assess the participant's health and fitness for colonoscopy, and the endoscopy nurse will arrange an appointment for a colonoscopy (or CTC) based on the outcome of the pre-assessment.
	The pre-assessment is done by telephone before a colonoscopy appointment is booked, unless a face-to-face appointment is thought necessary or is requested by the participant.
	Where the pre-assessment indicates the participant is unsuitable for colonoscopy (assessed as unfit for colonoscopy, or they have a previous failed colonoscopy) the endoscopy nurse will discuss with the clinical lead or lead endoscopist. The participant may then be referred for a CTC or a GA colonoscopy.
	If the participant is assessed as not suitable for CTC or GA colonoscopy, then the endoscopy nurse will arrange for an individual management plan or refer the participant back to their primary health care provider for management.
R5.12 Pre-	Practice points (NBSP)
assessment process	Pre-assessment is carried out by an experienced endoscopy nurse and includes:
	determining comorbidities, medications and appropriate bowel preparation
	ensuring specific protocols for participants with diabetes or who are on anticoagulants are followed (Veitch et al 2016)
	documenting a participant's family history of bowel cancer (including if not known) based on the participants completed family history questionnaire.
	Note: The questionnaire is designed to facilitate both referral for surveillance colonoscopy if moderate risk criteria are met and on-referral (with participant consent) by the colonoscopist, to the

	NZFGCS if the participant is considered at potentially high risk of developing bowel cancer.
R5.13 Inter-DHB participant moves	Practice points (NBSP)
	If the participant changes DHB, the clinical lead for the current DHB sends a formal colonoscopy referral to the clinical lead of the participant's new DHB with information regarding referral and screening colonoscopy requirements (if the new DHB is not a screening DHB and therefore the DHB is not aware of these requirements). The NCC is also notified of the DHB change.
	If the participant changes to a DHB that is not yet active under the NBSP, they are either offered colonoscopy at their screening DHB at the time of the positive FIT, or the clinical lead of the screening DHB arranges a formal colonoscopy referral to the DHB for the participant's new residence with the requirements for colonoscopy. The screening DHB will also request a copy of subsequent colonoscopy and histopathology reports and treatment plan if a cancer was confirmed.
	If a participant decides to return to their original DHB for their colonoscopy, the same process as above occurs. The colonoscopy record (and any histopathology), by default, is attached to the DHB associated with the participant's residential address.

#### **Recommendations: Information/consent for participants before a colonoscopy or CTC**

R5.14 Information on colonoscopy and CTC	<i>Practice points</i> (NBSP 2018; NZGG 2011; NICE 2020; EGGNZ 2021; RANZCR 2020)
	NBSP and DHB resources are available to assist in providing information and explaining all aspects of the colonoscopy procedure, including:
	the likelihood of being identified as having bowel cancer or bowel polyps following a positive FIT test (see the <i>All about</i> <i>Bowel Screening</i> booklet, NBSP 2018)
	that, based on the pilot data, approximately one-third of participants proceeding to colonoscopy following a positive FIT will be identified as having advanced adenomas and be recommended to undergo regular colonoscopy surveillance
	the potential benefits, limitations and risks of such surveillance should be explained as should the fact that surveillance is

regarded as treatment and, as such, the participant exits the screening programme
what bowel preparation involves and the possible side effects (NZGG 2011)
the need for choosing the appropriate bowel preparation, with attention to the participant's age and comorbidities, including renal impairment. Bowel preparation regimes associated with severe fluid or electrolyte shifts should be avoided in high-risk groups
the recognised risks associated with colonoscopy, such as perforation, bleeding and other complications
although generally safe and the 'gold standard' bowel investigation by which alternative investigations are measured, colonoscopy is an invasive procedure (NZGG 2011; EGGNZ 2021)
polypectomy and interventions are associated with an increased risk of adverse events (see <b>R5.48–R5.50</b> for details on adverse event reporting)
participants with diabetes or on anticoagulants require additional advice about preparing for colonoscopy (Veitch et al 2016)
advising that in relation to making a decision about anticoagulant therapy, screening colonoscopy following a FIT is regarded as a high-risk procedure because of the likelihood of finding adenomas and cancer which require intervention.
advising risks in relation to CTC, which is less invasive than colonoscopy but still has a very low risk of colonic perforation and other complications (Atalia et al 2010; Bellini et al 2014)
advising about CTC and the fact that a subsequent colonoscopy may be advised/required (see <b>R5.42</b> ).
All information and contact with the participant should be delivered by a culturally competent health care professional.
Participants should be advised they may bring a support person with them. Interpreter services should be used for those participants who have English as a second language.
Clinicians and nursing staff not familiar with NBSP but who may encounter NBSP participants should be trained in providing information, coordinating care and providing support and

	advocacy for people diagnosed with cancer during this screening process.
	Nurses should be encouraged to work to their full scope of practice in each clinical area where they might encounter a participant on the NBSP.
R5.15 Consent before	<b>Practice points</b> (EGGNZ 2021; ANZCA and the Faculty of Pain Medicine 2014)
colonoscopy/CTC	To enable participants to make an informed choice and provide consent:
	the room used for discussing options with them should be appropriate and private
	consent forms are signed by NBSP participants or their representative, before the patient enters the endoscopy room. If possible, it is expected that this will occur when the patient is fully dressed and able, if they wish, to involve those close to them in discussions. Nurse led consent can support this process.
	the discussion should cover the likelihood of finding an abnormality and cover information on incidence, including:
	<ul> <li>7 in 10 participants will have polyps detected</li> <li>7 in 100 participants will have cancer detected (this is higher in the prevalent round)</li> </ul>
	the discussion should include an explanation about the procedural complications and risks (bowel preparation and colonoscopy) associated with:
	<ul> <li>colonoscopy alone perforation rate &lt; 1:1,000 colonoscopies</li> <li>colonoscopy with polypectomy post-polypectomy perforation rate &lt; 1:500post-polypectomy bleeding &lt; 1:100 colonoscopies where polypectomy is performed (this includes EMR, endoscopic submucosal dissection and all other polypectomies at colonoscopy)</li> </ul>
	• the discussion should include an explanation of the post- procedure activities and risks, the process involved with CTC and the process for restarting medications, including anti- coagulants
	the risks must be documented on the consent form that is signed by the participant.

#### **Recommendation: Bowel preparation**

R5.16 Effective bowel preparation for colonoscopy	<i>Evidence-based recommendations</i> (EGGNZ 2020, ASGE et al 2015; NZGG 2011; NBSP; Hassan et al 2019)
	Effective bowel preparation is key to a detailed examination of the bowel. Good bowel preparation supports improved polyp detection and caecal intubation (Lai et al 2009).
	Poor bowel preparation is associated with failure to reach the caecum and hinders the detection of lesions (Harewood et al 2003).
	International guidelines regarding bowel preparation should be followed eg, Hassan Cesare et al. Bowel preparation for colonoscopy, ESGE Guideline – Update 2019: Endoscopy 2019; 51: 775–794, EGGNZ. 2021. Standards for individuals performing national bowel screening colonoscopy in New Zealand.
	A split regimen of 4L of polyethylene glycol (PEG) solution (or a same-day regimen in the case of afternoon colonoscopy) is recommended where feasible for routine bowel preparation. Observational studies have shown an inverse correlation between the degree of mucosal cleanliness and the interval between the last dose of bowel preparation and the start of colonoscopy; an interval of 3 – 5 hours resulted in the best preparation quality scores throughout the colon.
	Adequate hydration is vital to protect against adverse effects of bowel preparation; however, a regimen acceptable to participants and that meets the cleanliness standard is best locally agreed and administered. In practice, there are many different regimens (diet and catharsis, gut lavage and phosphate preparations) but no ideal exists.
	Endoscopy units need to monitor effective bowel preparation while ensuring participant acceptability and tolerability. In cases of multiple sensitivities to conventional bowel preparations, or in complex cases, the DHB NBSP Clinical Lead and the bowel screening nurse should work with the participant to find a suitable alternative, consulting specialists in other areas if necessary.
	Preparation should be adjusted for medical co- morbidities eg renal failure.
	Diabetic medications need to be adjusted for participants with diabetes as part of preparing for colonoscopy or CTC.

Anticoagulant medication needs to be modified in accordance with the local protocol.
--

### Recommendations: Colonoscopy and CTC staff experience and competencies

R5.17 Staff – general	<i>Evidence-based recommendations</i> (EGGNZ 2021; NZNO 2000; NICE 2020; RANZCR 2020; Burling et al 2010)
	Colonoscopists, nurses (endoscopy and other) and endoscopy technicians must meet the competency requirements for procedural and non-procedural activities as defined by EGGNZ. This includes competencies for bowel preparation (NZNO 2000).
	Radiologists and technical staff for CTC (radiographers, nurse and secretarial support) are appropriately trained.
	A review of capabilities may identify shortcomings that can be addressed with further training or investment. This training and investment should occur before screening begins.
	DHBs and endoscopy units participate fully in the NEQIP programme including completion of the regular census requirements with timely action to address identified areas of concern. <sup>13</sup> Endoscopy units should meet the Endoscopy Facility and Service Standards 2020
R5.18	Consensus-based recommendations (EGGNZ 2021)
Colonoscopist s performing polypectomy	Colonoscopists performing colonoscopy for a positive FIT for the NBSP require level 3 polypectomy competency to remove smaller flat lesions (< 20 mm) that are suitable for endoscopic therapy, larger sessile and polypoid lesions, and smaller lesions with more difficult access. Some flat lesions < 20 mm with poor access might be unsuitable for this level of competency.
	Level 4 competency is required to remove large flat lesions or other challenging polypoid lesions that might also be treated with surgery. These include the type of lesion that would not be removed at the first colonoscopy because of level 3 competency, time constraints or because the level 4 intervention or surgical option involves additional risks that need further discussion with and consent from the participant. If the participant chooses to have endoscopic therapy, then they should be referred to a level-4 competent endoscopist. This

<sup>13</sup>For more information, see the National Endoscopy Quality Improvement Programme, Joint Advisory Group on GI Endoscopy at URL: https://nz.jagaccreditation.org/

	level of competency would be expected of only a small number of regionally based colonoscopists.
	Colonoscopists are conversant with and follow international guidelines for colorectal polypectomy and EMR (Ferlitsch et al 2017).
	Colonoscopists consider participant comorbidities in order to minimise adverse events when removing large sessile proximal colonic polyps or performing multiple polypectomies.
R5.19 Radiologists performing CTC	<b>Consensus-based recommendations</b> (NBSP CTC; RANZCR 2013; Burling et al 2010)
	Radiologists will hold Fellowship of the RANZCR (or equivalent) and will have completed an accredited CTC training course. <sup>14</sup>
	Each site requires a lead screening CTC radiologist and at least two accredited consultant radiologists.
	Double reading may be indicated particularly when there is uncertainty about interpretation or image quality.
R5.20 General	Practice points (RANZCR 2020)
principles of CTC	CTC is the alternative imaging investigation of choice if colonoscopy is incomplete or unsuitable for the participant. Barium enema should not be performed. Best practice must be adhered to at screening CTC centres. Providers of CTC must comply with the <i>RANZCR Requirements for the Practice of</i> <i>Computed Tomography Colonography (version 3.1)</i> (RANZCR 2013).
	Participants should be provided with appropriate verbal and written information. The consent process should be started by the specialist screening practitioner, who therefore needs to be fully informed about CTC.
	The technical quality of screening CTC should meet the standards required for the NBSP.
	Screening CTC should be performed by radiologists, in conjunction with MRTs and nursing staff who satisfy the professional standards required by the NBSP.
	Departments offering a CTC service to the NBSP must measure and monitor their activities in relation to participant

<sup>14</sup> For more information, the RANZCR webpage Recognition of Training in CT Colonography, URL: www.ranzcr.com/fellows/clinical-radiology/quality-assurance-and-accreditation/ctc

safety, outcomes and experience. Screening referrals should be via a formally agreed mechanism.
If the CTC can be performed to a high standard at the screening centre but interpretive experience is lacking, then CTC data can be transferred to a suitably experienced radiologist for reporting or double reporting.
A team approach is critical to the success of CTC. The skills and competencies of team members should be clearly defined in the screening centre's protocols.

### Recommendations: Colonoscopy and CTC report information

R5.21 Information	Practice point (NBSP)
histopathology	Information on the histopathology request form includes:
	<ul> <li>identifying this as an NBSP colonoscopy</li> <li>for each polyp in a separate pot, the pathology pot number and location, size and shape of the polyp</li> <li>relevant clinical information.</li> </ul>
R5.22 Colonoscopy	Practice point (NBSP; EGGNZ 2021, 2020)
	Information provided in the colonoscopy report includes:
	identifying this as an NBSP procedure following a positive FIT
	any comorbidities
	any adverse events before or during colonoscopy
	family history and the outcome of the family history assessment
	if biopsies were taken
	the number, size and location of polyps or colorectal pathology clearly recorded
	polypectomy method
	any other interventions.
	Gloucester Comfort Scale, Boston Bowel Prep, Prep type
R5.23 CTC report information	Practice point (RANZCR 2013)

Information provided in the CTC report includes:
<ul> <li>identifying this as an NBSP procedure following a positive FIT, with the reason for not having a colonoscopy</li> <li>any adverse events before or during the CTC</li> <li>the number, size and location of polyps or colorectal pathology clearly recorded. Practice in NZ follows international consensus guidelines on reporting of Colonic and Extracolonic findings, using CT Colonography Reporting and Data System (C-RADS) guidelines (C-RADS, Radiology 2005, CTC Standards, Burling 2010). Every CTC report is required to list the C-RADS category, and if technically possible, this information should also be listed in the Radiology Information System</li> <li>Given the low risk of advanced neoplasia and the low specificity of CTC for diminutive polyps </li> <li>Subsequently, the ESGAR 2nd consensus [<i>EurRadiol Mar2013;23(3)</i>] recommends that if detected with high confidence, (particularly if &gt;2) these may be reported. All polyps of 6mm and greater should be reported (See R5.44)</li> <li>extracolonic findings clearly recorded, and significance graded as per C-RADS guidelines.</li> </ul>

#### **Recommendation: Incomplete colonoscopy**

R5.24 Referral for CTC	Practice points (NBSP, RANZCR 2020)		
	Participants with an incomplete colonoscopy and requiring a CTC preferably have this performed on the same day. Sometimes it can be arranged for the next morning, if the scope was in the afternoon. This is in order to avoid the participant requiring a second bowel preparation and fasting. If a same- or next-day CTC is performed after incomplete colonoscopy, consideration should be given to completing a low-dose CT scan to exclude perforation before commencing CTC, particularly if a biopsy or polypectomy has been performed (Moore et al 2019).		
	Communicate directly with the endoscopist to confirm whether there has been a deep or difficult biopsy, which may contraindicate a subsequent CTC, and to facilitate the oral tagging agent for the participant.		
	When same-day imaging is not possible, the participant must be scheduled for CT colonography within 10 working days of being referred. If there has been a significant polypectomy, then CTC may be delayed to between 30 and 50 working days.		

Participants with an incomplete colonoscopy may be rebooked at the discretion of the colonoscopist for a repeat procedure with a different colonoscope, eg, smaller diameter (if not already attempted).
A CTC may be preferred if the colonoscopist has managed to examine most of the bowel and has not found any polyps.
A colonoscopy under general anaesthetic may be preferred if polyps have been detected because of the likelihood of further polyps being present.

### Recommendations: Assessment of family history and actions at time of colonoscopy

R5.25 Family history – assessing risk	Practice points (NZGG 2011)
accessing new	The family history questionnaire completed at pre-assessment should be presented to the colonoscopist at the time of colonoscopy.
	The questionnaire is designed to identify participants who, on the basis of their family history, have a slight increase in, moderate increase in or potentially high risk of colorectal cancer and the actions to be taken.
	Outcomes from the family history assessment should be documented in the colonoscopy report.
R5.26 Actions based	Practice points (NZGG 2011; NZFGCS; NBSP)
identifying a participant being at potentially high risk of colorectal cancer	Participants with a potentially high risk of colorectal cancer should be referred to the NZFGCS by sending a copy of the colonoscopy report to the relevant office.
	Participants with a potentially high risk of colorectal cancer have one or more of the following:
	a family history of familial adenomatous polyposis, hereditary non-polyposis colorectal cancer or other familial colorectal cancer syndromes
	one first-degree relative plus two or more first- or second- degree relatives all on the same side of the family with a diagnosis of colorectal cancer at any age
	two first-degree relatives, or one first-degree relative plus one or more second degree-relatives, all on the same side of the family with a diagnosis of colorectal cancer and one such relative:

	was diagnosed with colorectal cancer under the age of 55 years, or
	developed multiple bowel cancers, or
	developed an extra-colonic tumour suggestive of hereditary non-polyposis colorectal cancer (ie, endometrial, ovarian, stomach, small bowel, renal pelvis, pancreas or brain)
	at least one first- or second-degree family member diagnosed with colorectal cancer in association with multiple bowel polyps
	a personal history or one first-degree relative with colorectal cancer diagnosed under the age of 50 years, particularly where colorectal tumour immunohistochemistry has revealed loss of protein expression for one of the mismatch repair genes (MLH1, MSH2, MSH6 and PMS2)
	a personal history or one first-degree relative with multiple colonic polyps.
R5.27 Actions based on a family history	<i>Practice points</i> (NZGG 2011; NZFGCS; NBSP)
identifying a participant as being at moderate to slightly above average risk of colorectal cancer or	If moderate risk criteria are met, ie, the participant has one first- degree relative aged 55 years or younger or two first-degree relatives with bowel cancer at any age, then five-yearly colonoscopy surveillance (unless polyp number, size or subsequent histopathology indicate an earlier surveillance procedure) is advised.
needs further review.	If there is a slightly above average risk, ie, the participant has one first-degree relative with colorectal cancer diagnosed over the age of 55 years, then return to routine screening or surveillance based on findings at colonoscopy.
	If the participant's family history needs further review, the participant is advised to discuss this with their primary health care provider at their next visit.
R5.28a Consideration	Practice point (NZGG 2011; ESGE)
of specific risks	For people older than age 75 years or with significant comorbidities, carefully consider potential benefits and risks before offering any routine surveillance.

#### Recommendations: Determining surveillance recommendations at the time of colonoscopy based on the number and size of polyps

R5.28b Consideration of specific risks ( <i>R5.28a above</i> <i>restated</i> )	<i>Practice point</i> (NZGG 2011; ESGE) For people older than age 75 years or with significant comorbidities, carefully consider potential benefits and risks before offering any routine surveillance.	
R5.29 Determining the risk rating for an adenoma	<b>Consensus-base</b> Te Kahu. 2020)	ed recommendations (NZGG 2011, Te Aho o
		Conventional adenomas
	Average-risk polyps	Tubular adenomas < 10 mm
	High-risk polyps	Adenoma ≥ 10 mm
		Adenoma with tubulovillous or villous histology*
		Adenoma with high- grade dysplasia
	* Minimum 25% o	f unequivocal villous component is required
	Surveillance inte colonoscopy	ervals based on findings at high-quality

	l year	3 years	5 year	5	10 years or NBSP (Whichever comes first)
	Adenomas* ≥10 adenomas***	Adenomas* 5-9 adenomas <10 mm Adenoma ≥10 mm Tubulovillous adenoma or Villous adenoma Adenoma with HGD	Adenom 3–4 adenomas <10 mm	<b>as*</b>	<b>Adenomas*</b> 1–2 adenomas <10 mm
	Serrated polyps* Serrated polyposis syndrome – initial interval after polyp clearance***	Serrated polyps* ≥5 SSL <10 mm SSL ≥10 mm SSL with dysplasia Traditional serrated adenoma	Serrated po 1–4 SSL <10 mr HP ≥10 mm**	<b>blyps*</b> m	
	<ul> <li>If there are both ac numbers should be for SSL should be a</li> <li>A 3-year follow-up i consistency in disti lesion and hyperpla</li> <li>Consider referral to Service (NZFGCS), s</li> </ul>	lenoma <10 mm and SSL e summed up and follow- pplied. Interval is favoured if con- nction between sessile so astic polyp locally. NZ Familial Gastrointest see referral criteria below	<10 mm, the -up interval cern about errated inal Cancer	NBSP: Na Screenin SSL: Sess (= Sessile Polyp) HGD: Hig HP: Hype	ational Bowel g programme sile Serrated Lesion e Serrated Adenoma/ gh Grade Dysplasia erplastic Polyp
R5.30 Sessile Serrated Lesions (SSLs)	<b>Consensus-bas</b> Te Kahu. 2020)	ed recommend	lations (N	ZGG 2	2011, Te Aho o
		Serrated poly	ps		
	Average-risk SSL (SSA/P) < 10 mm				
	polyps	Hyperplastic polyp ≥ 10 mm*			
	High-risk polyps	s SSL (SSA/P) 2	≥ 10 mm		
		SSL (SSA/P) v	with dyspla	asia	
		Traditional ser	rated ade	noma	
		Serrated aden (unclassified s dysplasia)	oma, uncl errated po	assifie olyp wi	ed th
	* Follow up consistency in di locally.	as a high-risk p stinction betwee	olyp if con n SSL and	cern e d hype	exists about rplastic polyp

	Surveillance in colonoscopy	tervals based o	n findings	at hi	gh-quality
	1 year	3 years	5 years		10 years or NBSP (Whichever comes first)
	Adenomas* ≥10 adenomas***	Adenomas* 5–9 adenomas <10 mm Adenoma ≥10 mm Tubulovillous adenoma or Villous adenoma Adenoma with HCD	Adenoma 3-4 adenomas <10 mm	as*	Adenomas* 1–2 adenomas <10 mm
	Serrated polyposis syndrome – initial interval after polyp clearance***	Serrated polyps* ≥5 SSL <10 mm SSL ≥10 mm SSL with dysplasia Traditional serrated adenoma	<b>Serrated po</b> 1–4 SSL <10 mn HP ≥10 mm**	n	
	<ul> <li>If there are both a numbers should b for SSL should be ** A 3-year follow-up consistency in dist lesion and hyperp</li> <li>Consider referral to Service (NZFGCS),</li> </ul>	denoma <10 mm and SSL e summed up and follow applied. interval is favoured if con- cinction between sessile so lastic polyp locally. o NZ Familial Gastrointest see referral criteria below	<10 mm, the -up interval cern about errated inal Cancer	NBSP: N Screenin SSL: Sess (= Sessile Polyp) HGD: Hig HP: Hype	ational Bowel ng programme sile Serrated Lesion e Serrated Adenoma/ gh Grade Dysplasia erplastic Polyp
R5.31 Sessile serrated polyp (SSP) surveillance	<b>Practice points</b> Clearance Phas The polyp burde and so initially c to clear all polyp Surveillance Pha Once control of colonoscopy is r	e (NZFGCS) e en in some patier olonoscopy may os down to 5 mm ase polyp burden is a recommended wi	nts with SP be require achieved, a	S can d eve annua	be very high, ry 3-6 months l surveillance lesions >5mm
	<ul> <li>colonoscopy is r and smaller as t</li> <li>Extension of sur considered in pa</li> <li>Two consecutive criteria are advis both SPS criteria</li> <li>Good bowel</li> </ul>	recommended wi ime allows. atients at lower ri e annual colonos sed before consid a are met: preparation (part	I to two-ye sk of adva copies me dering exte	arly ca nced i eting ension	an be neoplasia. the following , particularly if ght colon)

<ul> <li>No right-sided polyps identified</li> </ul>
<ul> <li>No advanced serrated lesions; &gt;10mm SSL, TSA, or SSL with dysplasia</li> </ul>
<ul> <li>No advanced adenomas; high-grade dysplasia or TVA</li> </ul>
<ul> <li>Less than 10 small (5-10mm) polyps identified.</li> </ul>
Returning to annual surveillance may be required however, if the polyp burden exceeds these criteria at any subsequent procedure.
Specific risk factors for colorectal cancer in SPS have also been identified and should be taken into consideration when determining surveillance intervals in SPS. These include:
Any SSL with dysplasia
SSLs proximal to the splenic flexure
Presence of an advanced adenoma
<ul> <li>Fulfilment of both WHO criteria 1 and 2</li> </ul>
Previous colorectal cancer.

### Recommendations: Post-procedure information provided to the participant and general practice

R5.32 Post- procedure information to the	<i>Practice points</i> (NBSP; ANZCA and the Faculty of Pain Medicine 2014; RANZCR 2020)
participant and review of findings by colonoscopist	Before leaving the endoscopy unit, participants should be given a verbal explanation of the results of their procedure. It is preferred that this be undertaken by the proceduralist or a senior nurse involved in the NBSP programme. If a cancer or serious abnormality has been detected, this information should be communicated in a private room.
	Clinicians must ensure participants fully understand the post- procedure information. Where possible, participants should be accompanied by a support person. Interpreter services should be used for those participants who have English as a second language.
	Participants should also be given written information to support the verbal explanation.

	Written information should include the findings and when to resume or take relevant medications, including anticoagulants (Veitch et al 2016).
	Written information provided should also include:
	an explanation of post-procedure risks and symptoms to watch out for, such as bleeding, and who to contact if the participant experiences post-procedural symptoms
	contact numbers
	when eating and drinking can resume
	when it is safe to drive.
	The participant is informed that they will receive advice by letter regarding the outcome, eg, return to screening or exit to surveillance.
	If a further colonoscopy is planned in the near future because of poor bowel preparation or further polypectomy is required, the participant is advised that they will be sent an appointment. The participant is informed of the anticipated timeframe and who to contact if no appointment is received.
	Post-procedure information for CTC is similar to that listed above but specific for CTC.
R5.33 Post-	Practice point (NBSP)
information to the general practice	It is the responsibility of the DHB NBSP clinical lead to assess and arrange appropriate management after the histopathology results have been received, which may include MDM decision, eg, treatment, surveillance and communicating the outcome and follow-up action by letter to the general practice. Note: The general practice does not receive a copy of the histopathology result and is not responsible for determining the appropriate follow-up.

#### Recommendation: Post-procedure review of surveillance recommendations in consideration of histopathology results and MDM

R5.34 Surveillance recommendations following	<b>Practice points</b> (NBSP) The histopathology reports are received and reviewed by the
MDM	DHB NBSP clinical lead along with the senior nurse NBSP. The DHB clinical lead is responsible for determining the participant outcome. When the histopathology report is reviewed, any surveillance plan will be reviewed, and recommendations updated based on a combination of the clinical findings and pathology.
	This may include MDM review depending on the findings.
	Participants are notified of the outcome, eg, a return to screening, exit to surveillance or further colonoscopy to complete diagnostic assessment or treatment, by letter signed by the clinical lead.

#### **Recommendations: Multidisciplinary meetings**

R5.35a Multidisciplina ry meetings (MDMs)	<b>Consensus-based recommendations</b> (NZGG 2011; Ministry of Health 2012a, b)
,	A small body of evidence indicates that the formation of an MDM and adherence to treatment standards may increase survival for people with colon cancer. It also appears that such an MDM discussion may produce more favourable outcomes in terms of reducing positive circumferential margin rates and harvesting lymph nodes than if no MDM discussion took place.
	All participating specialists can bring cases to MDM (eg, endoscopists, surgeons, pathologists).
	Local protocols must consider the membership of the MDM, which is outlined in the Ministry of Health document <i>Guidance</i> <i>for Implementing High-quality Multidisciplinary Meetings:</i> <i>Achieving best practice cancer care</i> (2012a).
R5.36 Concordance consultation	Practice points (NBSP)
	All NBSP cancer cases and cases where there is a difference in opinion regarding management should be discussed at MDM before surgery or any treatment to determine the best management plan for the individual. MDMs enable the

	attendees to determine the best practice and management plan for an individual case. When there is any concern about the management of a particular case, it is good practice to seek a second opinion. Where there is a difference of opinion regarding management, the case should be managed through review by a multidisciplinary team that includes endoscopists and histopathologists.
R5.37 Cases referred for MDM	<ul> <li><i>Practice points</i> (NBSP)</li> <li>If a cancer is suspected at colonoscopy, management should be coordinated according to local protocol.</li> <li>If a cancer is diagnosed by histopathology without prior indication, the result should be referred to the DHB bowel screening clinical lead and to the MDM.</li> <li>All cancers (including malignant polyps) should be discussed at MDM before surgery or any treatment.</li> <li>Reasons for discordance between histopathologist and endoscopist should be reviewed before taking to MDM to exclude reasons such as clerical or sampling error.</li> <li>Discordant histopathology results should be discussed with another histopathologist and may be resolved before considering MDM.</li> <li>In line with best practice, cases of non-cancerous findings of concern can be added for review at MDM by either the clinician or histopathologist.</li> </ul>

### Recommendations: Management/surveillance of adenoma by risk rating

R5.38 Surveillance intervals after polyp clearance	<b>Consensus-based recommendations</b> (NZGG 2011, Te Aho o Te Kahu. 2020)
	The recommendations for surveillance intervals that apply after polyp clearance are as follows:
	• Participants who have had 1–2 adenomas< 10 mm in size removed and in the absence of other risk factors for developing colorectal cancer should be referred back for FIT screening after five years.

	<ul> <li>Other risk fa completeness and high-gra</li> <li>Participants year colonos surveillance</li> <li>Surveillance in colonoscopy</li> </ul>	ctors include fam ss of resection, al ade dysplasia. with adenomas r scopy surveillanc colonoscopy.	nily history bsence of neeting the criteria s n findings	, conc villous e one- should s at hi	ern regarding s component -, three- or five- be offered
	1 year	3 years	5 year	S	10 years or NBSP (Whichever comes first)
	Adenomas* ≥10 adenomas***	Adenomas* 5–9 adenomas <10 mm Adenoma ≥10 mm Tubulovillous adenoma or Villous adenoma Adenoma with HGD	Adenom 3–4 adenoma: <10 mm	<b>as*</b> 5	Adenomas* 1–2 adenomas <10 mm
	Serrated polyps* Serrated polyposis syndrome – initial interval after polyp clearance***	Serrated polyps* ≥5 SSL <10 mm SSL ≥10 mm SSL with dysplasia Traditional serrated adenoma	Serrated po 1–4 SSL <10 mi HP ≥10 mm**	<b>olyps*</b> m	
	<ul> <li>If there are both a numbers should b for SSL should be</li> <li>A 3-year follow-up consistency in dis lesion and hyperp</li> <li>Consider referral t Service (NZFGCS),</li> </ul>	denoma <10 mm and SSL be summed up and follow applied. b interval is favoured if con tinction between sessile s blastic polyp locally. so NZ Familial Gastrointest see referral criteria below	<10 mm, the -up interval cern about errated tinal Cancer	the NBSP: National Bowel Screening programme SSL: Sessile Serrated Lesion (= Sessile Serrated Adenoma/ Polyp) HGD: High Grade Dysplasia HP: Hyperplastic Polyp	
R5.39 Re-entering the screening programme with low- risk outcomes	<i>Practice point</i> (NBSP) Participants identified as having had 1–2 adenomas< 10 mm in size will be able to re-enter the screening programme after five years (provided they still meet the eligibility criteria).				

### Recommendations: Subsequent surveillance visits and recommendations

R5.40 Subsequent	Practice point (NBSP)
Surveillance	Subsequent surveillance is managed in accordance with DHB and national guidelines.

R5.41 Positive FIT after attending	Practice point (NBSP)
colonoscopy	In the unlikely event of a participant having a positive FIT test result when under surveillance following colonoscopy, the clinical director or endoscopy lead should consider the result on a case-by-case basis in regard to the participant's clinical circumstances.

#### **Recommendations: Surveillance strategy following CTC**

R5.42 Recall following positive FIT with negative CTC	<i>Practice point</i> (RANZCR 2020) Repeat FIT in two years.
R5.43 Procedures following a significant abnormality detected by CTC	Consensus-based recommendations (NBSP; Morrin and Fenlon 2012) If an abnormal area of significance is detected by CTC (polyps > 5 mm), follow-up colonoscopy will be required to visualise the abnormality and conduct a biopsy. Depending on the nature of the abnormal area, simultaneous surgical referral may be indicated. If colonoscopy (under anaesthetic) is not suitable or previously incomplete, surgical referral and intervention may be required
R5.44 Follow-up of diminutive polyps and extra colonic lesions detected by CTC	<ul> <li>Practice points (RANZCR 2020)</li> <li>Given the low risk of advanced neoplasia and the low specificity of CTC for diminutive polyps <!--= 5 mm, C-RADS guidelines allow non reporting diminutive polyps. Subsequently, the second ESGAR consensus statement (Neri et al 2013) recommends that polyps detected with high confidence, (particularly if --> 2 mm) may be reported. All polyps 6 mm and larger should be reported.</li> <li>C-RADS guidelines are recommended for reporting and work-up of extracolonic findings.</li> </ul>

### Recommendations: Treatment of colorectal cancer / high-risk lesions

R5.45 Cancer detected	<i>Evidence-based recommendation</i> (Ministry of Health 2018a)
	Refer the participant for specialist assessment and treatment in line with faster cancer treatment timeframes.

R5 46 Cancer	Practice points (NZGG 2011 NBCWG)
treatment and follow-up	
	All participants who have been referred for treatment for cancer / high-risk lesions are assessed by the specialist and treated based on the pathology and the participant's clinical situation in accordance with best practice as defined in the guidelines and standards listed below.
	To support accurate stage data for screen detected cancers in the cancer registry, the NBCWG has proposed that the following information be recorded on the histopathology request form by the surgeon in addition to the participant's demographics:
	Clinical stage data regarding malignancy and metastasis
	Pre-operative chemotherapy, radiotherapy and initial radiological stage for rectal cancer.
	Participants who have undergone colorectal cancer resection are followed up in line with national guidelines.
	Provision of cultural and supportive care through the pathway such as transport to appointments should be available if required.
	See:
	<i>Guidance on Surveillance for People at Increased Risk of Colorectal Cancer 2011</i> . (NZGG 2011)
	Standards of Service Provision for Bowel Cancer Patients in New Zealand – Provisional (National Bowel Cancer Tumour Standards Working Group 2013) <u>.</u>
R5.47 Follow-up of cancer resection	Consensus-based recommendation (NZGG 2011)
	Participants treated for cancer are no longer part of the screening programme. The use of faecal occult blood testing as part of colorectal cancer follow-up is not recommended.

#### **Recommendations: Reporting adverse events**

R5.48 Risks from colonoscopy	<b>Consensus-based recommendations</b> (European Commission 2012; NBSP)
	In a well-organised high-quality FIT screening programme, the risks of adverse effects may occur from diagnostic colonoscopies after positive test results.

	These are defined, monitored and do not exceed rates as per the National Bowel Screening Programme Interim Quality Standards (National Screening Unit 2017) as follows: Complications and safety: Perforation rate < 1:1,000 colonoscopies Post-polypectomy perforation rate < 1:500 colonoscopies where polypectomy is performed Post-polypectomy bleeding < 1:100 colonoscopies where polypectomy is performed (this includes EMR, endoscopic submucosal dissection and all other polypectomies at
	colonoscopy).
R5.49 Assessment	Practice points (NSU)
	A transparent process around serious adverse events with effective risk management and learning from adverse events results in initiatives to prevent recurrence of similar events (National Screening Unit 2015a; 2014).
	A system is in place to:
	document in the report all adverse events before, during or immediately after colonoscopy or CTC
	document in the report all adverse events before and during the participant's colonoscopy or CTC
	formally review on a monthly basis all adverse events relating to the performance of colonoscopy in an appropriate forum,
	ensure unplanned hospital admissions within 30 days of performing NBSP colonoscopy or CTC are reviewed weekly to allow early identification of remedial factors
	ensure that adverse events and all unplanned hospital admissions within 30 days of performing NBSP colonoscopy or CTC are entered into BSR or reported to the NSU within the month they occur on the provided data sheet. All readmissions need to be documented, appropriately reviewed and made available for external and NSU audit.
R5.50 Managing	Practice points (NBSP)
	NBSP colonoscopy reports should include advice to contact the named NBSP DHB clinical lead should the participant present to hospital with an adverse event post NBSP colonoscopy.

	Adverse events, such as perforation and bleeding, should be managed to minimise the likelihood of serious morbidity and mortality as a consequence of the adverse event.
	Where there is CT evidence of perforation and significant intra- peritoneal air, operative management usually results. If there are significant reasons to the contrary identified at initial consultant assessment, then a non-surgical approach should be supported by ongoing daily consultant review (as recommended by the NBSP Colonoscopy Quality Assurance Group).
	NBSP CTC report or supplementary paperwork given to the participant after the procedure should include advice to contact the named NBSP DHB clinical lead should the participant present to hospital with an adverse event post NBSP CTC.
	If an adverse event requires transfer between hospitals, there must be consultant-to-consultant communication before the transfer occurs.
R5.51 Significant	Practice point (NBSP)
adverse events	Significant (SAC1 and SAC2) adverse events are notified to the NSU immediately and reported according to the <i>NSU Adverse Event Management Policy</i> (National Screening Unit 2020a) and the <i>NSU Open Communication Policy</i> (National Screening Unit 2020c).
R5.52 Complaints	Practice points (NBSP)
	Consumer complaints not related to a screening adverse event should be managed as per the <i>NSU Complaints Management Policy</i> (National Screening Unit 2020b).
	Where a consumer complaint includes notification of a screening-related adverse event then a SAC rating should be applied, and the adverse event should be reported and reviewed according to the <i>NSU Adverse Event Management</i>

#### **R6 Recommendations: Histopathology**

### Recommendations: Terminology and classifications for histopathology reporting

R6.01 Reporting terminology and classifications for	<i>Consensus-based recommendations</i> (Bosman et al 2010; NBCWG 2019)
histopathology specimens	Adenomatous polyps are classified using the latest WHO classification of tumours of the colon and rectum (Bosman et al 2010, WHO Classification of Tumours Editorial Board 2020).
	All polyps, including malignant polyps, are reported using a structured report.
	All colorectal adenocarcinomas in participants who meet the modified Bethesda guidelines are tested for mismatch repair status. Universal testing may be implemented in the future.
	In addition, to support accurate stage data for screen-detected cancers in the cancer registry, the NBCWG has proposed stage data as provided by the requesting surgeon following surgery for screen detected cancer, be included in the pathology reports.
R6.02 Molecular testing strategies	<i>Evidence-based recommendation</i> (NICE 2017; Ministry of Health 2018b)
	Offer testing to all people with colorectal cancer, when first diagnosed, using immunohistochemistry for mismatch repair proteins or microsatellite instability testing to identify tumours with deficient DNA mismatch repair and to guide further sequential testing for Lynch syndrome.
R6.03 Serrated	<i>Practice point</i> (East et al 2017, statement 2)
polypo	Adopt the terms HP, SSL, SSL with dysplasia, TSA or mixed polyp to describe SLs in the colorectum, using the definitions of SPs outlined in the WHO criteria 2019 (WHO Classification of Tumours Editorial Board 2020).
R6.04 Double	Practice point (NBSP)
Cases	All adenocarcinomas (and particularly pT1 cancers) and polyps showing high-grade dysplasia are double reported or independently second read by another pathologist who reports histopathology for the NBSP.

R6.05 Algorithm for determining major	Practice point (NBSP)
pathology	Figure 5 (below) is the reporting algorithm to be used to determine major pathology. The pathologist should use the algorithm as a guideline to select the most significant pathology result.

#### Figure 5: Reporting algorithm for major pathology



The first case becomes the major pathology

Note: Hyperplastic polyps larger than 1 centimetre are unusual as are right-sided hyperplastic polyps – consider examination of further levels.

#### References

Allison JE, Fraser CG, Halloran SP, et al. 2014. Population screening for colorectal cancer means getting FIT: the past, present, and future of colorectal cancer screening using the fecal immunochemical test for hemoglobin (FIT). Gut and Liver 8(2): 117–130, March. DOI: <u>https://dx.doi.org/10.5009%2Fgnl.2014.8.2.117 (accessed</u> 12 April 2021).

ANZCA and the Faculty of Pain Medicine. 2014. Guidelines on Sedation and/or Analgesia for Diagnostic and Interventional Medical, Dental or Surgical Procedures. PS09. Melbourne: Australian and New Zealand College of Anaesthetists (ANZCA). URL: <u>www.anzca.edu.au/getattachment/c64aef58-e188-494a-b471-3c07b7149f0c/PS09-Guideline-on-sedation-and-or-analgesia-for-diagnostic-and-interventional-medical,-dental-or-surgical-procedures</u> (accessed 13 April 2021).

ASGE Standards of Practice Committee, Saltzman JR, Cash BD, et al. 2015. Bowel preparation before colonoscopy. Gastrointestinal Endoscopy, 81(4). DOI: <u>http://dx.doi.org/10.1016/j.gie.2014.09.048</u> (accessed 13 April 2021).

Atalia MA, Rozen WM, Niewiadomski O, et al. 2010. Risk factors for colonic perforation after screening computed tomographic colongraphy: a multicentre analysis and review of the literature. Journal of Medical Screening 17(2): 99–102. DOI: <u>http://dx.doi.org/10.1258/jms.2010.010042</u> (accessed 13 April 2021).

Atkin W, Wooldrage K, Brenner A, et al. 2017. Adenoma surveillance and colorectal cancer incidence; a retrospective multicentre cohort study. Lancet Oncol. 18(6): 823–34. DOI: <u>https://doi.org/10.1016/s1470-2045(17)30187-0</u> (accessed 13 April 2021).

Bellini D, Rengo M, de Cecco CN, et al. 2014. Perforation rate in CT colonography: a systematic review of the literature and meta-anaylsis. Eur Radiol. 24(7): 1,487–96. DOI: <u>https://doi.org/10.1007/s00330-014-3190-1</u> (accessed 13 April 2021).

Blakely T, Shaw C, Atkinson J, et al. 2010. Cancer Trends: Trends in incidence by ethnic and socioeconomic group, New Zealand 1981–2004. Wellington: Ministry of Health.

Bosman FT, Carneiro F, Hruban RH, Theise ND (eds). 2010. WHO Classification of Tumours of the Digestive System, WHO classification of tumours 4th edition, volume 3. Lyon: International Agency for Research on Cancer (IARC), World Health Organization (WHO).

Burling D, Denton E, Halligan S, et al. 2010. CT colonography standards. Clin Radiol. 65(6): 474–80. DOI: <u>https://doi.org/10.1016/j.crad.2009.12.003</u> (accessed 13 April 2021).

Carballal S, Rodríguez-Alcalde D, Moreira L, et al. 2016. Colorectal cancer risk factors in patients with serrated polyposis syndrome: a large multicentre study. Gut 65(11): 1829–37. DOI: <u>https://doi.org/10.1136/gutjnl-2015-309647</u> (accessed 13 April 2021).

East JE, Atkin WS, Bateman AC, et al. 2017. British Society of Gastroenterology position statement on serrated polyps in the colon and rectum. Gut Online; 0:1–16. URL: <u>https://gut.bmj.com/content/gutjnl/early/2017/04/27/gutjnl-2017-314005.full.pdf</u> (accessed 14 April 2021).

EGGNZ. 2021. Standards for Individuals Performing National Bowel Screening Colonoscopy in New Zealand. Wellington: Endoscopy Governance Group for New Zealand (EGGNZ). Publication on EGGNZ website in process as at 10 November 20211 and URL to be confirmed.

EGGNZ. 2020. Endoscopy Unit Service and Facility Standards for New Zealand. Wellington: Endoscopy Governance Group for New Zealand (EGGNZ). URL: <u>Endoscopy</u> <u>Unit Service and Facility Standards for New Zealand (endoscopyquality.co.nz)</u> (accessed 28 October 2021).

European Commission. 2012. European Guidelines for Quality Assurance in Colorectal Cancer Screening and Diagnosis – First edition. Luxembourg: Publications Office of the European Union URL: <u>https://publications.europa.eu/en/publication-detail/-/publication/e1ef52d8-8786-4ac4-9f91-4da2261ee535</u> (accessed 8 April 2021).

#### ESGE 2017. European Society of Gastrointestinal Endoscopy Guidelines. URL: <u>www.esge.com/publications/guidelines/</u> (accessed 27 May 2021).

Ferlitsch M, Moss A, Hassan C, et al. 2017. Colorectal polypectomy and endoscopic mucosal resection (EMR): European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline. Endoscopy 49(03): 270–97. DOI: <u>http://dx.doi.org/10.1055/s-0043-102569</u> (accessed 13 April 2021).

**Firth MJ, Sharples KJ, Hinder VA, et al. 2016.** Methods of a national colorectal cancer cohort study: the PIPER Project. The New Zealand Medical Journal 129(1440): 25–36. URL: <u>https://assets-global.website-</u>

files.com/5e332a62c703f653182faf47/5e332a62c703f67b9c2fd14f Firth%20Final.pdf (accessed 8 April 2021).

Harewood GC, Sharma VK, de Garmo P. 2003. Impact of colonoscopy preparation quality on detection of suspected colonic neoplasia. Gastrointest Endosc 58(1): 76–9.

Hassan C, Repici A, Rex DK. 2016. Serrated polyposis syndrome: risk stratification or reduction. Gut 65(7): 1070–2. DOI: <u>https://doi.org/10.1136/gutjnl-2015-311357</u> (accessed 13 April 2021).

Hassan C, East J, Radaeilli F, et al. 2019. Bowel Preparation for Colonoscopy: European Society of Gastrointestinal Endoscopy (ESGE) Guideline – update 2019. European Society of Gastrointestinal Endoscopy (ESGE). URL: <u>www.esge.com/bowel-</u> <u>preparation-for-colonoscopy-esge-guideline-update-2019/</u> (accessed 13 April 2021). Hill S, Sarfati D, Blakely T, et al. 2010a. Ethnicity and management of colon cancer in New Zealand: do indigenous patients get a worse deal? Cancer 116(13): 3,205–14.

Hill S, Sarfati D, Blakely T, et al. 2010b. Survival disparities in indigenous and nonindigenous New Zealanders with colon cancer: the role of patient comorbidity, treatment and health service factors. J Epidemiol Community Health 64(2): 117–23.

Hill S, Sarfati D, Robson B, et al. 2013. Indigenous inequalities in cancer: what role for health care? ANZ J Surg 83(1–2): 36–41.

IJspeert JE, Rana SA, Atkinson NS, et al. 2017. Clinical risk factors of colorectal cancer in serrated polyposis: a multicentre cohort analysis. Gut 66(2): 278–84. DOI: <u>https://doi.org/10.1136/gutjnl-2015-310630</u> (accessed 13 April 2021).

Jackson C, Sharples K, Firth M, et al. 2015. The PIPER Project: An internal examination of colorectal cancer management in New Zealand. Report prepared for the Health Research Council and Ministry of Health. Wellington: Health Research Council and Ministry of Health. URL:

#### www.fmhs.auckland.ac.nz/assets/fmhs/sms/ctnz/docs/THE%20PIPER%20PROJECT %20Final%20deliverable%20report%207%20August%202015%20(HRC%2011 764%2 0FINDLAY).pdf (accessed 8 April 2021).

Lai E, Calderwood AH, Doros G, et al. 2009. The Boston bowel preparation scale: A valid and reliable instrument for colonoscopy-oriented research. Gastrointest Endosc 69(3 Pt 2): 620–5, March. DOI: <u>https://doi.org/10.1016/j.gie.2008.05.057</u> (accessed 13 April 2021).

Litmus Ltd; Centre for Public Health Research, Massey University; Sapere Research Group. 2016. Final Evaluation Report of the Bowel Screening Pilot: Screening Rounds One and Two. Wellington: Ministry of Health. URL:

www.health.govt.nz/system/files/documents/publications/bowel-screening-pilotfinal-evaluation-report-redacted-january2017.pdf (accessed 12 April 2021).

Minister of Health. 2016. New Zealand Health Strategy: Future direction. Wellington: Ministry of Health. URL: **www.health.govt.nz/publication/new-zealand-health-strategy-2016** (accessed 12 April 2021).

Ministry of Health. 2002. Reducing Inequalities in Health. Wellington: Ministry of Health.

Ministry of Health. 2010. Cancer Projections: Incidence 2004–08 to 2014–18. Wellington: Ministry of Health.

Ministry of Health. 2011a. Cancer: New registrations and deaths 2008. Wellington: Ministry of Health.

Ministry of Health. 2011b. Eligibility for publicly funded health services (updated 9 November 2011). URL: <u>www.health.govt.nz/new-zealand-health-system/eligibility-publicly-funded-health-services</u>

Ministry of Health. 2012a. Guidance for Implementing High-quality Multidisciplinary Meetings: Achieving best practice cancer care. Wellington: Ministry of Health.

Ministry of Health. 2012b. Quick Reference for High-quality Cancer Multidisciplinary Meetings. Wellington: Ministry of Health. URL:

https://www.health.govt.nz/system/files/documents/publications/quick-referencefor-high-quality-multidisciplinary-meetings 0.pdf (accessed 14 April 2021).

Ministry of Health. 2015. Referral Criteria for Direct Access Outpatient Colonoscopy or CT Colonography. Wellington: Ministry of Health. URL:

www.health.govt.nz/system/files/documents/pages/referral-criteria-direct-accessoutpatient-colonoscopy-ct-colonography-nov15.doc (accessed 11 December 2017).

Ministry of Health. 2016. Cancer: New registrations and deaths 2013. Wellington: Ministry of Health.

Ministry of Health. 2017. Age Range and Positivity Threshold for the National Bowel Screening Programme. Wellington: Ministry of Health. URL: <u>www.health.govt.nz/our-</u> <u>work/diseases-and-conditions/cancer-programme/bowel-cancer-</u> <u>programme/national-bowel-screening-programme/key-documents-national-bowel-screening-programme</u> (accessed 8 April 2021).

Ministry of Health. 2018a. Faster Cancer Treatment (updated 23 April 2018). URL: <u>www.health.govt.nz/our-work/diseases-and-conditions/cancer/previous-cancer-initiatives/faster-cancer-treatment</u>

Ministry of Health. 2018b. Molecular Testing of Colorectal Cancers in New Zealand: Minimum standards for molecular testing of newly diagnosed colorectal cancers. Wellington: Ministry of Health.

Ministry of Health. 2018c. National Bowel Screening Programme: Consideration of the potential equity impacts for Māori of the age range for screening. Wellington: Ministry of Health.

Ministry of Health. 2019. Referral Criteria for Direct Access Outpatient Colonoscopy or Computed Tomography Colonography. Wellington: Ministry of Health.

Ministry of Health. 2020. Treaty of Waitangi principles (updated 17 December 2020). URL: <u>https://www.health.govt.nz/our-work/populations/maori-health/he-korowai-oranga/strengthening-he-korowai-oranga/treaty-waitangi-principles</u>

Ministry of Health. 2021. Equity (up**dated 18 January 2021). URL:** <u>www.health.govt.nz/our-work/populations/maori-health/he-korowai-oranga/key-</u> <u>threads/equity</u>

Moore H, Feltham J, Cranefield D, et al. 2019. Computed Tomographic Colonography (CTC) Standards for Quality Assurance in the New Zealand Bowel Cancer Screening

Programme (NZBCSP). Wellington: National Bowel Cancer Working Group (NBCWG). URL: <u>www.ranzcr.com/college/document-library/computed-tomographic-</u> <u>colonography-ctc-standards-for-quality-assurance-in-the-new-zealand-bowel-</u> <u>cancer-screening-programme-nzbcsp</u> (accessed 14 April 2021).

Morrin M, Fenlon H. 2012. Guidelines for use of CT Colonography (CTC) as part of the National Colorectal Screening Programme in Ireland. Dublin: Faculty of Radiologists, Royal College of Surgeons in Ireland.

National Bowel Cancer Tumour Standards Working Group. 2013. Standards of Service Provision for Bowel Cancer Patients in New Zealand – Provisional. Wellington: Ministry of Health.

National Bowel Cancer Working Group (NBCWG). 2019. Computed Tomographic Colonography (CTC) Standards for Quality Assurance in the New Zealand Bowel Cancer Screening Programme (NZBCSP). Wellington: Ministry of Health. URL:

www.ranzcr.com/college/document-library/computed-tomographic-colonographyctc-standards-for-quality-assurance-in-the-new-zealand-bowel-cancer-screeningprogramme-nzbcsp (accessed 13 April 2021).

National Screening Unit. 2014. National Screening Unit Quality Principles. Wellington: Ministry of Health. URL:

www.nsu.govt.nz/system/files/page/qualityprinciples25june14.pdf (accessed 14 April 2020).

National Screening Unit. 2015a. Improving Quality: A framework for screening programmes in New Zealand. Auckland: National Screening Unit. URL: <u>www.nsu.govt.nz/system/files/resources/quality-framework.pdf</u> (accessed 14 April 2021).

National Screening Unit. 2015b. National Screening Unit Quality Framework 2015: Delivering screening programmes. Wellington: Ministry of Health. URL: <u>www.nsu.govt.nz/system/files/page/nsuqualityframework201514dec15.pdf</u> (accessed 8 April 2021).

National Screening Unit. 2017. National Bowel Screening Programme Interim Quality Standards. Wellington: Ministry of Health.

National Screening Unit. 2018. Quick Reference Guide for Primary Healthcare Teams. Wellington: Ministry of Health. URL: <u>www.nsu.govt.nz/resources/quick-reference-guide-primary-healthcare-teams</u> (accessed 12 April 2021).

National Screening Unit. 2020a. NSU Adverse Event Management Policy. Wellington: Ministry of Health. URL: www.nsu.govt.nz/publications/national-screening-unit-policy-framework-adverse-event-management-policy-nsu-01 (accessed 14 April 2021).

National Screening Unit. 2020b. NSU Complaints Management Policy. Wellington: Ministry of Health. URL: www.nsu.govt.nz/system/files/resources/nsu-complaint-management-policy-02-august-19.pdf (accessed 14 April 2021).

National Screening Unit. 2020c. NSU Open Communication Policy. Wellington: Ministry of Health. URL: <u>www.nsu.govt.nz/publications/national-screening-unit-policy-</u> <u>framework-open-communication-policy-nsu-03</u> (accessed 14 April 2021).

NBCWG. 2017. National Bowel Cancer Working Group Māori Equity Statement 2017. Wellington: National Bowel Cancer Working Group (NBCWG).

NBSP. 2018. All about Bowel Screening. Wellington: Ministry of Health. URL: www.timetoscreen.nz/assets/Uploads/HE1202-NBSP-All-about-Bowel-Screening-broc-FA2.pdf (accessed 13 April 2021).

Neri E, Halligan S, Hellström M. 2013. The second ESGAR consensus statement on CT colonography. Eur Radiol. 23(3): 720–9. DOI: <u>https://doi.org/10.1007/s00330-012-2632-x</u> (accessed 13 April 2021).

NICE. 2017. Molecular Testing Strategies for Lynch Syndrome in People with Colorectal Cancer. London: National Institute for Health and Care Excellence (NICE). URL: <u>www.nice.org.uk/guidance/dg27/resources/molecular-testing-strategies-for-lynch-syndrome-in-people-with-colorectal-cancer-pdf-1053695294917</u> (accessed 14 April 2021).

NICE. 2020. Colorectal cancer: Guidance. London: National Institute for Health and Care Excellence (NICE). URL: <u>www.nice.org.uk/guidance/ng151</u> (accessed 13 April 2021).

NZGG. 2004. Surveillance and Management of Groups at Increased Risk of Colorectal Cancer. Wellington: New Zealand Guidelines Group (NZGG).

NZGG. 2009. Suspected Cancer in Primary Care. Guidelines for investigation, referral and reducing ethnic disparities. Wellington: New Zealand Guidelines Group (NZGG). URL: <u>www.health.govt.nz/publication/suspected-cancer-primary-care-guidelines-investigation-referral-and-reducing-ethnic-disparities</u> (accessed 8 April 2021).

NZGG. 2011. Guidance on Surveillance for People at Increased Risk of Colorectal Cancer 2011. Wellington: New Zealand Guidelines Group (NZGG). URL:

https://www.health.govt.nz/system/files/documents/publications/colorectal-cancersurveillance-guidance.pdf (accessed 12 April 2021).

NZNO. 2000. Standards. Wellington: New Zealand Nurses Organisation (NZNO) Gastroenterology Nurses College. URL:

www.nzno.org.nz/groups/colleges\_sections/colleges/nzno\_gastroenterology\_nurse s college/nzgns standards (accessed 13 April 2021). Oetzel J, Scott N, Hudson M, et al. 2016. He Pikinga Waiora Implementation Framework. Dunedin: Healthier Lives – He Oranga Hauora: National Science Challenge. URL: <u>https://healthierlives.co.nz/wp-content/uploads/2016/11/He-Pikinga-Waiora-</u> <u>Implementation-Framework-2016.pdf</u> (accessed 14 April 2021).

Public Health England with NHS England Public Health Commissioning. 2017. NHS Public Health Functions Agreement 2017–18: Service specification no.26 Bowel Cancer Screening Programme. Version number: 1.0. London: Public Health England and NHS England Public Health Commissioning. <u>URL: www.england.nhs.uk/wp-</u>content/uploads/2017/04/service-spec-26.pdf (accessed 8 April 2021).

RANZCR. 2013. RANZCR Requirements for the Practice of Computed Tomography Colonography, (version 3.1). Sydney: The Royal Australian and New Zealand College of Radiologists (RANZCR). URL: <u>www.ranzcr.com/search/ranzcr-requirements-for-the-practice-of-computed-tomography-colonography-ctc</u> (accessed 13 April 2021).

RANZCR. 2020. RANZCR Computed Tomographic Colonography (CTC) Standards for Quality Assurance in the New Zealand Bowel Cancer Screening Programme: The Royal Australian and New Zealand College of Radiologists (RANZCR). URL: <u>https://www.ranzcr.com/college/document-library/computed-tomographic-</u> <u>colonography-ctc-standards-for-quality-assurance-in-the-new-zealand-bowel-</u> <u>cancer-screening-programme-nzbcsp</u> (accessed 27 May 2021).

Rex D, Boland CR, Dominitz JA, et al. 2017. Colorectal cancer screening: recommendations for physicians and patients from the U.S. Multi-Society Task Force on Colorectal Cancer. Gastroenterology 153: 1, 307–23. DOI: <u>https://doi.org/10.1053/j.gastro.2017.05.013</u> (accessed 8 April 2021).

**Robertson DJ**, Lee JK, Boland CR, et al. 2017. Recommendations on fecal immunochemical testing to screen for colorectal neoplasia: a consensus statement by the US Multi-Society Task Force on colorectal cancer. Gastrointestinal Endoscopy, 85: 1. URL: <u>www.giejournal.org/article/S0016-5107(16)30625-3/pdf</u> (accessed 12 April 2021).

Robson B, Harris R (eds). 2007. Hauorā: Māori Standards of Health. IV. A study of the years, 2000–2005. Wellington: Te Ropu Rangahau Hauora a Eru Pomare.

Samson P, O'Grady G, Keating J. 2009. An international comparison study of stage of colorectal cancer at diagnosis: how does New Zealand compare? New Zealand Medical Journal 122(1294): 74–83.

Sandiford P, Buckley A, Robinson T, et al. 2017. A community laboratory drop-off option for bowel screening test kits increases participation rates: results from an interrupted time series analysis. Journal of Public Health Medicine. DOI:

https://doi.org/10.1093/pubmed/fdx043 (accessed 12 April 2021).

Sarfati D, Hill S, Blakely T, et al. 2010. Is bowel cancer screening important for Māori? New Zealand Medical Journal 123(1320): 9–12.

Te Aho o Te Kahu. 2020. Update on polyp surveillance guidelines Dec 2020. URL: <u>https://teaho.govt.nz/static/reports/update-polyp-surveillance-guidelines.pdf</u> (accessed 10 November 2021)

Te Aho o Te Kahu. 2021. He Pūrongo Mate Pukupuku o Aotearoa 2020, The State of Cancer in New Zealand 2020. Wellington: Te Aho o Te Kahu, Cancer Control Agency.

Teng AM, Atkinson J, Disney G, et al. 2016. Ethnic inequalities in cancer incidence and mortality: census-linked cohort studies with 87 million years of person-time follow-up. BMC Cancer 16: 755.

University of Otago, HRC. 2014. Cancer, Comorbidity and Care: Key findings from the C3 (Quantitative) Study. Wellington: University of Otago, Cancer Control and Screening Research Group and Health Research Council of New Zealand (HRC). URL: www.otago.ac.nz/wellington/otago067851.pdf (accessed July 2017).

Veitch AM, Vanbiervliet G, Gershlick AH, et al. 2016. Endoscopy in patients on antiplatelet or anticoagulant therapy, including direct oral anticoagulants: British Society of Gastroenterology (BSG) and European Society of Gastrointestinal Endoscopy (ESGE) guidelines. Gut. Mar; 65 (3) 374–89. DOI: <u>https://doi.org/10.1136/gutjnl-2015-311110</u> (accessed 13 April 2021).

Vemulapalli KC, Rex DK. 2014. Risk of advanced lesions at first follow-up colonoscopy in high-risk groups as defined by the United Kingdom post-polypectomy surveillance guideline: data from a single U.S. center. Gastrointest. Endosc. 80(2): 299–306. DOI: <u>https://doi.org/10.1016/j.gie.2014.02.1029</u> (accessed 13 April 2021).

Whitehead M. 1990. The Concepts and Principles of Equity and Health. Copenhagen: WHO Regional Office for Europe (document number: EUR/ICP/RPD 414).

Whitehead M, Dahlgren G. 2006. Concepts and Principles for Tackling Social Inequities in Health: Levelling up Part 1. Denmark: World Health Organization Regional Office for Europe. URL: <u>www.euro.who.int/ data/assets/pdf file/0010/74737/E89383.pdf</u> (accessed 8 April 2021).

WHO Classification of Tumours Editorial Board. 2020. Digestive System Tumours: WHO Classification of Tumours, 5th edition, volume 1. Lyon: International Agency for Research on Cancer (IARC), World Health Organization (WHO).

# Appendix 1: Grading evidence

Table A1: Cross-comparison table for levels of evidence

	New Zealan d guidan ce	NZGG; NZFGC S*	EC guideli nes	BSG (East et al 2017)	NICE; ESGE; NHSBCS P; AGSE; (GRADE)	#EGGNZ; RANZCR ; NZNO; NCSPI; ACR
The recommendation is supported by good evidence (based on a number of studies that are valid, consistent, applicable and clinically relevant).	Eviden ce based	A	1-11	High- quality evidenc e	High quality	
The recommendation is supported by fair evidence (based on studies that are valid, but there are some concerns about the volume, consistency, applicability and clinical relevance of the evidence that may cause some uncertainty but are not likely to be overturned by other evidence).	Conse nsus based	В	III-V	Modera te- quality evidenc e	Moderate quality	
The recommendation is supported by international expert opinion.	Conse nsus based	С	VI	Low- quality evidenc e	Low quality	
The evidence is insufficient, evidence is lacking or of poor quality, opinions are conflicting or the balance of benefits	-	I			Very low quality	

and harms cannot be determined.				
Good practice point – where no evidence is available, best practice recommendations are made based on the experience of the guidance revision team or on feedback from consultation within New Zealand.	Practic e point	✓		Practice point

- \* NZFGCS guidelines link directly to NZGG 2011.
- # This group indicated as being at least equivalent to the practice point because either a grading system had not been identified or had been identified as based on review of other guidelines/standards by the organisation's revision team.

### Appendix 2: Equity checklist for the National Bowel Screening Programme

March 2018 Version 3.0

Equity, in this context is defined as quality and access to and through a screening pathway. This checklist has been developed to assist district health boards (DHBs) in their planning to implement the National Bowel Screening Programme (NBSP). It is designed for use by bowel screening programme managers and their teams in each DHB.

The checklist comprises an evidence-based set of initiatives to achieve equity and is based on He Pikinga Waiora Implementation Framework (Oetzel et al 2016). This document was produced by the National Screening Unit (NSU). It is the result of collaboration between professionals at the Ministry of Health with expertise in screening equity and public health working in partnership with Māori and Pacific public health specialists. Equitable access and quality must be considered for at least the following priority groups: Māori, Pacific peoples and those living in areas of deprivation (NZDep 9 and 10).

#### SYSTEMS

Do we know how to address systemic issues in our implementation strategy that promote equity?	
Have we considered He Korowai Oranga? Have we considered 'Ala Mo'ui?	
Do we monitor and view data in our DHB through an equity lens?	
Do we regularly consider additional initiatives that may better address equity in our programme? Do we know who to talk to about performing a trial to test any potential initiative and how to evaluate it correctly?	

Have we ensured that the equity impacts of any potential changes to the way the programme is designed or managed locally have been considered?	
Is ethnicity data collection compliant with the Ministry of Health Ethnicity Data Protocols?	
Have we established mechanisms to monitor quality and safety of programme delivery for different population groups?	
Can we engage local expertise in screening equity and public health equity?	
Have we involved our clinical colleagues in the discussion around equity in bowel screening?	

#### CULTURAL CENTREDNESS

Are there existing screening-specific or general governance groups with Māori and Pacific representation within our organisation?	
Do our bowel screening governance groups have Māori and Pacific representation?	
Have we ensured that our teams have ongoing training in health equity, cultural competence and Te Tiriti o Waitangi?	
Have we developed a primary care partnership strategy in delivering the bowel screening programme? Have we included Māori and Pacific providers?	
Have we engaged with our Māori and Pacific health units in our bowel screening programme implementation plan? Is there existing engagement with other screening programmes? Have we also considered liaising with our local public health unit?	
Is decision-making and communication shared with local communities? Have we established strong partnerships with communities?	
Does our implementation plan explicitly state our reflexivity and allow for alterations to the implementation process?	

COMMUNITY ENGAGEMENT			
Have we established relationships with Māori and Pacific health providers in our region?			
Is there a partnership between the DHB and community to implement bowel screening successfully?			
Have we sought advice from Māori and Pacific communities in our region about the best ways to deliver information on bowel screening to their communities? Have we acted on that advice?			
Have we put systems in place that ensures feedback and evaluation of the bowel screening programme by Māori and Pacific communities?			
KEY INITIATIVES			
Have we ensured that colonoscopy appointments are to be arranged at a time this is mutually agreed between DHB and patient?			
Have we considered providing after-hours and/or weekend colonoscopy services if necessary?			
Do we have support to screening services for the bowel screening programme (eg, supporting access to colonoscopy)?			

#### Resources

Ministry of Health. 2002. *He Korowai Oranga; Māori Health Strategy*. Wellington: Ministry of Health.

Ministry of Health. 2014. *'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2014–2018*. Wellington: Ministry of Health.

National Screening Unit. 2015. *National Screening Unit Quality Framework 2015: Delivering screening programmes*. Wellington: Ministry of Health.

Oetzel J, Scott N, Hudson M, et al. 2016. *He Pikinga Waiora Implementation Framework.* Dunedin: Healthier Lives – He Oranga Hauora: National Science Challenge.