NICE National Institute for Health and Care Excellence

NICE Pathways

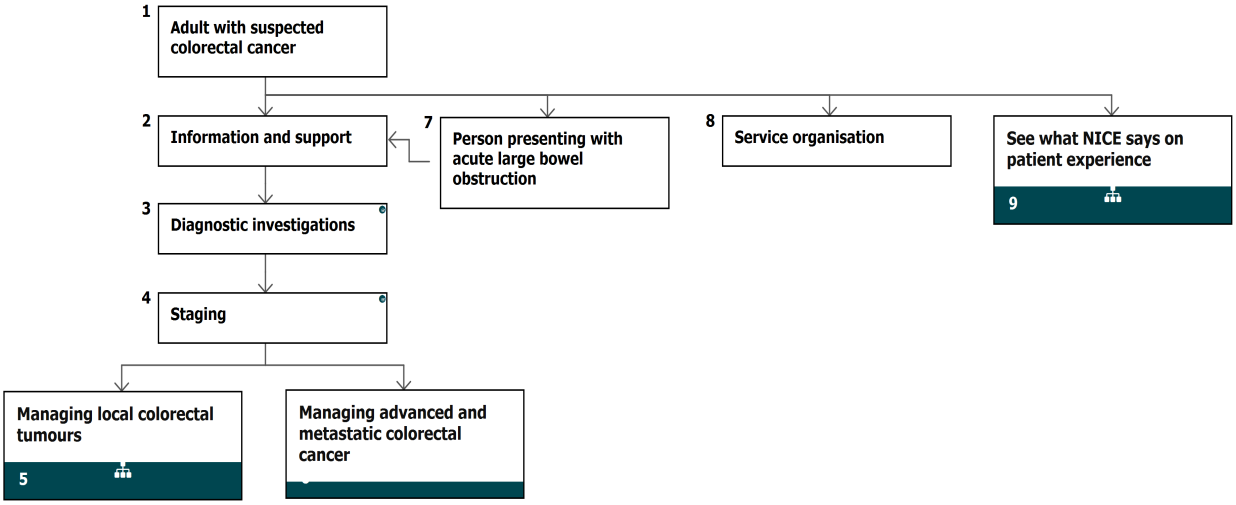
Colorectal cancer overview

NICE Pathways bring together all NICE guidance, quality standards and other NICE information on a specific topic.

NICE Pathways are interactive and designed to be used online. They are updated regularly as new NICE guidance is published. To view the latest version of this pathway see:

http://pathways.nice.org.uk/pathways/colorectal-cancer
Pathway last updated: 30 May 2017

This document contains a single pathway diagram and uses numbering to link the boxes to the associated recommendations.



1 Adult with suspected colorectal cancer

For recommendations on urgent referral from primary care for patients with suspected colorectal cancer, see lower gastrointestinal tract cancers in NICE's guidance on suspected cancer recognition and referral.

2 Information and support

Offer verbal and written information in a way that is clearly understood by patients and free from jargon. Include information about support organisations or internet resources recommended by the clinical team.

NICE has written information for the public explaining its guidance on colorectal cancer.

Before starting treatment, offer all patients information on all treatment options available to them (including no treatment) and the potential benefits and risks of these treatments, including the effect on bowel function.

Before surgery, offer all patients information about the likelihood of having a stoma, why it might be necessary, and how long it might be needed for.

Ensure a trained stoma professional gives specific information on the care and management of stomas to all patients considering surgery that might result in a stoma.

After any treatment, offer all patients specific information on managing the effects of the treatment on their bowel function. This could include information on incontinence, diarrhoea, difficulty emptying bowels, bloating, excess flatus and diet, and where to go for help in the event of symptoms.

3 Diagnostic investigations

NICE has published a clinical knowledge summary on bowel screening. This practical resource is for primary care professionals (it is not formal NICE guidance).

The recommendations in this guidance on diagnostic investigations refer to people whose condition is being managed in secondary care.

Advise the patient that more than one investigation may be necessary to confirm or exclude a diagnosis of colorectal cancer.

Offer colonoscopy to patients without major comorbidity, to confirm a diagnosis of colorectal cancer. If a lesion suspicious of cancer is detected, perform a biopsy to obtain histological proof of diagnosis, unless it is contraindicated (for example, patients with a blood clotting disorder).

Offer flexible sigmoidoscopy then barium enema for patients with major comorbidity. If a lesion suspicious of cancer is detected perform a biopsy unless it is contraindicated.

Consider computed tomographic (CT) colonography as an alternative to colonoscopy or flexible sigmoidoscopy then barium enema, if the local radiology service can demonstrate competency in this technique. If a lesion suspicious of cancer is detected on CT colonography, offer a colonoscopy with biopsy to confirm the diagnosis, unless it is contraindicated.

Offer patients who have had an incomplete colonoscopy:

- repeat colonoscopy **or**
- CT colonography, if the local radiology service can demonstrate competency in this technique **or**
- barium enema.

Virtual chromoendoscopy to assess colorectal polyps during colonoscopy

The following recommendation is from NICE diagnostics guidance on virtual chromoendoscopy to assess colorectal polyps during colonoscopy.

Virtual chromoendoscopy using NBI, FICE or i-scan is recommended to assess polyps of 5 mm or less during colonoscopy, instead of histopathology, to determine whether they are adenomatous or hyperplastic, only if:

- high-definition enabled virtual chromoendoscopy equipment is used
- the endoscopist has been trained to use virtual chromoendoscopy, and accredited to use the technique under a national accreditation scheme
- the endoscopy service includes systems to audit endoscopists and provide ongoing feedback on their performance (see section 6.1 of NICE diagnostics guidance 28) and
- the assessment is made with high confidence.

Molecular testing strategies for Lynch syndrome

The following recommendations are from NICE diagnostics guidance on molecular testing strategies for Lynch syndrome in people with colorectal cancer.

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 (see recommendations below). Do not wait for the results before starting treatment.

If using immunohistochemistry, follow the steps in table 1.

Table 1 Steps in the immunohistochemistry testing strategy

<table>
<tr><td>Step 1</td><td colspan="2">Do an immunohistochemistry 4-panel test for MLH1, MSH2, MSH6 and PMS2.</td></tr>
<tr><td>Step 2</td><td>If the MLH1 immunohistochemistry result is abnormal, use sequential BRAF V600E and MLH1 promoter hypermethylation testing to differentiate sporadic and Lynch syndrome-associated colorectal cancers. First do a BRAF V600E test.</td><td rowspan="3">If the MSH2, MSH6 or PMS2 immunohistochemistry results are abnormal, confirm Lynch syndrome by genetic testing of germline DNA.</td></tr>
<tr><td>Step 3</td><td>If the BRAF V600E test is negative, do an MLH1 promoter hypermethylation test.</td></tr>
<tr><td>Step 4</td><td>If the MLH1 promoter hypermethylation test is negative, confirm Lynch syndrome by genetic testing of germline DNA.</td></tr>
</table>

If using microsatellite instability testing, follow the steps in table 2.

Table 2 Steps in the microsatellite instability testing strategy

Step 1	Do a microsatellite instability test.
Step 2	If the microsatellite instability test result is positive, use sequential *BRAF* V600E and *MLH1* promoter hypermethylation testing to differentiate sporadic and Lynch syndrome-associated colorectal cancers. First do a *BRAF* V600E test.
Step 3	If the *BRAF* V600E test is negative, do an *MLH1* promoter hypermethylation test.
Step 4	If the *MLH1* promoter hypermethylation test is negative, confirm Lynch syndrome by genetic testing of germline DNA.

Healthcare professionals should ensure that people are informed of the possible implications of test results for both themselves and their relatives, and ensure that relevant support and information is available. Discussion of genetic testing should be done by a healthcare professional with appropriate training.

Laboratories doing microsatellite instability testing or immunohistochemistry for mismatch repair proteins should take part in a recognised external quality assurance programme.

Quality standards

The following quality statement is relevant to this part of the interactive flowchart.

1. Colonoscopy

4 Staging

The recommendations in this guidance on staging refer to people whose condition is being managed in secondary care.

Offer contrast-enhanced CT of the chest, abdomen and pelvis, to estimate the stage of disease, to all patients diagnosed with colorectal cancer unless it is contraindicated. No further routine imaging is needed for patients with colon cancer.

Offer MRI to assess the risk of local recurrence, as determined by anticipated resection margin, tumour and lymph node staging, to all patients with rectal cancer unless it is contraindicated.

Offer endorectal ultrasound to patients with rectal cancer if MRI shows disease amenable to local excision or if MRI is contraindicated.

Do not use the findings of a digital rectal examination as part of the staging assessment.

See also imaging to identify and assess metastases.

TNM staging system

For the purposes of this guidance the TNM Classification of Malignant Tumours staging system (fifth edition) has been used, in line with the Royal College of Pathologists.

Below is a summary of the fifth edition of the TNM staging system for colorectal cancer and comparison with Dukes' stage.

Tumour

T1 the tumour is confined to the submucosa

T2 the tumour has grown into (but not through) the muscularis propria

T3 the tumour has grown into (but not through) the serosa

T4 the tumour has penetrated through the serosa and the peritoneal surface. If extending directly into other nearby structures (such as other parts of the bowel or other organs/body structures) it is classified as **T4a**. If there is perforation of the bowel, it is classified as **T4b**.

Nodes

N0[1] no lymph nodes contain tumour cells

N1[2] there are tumour cells in up to 3 regional lymph nodes

N2 there are tumour cells in 4 or more regional lymph nodes

Metastases

M0 no metastasis to distant organs

[1] A tumour nodule in the pericolic or perirectal adipose tissue without evidence of residual lymph node is regarded as a lymph node metastasis if it is more than 3mm in diameter. If it is less than 3mm in diameter, it is regarded as discontinuous tumour extension.

[2] If there are tumour cells in non-regional lymph nodes (that is, in a region of the bowel with a different pattern of lymphatic drainage to that of the tumour), that is regarded as distant metastasis (pM1).

M1 metastasis to distant organs

Dukes' stage

Dukes' stage A = T1N0M0 or T2N0M0

Dukes' stage B = T3N0M0 or T4N0M0

Dukes' stage C = any T, N1, M0 or any T, N2, M0

Dukes' stage D = any T, any N, M1

Quality standards

The following quality statements are relevant to this part of the interactive flowchart.

2. Staging (colon cancer)

3. Staging (rectal cancer)

5 Managing local colorectal tumours

See Colorectal cancer / Managing local colorectal tumours

6 Managing advanced and metastatic colorectal cancer

See Colorectal cancer / Managing advanced and metastatic colorectal cancer

7 Person presenting with acute large bowel obstruction

If considering the use of a colonic stent in patients presenting with acute large bowel obstruction, offer CT of the chest, abdomen and pelvis to confirm the diagnosis of mechanical obstruction, and to determine whether the patient has metastatic disease or colonic perforation.

Do not use contrast enema studies as the only imaging modality in patients presenting with acute large bowel obstruction.

For patients with acute left-sided large bowel obstruction caused by colorectal cancer that is potentially curable, and for whom surgery is suitable:

- Resuscitate patients and explain to them and their family members or carers (as appropriate) that acute bowel obstruction can initially be managed either with emergency surgery or a colonic stent, and that there is no clear evidence that one treatment is better than the other.
- Offer patients the chance to take part in a randomised controlled trial[1] (if available) that compares emergency surgery with colonic stent insertion to initially manage acute bowel obstruction.

For patients with acute left-sided large bowel obstruction caused by colorectal cancer that is not potentially curable, or for whom surgery is unsuitable:

- Resuscitate patients with acute large bowel obstruction, then consider placing a self-expanding metallic stent to initially manage a left-sided complete or near-complete colonic obstruction.
- A consultant colorectal surgeon should consider inserting a colonic stent in patients presenting with acute large bowel obstruction. They should do this together with an endoscopist or a radiologist (or both) who is experienced in using colonic stents.

Do not place self-expanding metallic stents:

- in low rectal lesions **or**
- to relieve right-sided colonic obstruction **or**
- if there is clinical or radiological evidence of colonic perforation or peritonitis.

Do not dilate the tumour before inserting the self-expanding metallic stent.

Only a healthcare professional experienced in placing colonic stents who has access to fluoroscopic equipment and trained support staff should insert colonic stents.

8 Service organisation

NICE has published cancer service guidance on:

- improving outcomes in colorectal cancer and
- improving supportive and palliative care for adults with cancer.

[1] At the time of publication (December 2014), the CReST trial was recruiting patients with acute bowel obstruction caused by suspected colorectal cancer for randomisation to either colonic stent insertion or emergency surgery.

9 See what NICE says on patient experience

See Patient experience in adult NHS services

5-FU

5-fluorouracil

cT1

tumour invades submucosa as clinically defined

cT2

tumour invades muscularis propria as clinically defined

cT3a

less than 1mm invasion to mesorectum

cT3b

1–5mm invasion into mesorectum

EGFR

epidermal growth factor receptor

FOLFIRI

5-fluorouracil, folinic acid and irinotecan

FOLFOX

5 fluorouracil, folinic acid and oxaliplatin

KRAS

Kirsten rat sarcoma

PET-CT

positron emission tomography CT

XELOX

capecitabine plus oxaliplatin

Sources

Colorectal cancer: diagnosis and management (2011 updated 2014) NICE guideline CG131

Virtual chromoendoscopy to assess colorectal polyps during colonoscopy (2017) NICE diagnostics guidance 28

Molecular testing strategies for Lynch syndrome in people with colorectal cancer (2017) NICE diagnostics guidance 27

Your responsibility

The guidance in this pathway represents the view of NICE, which was arrived at after careful consideration of the evidence available. Those working in the NHS, local authorities, the wider public, voluntary and community sectors and the private sector should take it into account when carrying out their professional, managerial or voluntary duties. Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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