NATIONAL BOWEL CANCER AUDIT
Performance indicators for patients with colorectal cancer

Data sources
The majority of data items come from the National Bowel Cancer Audit dataset. The Audit dataset is linked to the Hospital Episode Statistics dataset (HES) for measuring certain patient outcomes including emergency readmissions and stoma reversal. The mode of admission (elective or emergency) is recorded in HES, as is the number of co-morbidities, which is defined according to the Charlson co-morbidity score. The Audit dataset is also linked to the National Radiotherapy Dataset (RTDS), which contains information about radiotherapy treatment received by patients, such as primary cancer site, intent, dose, number of attendances, first appointment date, and reason for treatment.

Reporting periods
The reporting period for each indicator is date of diagnosis in the financial year ending in the previous calendar year (e.g. for the 2016 report, patients diagnosed 1st April 2014 to 31st March 2015). The exceptions are for 2-year mortality rate and 18-month stoma rate. See the Frequently Asked Questions for these reporting periods.

Title	**Clinical nurse specialist review**	
Outcome	Proportion of patients with colorectal cancer who are seen by a clinical nurse specialist	
Specification	**Numerator**	Number of patients with colorectal cancer seen by a clinical nurse specialist
	Denominator	Number of patients with colorectal cancer
	Exclusions	Trusts with <10 patients recorded in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	Guidelines for the management of colorectal cancer 3rd edition (2007). Issued by The Association of Coloproctology of Great Britain and Ireland: *Patients with colorectal cancer should have access to a colorectal nurse specialist for advice and support from the time they receive the diagnosis*

Title	**Curative major resection**	
Outcome	The proportion of patients undergoing a curative major resection	
Specifications	**Numerator**	Number of patients undergoing major resection with curative treatment intent
	Denominator	Number of patients with colorectal cancer
	Exclusions	Trusts with <10 patients recorded in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**“Too-little” cancer treatment pathway**	
Outcome	The proportion of patients who do not undergo a major resection because of “too-little cancer”	
Specifications	**Numerator**	Number of patients: undergoing a local resection or polypectomy OR with rectal cancer and pre-treatment M0 undergoing long course radiotherapy with curative monitoring intent (to represent those with complete response)
	Denominator	Number of patients with colorectal cancer
	Exclusions	Trusts with <10 patients recorded in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**Non-curative major resection**	
Outcome	The proportion of patients undergoing a non-curative major resection	
Specifications	**Numerator**	Number of patients undergoing major resection with non-curative treatment intent
	Denominator	Number of patients with colorectal cancer
	Exclusions	Trusts with <10 patients recorded in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**“Too much” or “too frail” cancer treatment pathway**	
Outcome	The proportion of patients who do not undergo a major resection because they have ‘too-much cancer” or are “too-frail”	
Specifications	**Numerator**	Number of patients with: No excision and reason for no treatment included advanced stage cancer OR No excision and non-curative intent and metastatic disease OR No excision and reason for no treatment includes significant comorbidity OR No excision and performance status 3 or 4
	Denominator	Number of patients with colorectal cancer
	Exclusions	Trusts with <10 patients recorded in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**Distant metastases at time of surgery**	
Outcome	Proportion of patients undergoing major resection who have distant metastases at the time of surgery	
Specifications	**Numerator**	Number of patients undergoing major resection who are recorded as M1 on pathological staging, or who are recorded as Mx or M9 on pathological staging and M1 on pre-treatment staging.
	Denominator	Number of patients undergoing major resection with complete pre- or post-treatment M-stage
	Exclusions	Patients recorded as Mx or M9 on pre- and post- treatment staging

		Trusts with <10 patients recorded as undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	National Institute for Health and Care Excellence. Clinical guideline [CG131] (2011): *If both primary and metastatic tumours are considered resectable, anatomical site-specific MDTs should consider initial systemic treatment followed by surgery, after full discussion with the patient. The decision on whether the operations are done at the same time or separately should be made by the site-specialist MDTs in consultation with the patient*

Title	**Urgent or emergency surgery**	
Outcome	Proportion of patients undergoing major resection who have urgent or emergency surgery	
Specifications	**Numerator**	Number of patients undergoing major resection recorded as urgent or emergency surgery
	Denominator	Number of patients undergoing major resection with surgical urgency recorded
	Exclusions	Patients with no surgical urgency recorded Trusts with <10 patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**Lymph node yield**	
Outcome	Proportion of patients undergoing major resection where ≥12 lymph nodes are pathologically examined	
Specifications	**Numerator**	Number of patients undergoing major resection where ≥12 lymph nodes are pathologically examined
	Denominator	Number of patients undergoing major resection
	Exclusions	Patients in whom no lymph yield is recorded Trusts with <10 patients undergoing major resection in the audit
	Guideline	Guidelines for the management of colorectal cancer 3rd edition. Issued by The Association of Coloproctology of Great Britain and Ireland (2007): *The median harvest of lymph nodes should be at least 12*

Title	**Laparoscopic surgery**	
Outcome	The proportion of patients undergoing major resection who have an attempted laparoscopic resection	
Specifications	**Numerator**	Number of patients with attempted laparoscopic major resection
	Denominator	Number of patients undergoing major resection
	Exclusions	Patients with missing surgical access data for major resection Trusts with <10 patients undergoing major resection in the audit

	Risk adjusted	No
	Outlier reporting	No
	Guideline	Laparoscopic surgery for colorectal cancer (NICE technology appraisal guidance 105) (2006): *Laparoscopic (including laparoscopically assisted) resection is recommended as an alternative to open resection for individuals with colorectal cancer in whom both laparoscopic and open surgery are considered suitable*

Title	**Length of stay**	
Outcome	Proportion of patients with length of hospital stay after major resection greater than five days	
Specifications	**Numerator**	Number of patients undergoing major resection with length of stay greater than five days
	Denominator	Number of patients undergoing major resection
	Exclusions	Patients whose length of stay could not be determined from HES, either because they could not be linked to HES or because their date of discharge was recorded as before their date of surgery in HES. Trusts with <10 patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**90-day mortality**	
Outcome	Proportion of patients who die within 90-days of major resection	
Specifications	**Numerator**	Number of patients undergoing major resection who die within 90 days of surgery.
	Denominator	Number of patients undergoing major resection.
	Exclusions	Patients with invalid date of surgery because their date of surgery is reported to be after their date of death, or their date of surgery is missing. Trusts with <10 patients undergoing major resection in the audit.
	Risk adjusted	Yes
	Outlier reporting	Yes
	Guideline	No

Title	**30-day emergency readmission rate**	
Outcome	Proportion of patients who have an emergency admission for any cause within 30-days of their major resection	
Specifications	**Numerator**	Number of patients who had an emergency readmission for any cause, to any trust, within 30 days of their major resection.
	Denominator	Number of patients undergoing major resection.
	Exclusions	Patients who could not be linked to HES. Trusts with <10 patients undergoing major resection in the audit.
	Risk adjusted	Yes
	Outlier reporting	Yes
	Guideline	No

Title	**2-year mortality rate**	
Outcome	2-year mortality rate after major resection.	
Specifications	**Numerator**	Number of patients undergoing major resection who die within 2 years of surgery.
	Denominator	The sum of the time each patient was followed up for in the two years following their major resection.
	Exclusions	Patients with invalid date of surgery because their date of surgery is reported to be after their date of death, or their date of surgery is missing. Trusts with <10 patients undergoing major resection in the audit
	Risk adjusted	Yes
	Outlier reporting	Yes
	Guideline	No

Title	**Major resection in rectal cancer patients**	
Outcome	The proportion of rectal cancer patients undergoing a major resection	
Specifications	**Numerator**	Number of rectal cancer patients undergoing major resection
	Denominator	Number of rectal cancer patients
	Exclusions	Trusts with <10 rectal cancer patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**Pre-operative radiotherapy**	
Outcome	The proportion of patients with rectal cancer undergoing a major resection who receive pre-operative radiotherapy	
Specifications	**Numerator**	The number of rectal cancer patients undergoing major resection who receive pre-operative radiotherapy according to either RTDS or Audit data
	Denominator	Number of patients with rectal cancer undergoing major resection
	Exclusions	Trusts with <10 rectal cancer patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No

	Guideline	National Institute for Health and Care Excellence. Clinical guideline [CG131] (2011): • *Discuss the risk of local recurrence, short-term and long-term morbidity and late effects with the patient after discussion in the multidisciplinary team (MDT)* • *Do not offer short-course preoperative radiotherapy (SCPRT) or chemoradiotherapy to patients with low-risk operable rectal cancer (see table 1 for risk groups), unless as part of a clinical trial* • *Consider SCPRT then immediate surgery for patients with moderate-risk operable rectal cancer (see table 1 for risk groups). Consider preoperative chemoradiotherapy with an interval to allow tumour response and shrinkage before surgery for patients with tumours that are borderline between moderate and high risk* • *Offer preoperative chemoradiotherapy with an interval before surgery to allow tumour response and shrinkage (rather than SCPRT), to patients with high-risk operable rectal cancer*

Title	**Circumferential resection margins**	
Outcome	Proportion of patients undergoing major resection for rectal cancer who have a positive circumferential resection margin (CRM)	
Specifications	**Numerator**	Number of patients with rectal cancer undergoing major resection with positive CRM
	Denominator	Number of patients undergoing major resection for rectal cancer who have a recorded CRM
	Exclusions	Trusts with <10 rectal cancer patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	No

Title	**Abdominolperineal resection (APER)**	
Outcome	Proportion of patients undergoing major resection for rectal cancer who undergo APER	
Specifications	**Numerator**	Number of patients with rectal cancer undergoing major resection who have an APER
	Denominator	Number of rectal cancer patients undergoing major resection
	Exclusions	Trusts with <10 rectal cancer patients undergoing major resection in the audit
	Risk adjusted	No
	Outlier reporting	No
	Guideline	Guidelines for the management of colorectal cancer 3rd edition. Issued by The Association of Coloproctology of Great Britain and Ireland (2007): *It is recommended that total mesorectal excision should be performed for tumours in the lower two-thirds of the rectum, either as part of a low anterior resection or an APER. In tumours of the upper rectum the mesorectum*

		should be divided no less than 5cm below the lower margin of the tumour

Title	**18-month stoma rate**	
Outcome	Proportion of rectal cancer patients who have a stoma 18-months after major resection	
Specifications	**Numerator**	Number of rectal cancer patients with a stoma at 18 months after their major resection according to the Audit and HES
	Denominator	Number of rectal cancer patients undergoing major resection
	Exclusions	Patients who could not be linked to HES Trusts with <10 rectal cancer patients undergoing major resection in the audit
	Risk adjusted	Yes
	Outlier reporting	Yes
	Guideline	No