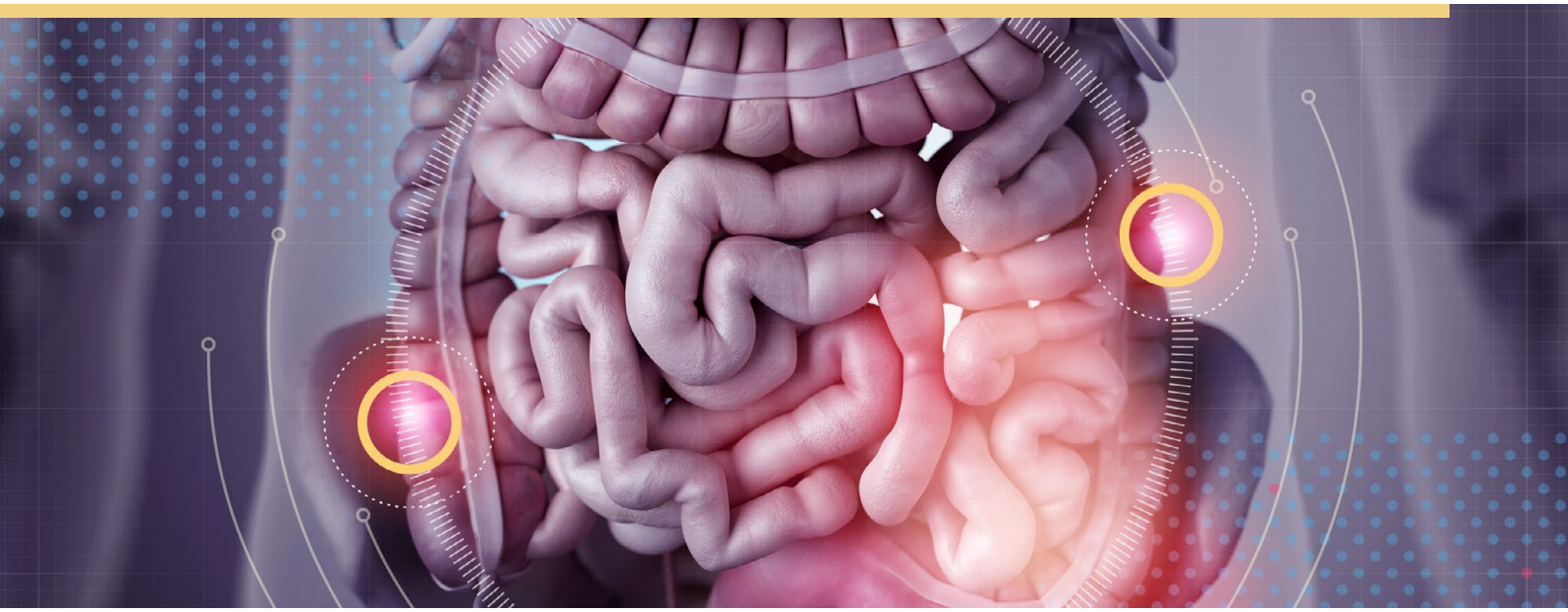


Follow-up and surveillance for people after treatment **for bowel cancer**

Bowel cancer is a leading cause of cancer mortality in New Zealand, second only to lung cancer. Follow-up and surveillance of people who have undergone curative treatment aims to improve outcomes by enabling recurrence to be detected at an early stage so that additional curative treatment can be offered. A number of different healthcare professionals may be involved in providing follow-up and surveillance care; primary care has an important role in ensuring that the overall health needs of patients and their whānau/family are met.

GUIDANCE UPDATE

The 2012 Ministry of Health guidance for surveillance for people at increased risk of colorectal cancer was updated in 2023. View the latest guidelines here: **www.tewhatuora.govt.nz/publications/update-on-surveillance-recommendations-for-individuals-with-a-family-whanau-history-of-colorectal-cancer**

KEY PRACTICE POINTS:

- For people aged < 75 years with bowel cancer in New Zealand five-year cancer-specific survival is approximately 66% and all-cause survival, 62%; survival rates are lower for Māori and Pacific peoples
- The risk of recurrence of bowel cancer is linked to the stage of the disease at diagnosis and this is also the strongest prognostic factor; a New Zealand-based study showed that the overall recurrence rate five years after curative surgery is approximately 25%
- The majority of recurrences are within the first two years following treatment, commonly in the liver, peritoneum, lung or locally. Other sites of disease recurrence are the bone, brain, ovary and distant lymph nodes.
- The type and duration of follow-up after bowel cancer is determined by cancer site (colon or rectum). Most patients will be followed up for a minimum of three years; this may include a colonoscopy within 12 months of curative surgery, imaging and periodic measurements of carcinoembryonic antigen (CEA)
- Other important aspects of follow-up include regular assessment of the patient's psychological wellbeing, promotion of healthy lifestyle factors, and post-treatment symptom management. Some patients with ongoing bowel symptoms may require specialist input.

This article follows on from the first article of the series: "Referral of patients with features suggestive of bowel cancer: Ministry of Health guidance" see: **bpac.org.nz/2020/bowel-cancer.aspx**

The article incorporates expert guidance from the National Bowel Cancer Working Group (NBCWG).

New Zealand has high rates of bowel cancer and poorer outcomes for Māori and Pacific peoples

New Zealand has one of the highest rates of bowel cancer incidence in the world, and it is one of the leading causes of cancer mortality, second only to lung cancer.[1] In 2018 there were 3,189 new cases of bowel cancer* registered in New Zealand equating to a rate of approximately 40 per 100,000 population, compared with 100 per 100,000 for breast cancer in women and 109 for prostate cancer in men.[2] However, the rate of death from bowel cancer is higher than for breast or prostate cancer.[3] Provisional data for 2017† shows that there were 1,229 deaths from bowel cancer,** a rate of 14.2 deaths per 100,000 – 17.3 for men, 11.6 for women.[1]

Although fewer cases of bowel cancer are registered in Māori and Pacific peoples than other ethnic groups there are differences in the treatments received and in mortality.[4, 5]

Five-year cancer-specific and all-cause survival for people aged < 75 years in New Zealand with bowel cancer is approximately 66% and 62%, respectively.[6] A recent paper examined the patient demographics, tumour characteristics and survival outcomes for 29,221 patients with bowel cancer over a ten-year period from 2006 to 2015.[6] After adjustment for patient specific factors (e.g. age, sex, ethnicity) and cancer specific factors (e.g. cancer site, grade, extent, time from diagnosis, metastatic spread) survival was not significantly different between regions in New Zealand for people aged < 75 years, however, small regional differences were noted for people aged > 75 years.[6]

Both cancer-specific and all-cause survival was lower for Māori and Pacific peoples.[6] Poorer outcomes for Māori and Pacific peoples have been well documented previously, e.g. figures from the 2018 Piper report state a five-year risk of death of 47% for Māori, 59% for Pacific peoples and 38% for Europeans.[5] The factors likely to contribute to these differences have also been well documented and include the higher proportion of metastatic disease at diagnosis, level of deprivation, more co-morbidity and inequity in access to services and treatment received.[5, 6]

Overall patient outcomes after bowel cancer in New Zealand have, in the past, compared unfavourably with other countries, e.g. Australia.[6, 7] Although there has been some encouraging improvement in outcomes reported in these recent papers, the authors caution that ongoing quality improvement should remain a priority.[7]

* Figures quoted include colon and rectal cancer but not anal cancer

† Most recent published data available

** Figures include anal cancer

The risk of disease recurrence after treatment for bowel cancer

As with most cancers, the risk of recurrence of bowel cancer is linked to the stage of the disease at diagnosis, and this is also the strongest prognostic factor.[5] People with stage I and IIa bowel cancer (see: "Staging bowel cancer") are at lower risk of recurrence than those who have been diagnosed with stage IIb or III, who are considered to be at high risk of recurrence.[8]

A New Zealand study on disease recurrence in 237 patients after surgery for primary bowel cancer showed that:[7]

- There was an overall disease recurrence rate of approximately 25% five years after curative surgery. Approximate rates of disease recurrence increased with the stage of the disease:
  - Stage I – 5%
  - Stage II – 22%
  - Stage III – 32%
  - Stage IV – 60%

Staging bowel cancer

Colon cancer staging:[9, 10]

- Stage 0 – Carcinoma in situ
- Stage I – Tumour is confined to the bowel wall
- Stage II – Tumour has spread through the bowel wall to the surrounding tissue or peritoneum
- Stage III – Tumour has spread to the regional lymph nodes
- Stage IV – Tumour is metastatic, i.e. spread to distant parts of the body, e.g. liver or lungs

Rectal cancer is staged in a similar way or may be staged more simply as non-metastatic (stage I – III) and metastatic (stage IV).

- The liver was the most common site of disease recurrence, followed by lung and local recurrence. Other less frequent sites of recurrence included bone, brain, peritoneum, ovary and distant lymph nodes.
- Approximately 42% of recurrences were observed in the first year following surgery, increasing to nearly 73% within the first two years. After this, annual recurrence rates decreased.
- Recurrence was detected by:
  - CEA* testing 41%
  - Routine imaging 32%
  - Clinical symptoms and signs 27%

* Carcinoembryonic antigen test

What follow-up is required and how often?

The aim of follow-up for people treated for bowel cancer is to enable recurrence to be detected at an early stage so that additional curative treatment can be offered and outcomes improved.[11]

Current New Zealand surveillance guidance for people with a personal history of bowel cancer who have undergone curative resection was published in 2012.[12, 13] This guidance is under review by the National Bowel Cancer Working Group (NBCWG) who have provided expert advice regarding the current situation in relation to the 2012 recommendations:

- Patients with a history of bowel cancer resection should be followed up under the direction of a multidisciplinary team. This is likely to include primary care.
- Patients treated for bowel cancer should have a colonoscopy within 12 months of their initial surgery if the entire colon was not assessed preoperatively
- Patients who have been treated surgically for bowel cancer who subsequently develop symptoms suggestive of recurrence should be clinically assessed

Some specific components of follow-up differ for people who have had colon cancer from those who have had rectal cancer (Table 1).[12, 13]

Other important aspects of follow-up include regular assessment of the patient's psychological well-being and promotion of healthy lifestyle factors to the patient and their whānau.[14] Many patients experience altered bowel function as a consequence of their treatment for bowel cancer and are likely to require information on dietary changes, stoma care, bloating, excess flatus and managing diarrhoea, incontinence or constipation.[14] Patients with severe symptoms that do not respond to initial treatment with diet and stool modifying medicines may need referral back to their specialist team.

Table 1. Recommended follow-up for people treated for colon or rectal cancer. Adapted from New Zealand Guidelines Group with expert advice from NBCWG.[12, 13]

N.B. Follow-up should be tailored to the individual patient, taking co-morbidities and cancer stage into consideration.

	People with colon cancer (stages I – III)	People with rectal cancer (stages I – III)
Physical examination	Six monthly for the first two years then annually for three more years	At three, six, 12 and 24 months and then annually for another three years
CEA* levels	Six monthly for the first two years then annually for two more years	Six monthly for the first two years then annually for two more years
Imaging, e.g. CXR, CT chest/abdomen	At least once between years one and three	At least once between years one and three
DRE† and sigmoidoscopy	N/A	At six and 12 months then two years after initial surgery
Colonoscopy	Initially one to three years after surgery then every three to five years depending on findings	Initially DRE and sigmoidoscopy as above, then thereafter every three to five years

* CEA: carcinoembryonic antigen

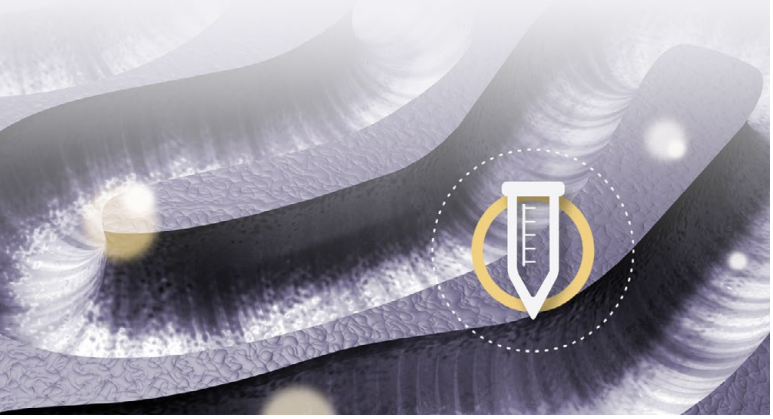
† DRE: digital rectal examination

The role of carcinoembryonic antigen (CEA) testing

Carcinoembryonic antigen (CEA) is a tumour marker most often used, along with clinical review and other appropriate investigations, to detect recurrence of bowel cancer.[17] CEA is produced during fetal development, peaks and then declines with age and is found in low levels in healthy adults. The presence of bowel cancer may increase CEA levels, however, it is non-specific and levels can also be elevated in people with other malignancies including ovarian, gastric, pancreatic, lung and breast cancer. In addition, CEA may be elevated in a number of non-cancerous conditions including inflammatory bowel disease, pancreatitis and cirrhosis and in people who smoke.[17] Very high CEA levels are usually associated with CEA-producing tumours that are metastatic. However, tumour differentiation also influences CEA levels but in an inverse relationship; CEA is more likely to be produced by a well-differentiated bowel cancer than a poorly-differentiated tumour.[18]

In general, the main application of CEA is for monitoring patients after surgical resection for bowel cancer to detect recurrence. However, pre-operative and early post-operative CEA results do have prognostic significance; people with higher pre-operative levels tend to have more advanced bowel cancer and if the level does not return to normal in the month following surgical resection it is associated with poorer survival.[17] Post-operatively a CEA level of > 5 micrograms/L is associated with a higher rate of recurrence and cancer-related mortality.[17] Levels that are > 10 micrograms/L or that are trending upwards should prompt more urgent clinical review and investigations for recurrence.[17]

The recommendations for how frequently patients should have a CEA level requested post-operatively vary between international guidelines. The testing frequency will normally be determined for an individual patient by their secondary care specialist based on their specific clinical picture.



The Cancer Society and Bowel Cancer New Zealand have several resources for patients on their websites, including:

- "Improving bowel function after treatment", available from: **www.cancer.org.nz/assets/Downloads/Bowel-cancer/Cancer-society-Improving-bowel-function-after-treatment-booklet.pdf**
- "Living beyond bowel cancer", available from: **bowelcancernz.org.nz/?wpdmdl=10501**
- "Living with bowel cancer: The ileostomy and colostomy", available from: **bowelcancernz.org.nz**

Comparison to international guidance

Recent 2020 guidelines from the United Kingdom recommend that after bowel cancer treatment, a colonoscopy should be performed within one year and following that a surveillance colonoscopy performed three years later.[15] Further surveillance is then determined by individual risk level, age and access to a national bowel screening programme.[15]

The National Institute for Health and Care Excellence (NICE) colorectal cancer guideline 2020 recommends follow-up for three years after curative intent surgery to detect recurrence or metastases, including serum CEA and CT of the chest, abdomen and pelvis.[16]

How long should patients be followed up?

Most people in New Zealand who have had bowel cancer will be followed up annually for five years.[12]

Data from New Zealand show that most disease recurrence (approximately 73%) occurs within two years following surgery.[7] Patients with rectal cancer, however, can experience delayed recurrence in the liver or lung after two to three years or more.[11]

People with a history of treated bowel cancer continue to be at a higher lifetime risk of disease recurrence and any return of suggestive symptoms or signs should usually be investigated. Deciding when to stop regular follow-up should be a shared decision between patient and clinician(s) and occur if it is thought that the risks of further investigations outweigh the likely benefits, or when the patient can no longer tolerate further treatment.[14]

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