Scottish Cancer Strategic Board
National Cancer Quality Improvement Board

Colorectal Cancer
Clinical Quality Performance Indicators

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Revision History

Version	Date	Summary of Changes
V1.0	December 2012	Initial publication
V1.1	November 2013	Addition of QPI 3 – Multi-Disciplinary Team (MDT) Meeting.
V2.1	December 2015	Baseline review changes
V3.0	May 2017	Formal review changes (1st Cycle)
V4.0	July 2021	Formal review changes (2nd Cycle)
V5.0	September 2025	Formal review changes (3rd Cycle)

Contents Update Record

September 2025
This document was updated following formal review (3rd cycle) of the Colorectal Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 11 of the colorectal cancer QPI data.

The following QPIs have been updated:

- QPI 2: Pre-Treatment Imaging of the Colon
- QPI 7: Surgical Margins
- QPI 8: Re-operation Rates
- QPI 9: Anastomotic Dehiscence
- QPI 11: Adjuvant Chemotherapy
- QPI 16: Assessment of Mismatch Repair (MMR) / Microsatellite Instability (MSI) Status

The following QPIs have been archived:

- QPI 1: Radiological Diagnosis and Staging
- QPI 5: Lymph Node Yield
- QPI 10: 30 and 90 Day Mortality Following Surgical Resection
- QPI 12: 30 and 90 Day Mortality Following Radical Radiotherapy
- QPI 13: Clinical Trial and Research Study Access*
- QPI 14: 30 Day Mortality following Systemic Anti-Cancer Therapy (SACT)*

The following new QPIs have been added:

- QPI 17: TNM Staging
- QPI 18: Volume of Cases per Surgeon
- QPI 19: Minimally Invasive Surgery
- QPI 20: Complete Pathology Reporting for Local Excision Specimens

***** These important indicators will continue to be monitored via other national reporting systems rather than through the QPI process.

As a result of the changes above, the contents page and page numbering differ from earlier versions of this document. Sections 1 – 11 and the appendices have also been updated.

Please note that this version of the Colorectal Cancer QPI document applies to cases diagnosed from 1st April 2025.

Previous Updates:

July 2021 (v4.0)

This document was updated following formal review (2nd cycle) of the) Colorectal Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 6 of the Colorectal Cancer QPI data.

The following QPIs have been updated:

- QPI 1: Radiological Diagnosis and Staging
- QPI 5: Lymph Node Yield
- QPI 7: Surgical Margins
- QPI 9: Anastomotic Dehiscence
- QPI 11: Adjuvant Chemotherapy
- QPI 12: 30 and 90 Day Mortality Following Radical Radiotherapy
- QPI 13: Clinical Trial and Research Study Access

The following QPIs have been archived:

- QPI 3: MDT
- QPI 4: Stoma Care
- QPI 6: Neo-adjuvant Therapy

The following QPIs have been added:

- QPI 14: 30 Day Mortality following SACT
- QPI 15: Colorectal Liver Metastases
- QPI 16: Assessment of Mismatch Repair (MMR)/ Microsatellite Instability (MSI) Status

As a result of the changes above, the contents page and page numbering differ from earlier versions of this document. Sections 1 – 11 and the appendices have also been updated.

Please note that this version of the Colorectal Cancer QPI Document applies to cases diagnosed from 1st April 2020 onwards. Where amended or new QPIs require new data items for measurement, this will apply for patients diagnosed from 1st April 2021.

May 2017 (v3.0)

This document was updated following formal review of the Colorectal Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 3 of the colorectal cancer QPI data.

The following QPIs have been updated:

- QPI 1: Radiological Diagnosis and Staging
- QPI 2: Pre-operative Imaging of the Colon
- QPI 5: Lymph Node Yield
- QPI 6: Neo-adjuvant Radiotherapy
- QPI 7: Surgical Margins
- QPI 8: Re-operation Rates
- QPI 10: 30 and 90 Day Mortality Following Surgical Resection
- QPI 11: Adjuvant Chemotherapy
- QPI 12: 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy

Please note the extant Clinical Trials has now been added into each tumour specific QPI document (see QPI 13: Clinical Trials).

As a result of the changes above, the contents page and page numbering differ from earlier version of this document. Sections 1 - 11 and the appendices have also been updated.

Please note that this version of the Colorectal Cancer QPI Document applies to cases diagnosed from 1st April 2016 onwards. Where amended or new QPIs require new data items for measurement, this will apply for patients diagnosed from 1st April 2017.

February 2015 (v2.1)
This document was updated following baseline review of the colorectal cancer QPIs which took place following analysis of year 1 of the colorectal cancer QPI data. As a result, the following QPIs have been updated:

- QPI 1: Radiological Diagnosis and Staging
- QPI 3: MDT Meeting
- QPI 7: Surgical Margins
- QPI 9: Anastomotic Dehiscence
- QPI 10: 30 and 90 Day Mortality Following Surgical Resection
- QPI 11: Adjuvant Chemotherapy
- QPI 12: 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy

Please note that this version of the Colorectal Cancer QPI Document applies to cases diagnosed from 1st April 2014.

November 2013
Please note that this document has been updated to include QPI 3 – Multi-Disciplinary Team (MDT) Meeting.

The overall QPI numbering, contents page and the page numbering have been amended as a result and therefore differ from earlier versions of this document.

Contents Page

1. National Cancer Quality Programme

Beating Cancer: Ambition and Action (2016)[1] details a commitment to delivering the National Cancer Quality Programme across NHSScotland, with a recognised need for national cancer QPIs to support a culture of continuous quality improvement. Addressing variation in the quality of cancer services is pivotal to delivering improvements in quality of care. This is best achieved if there is consensus and clear indicators for what good cancer care looks like.

Small sets of cancer specific outcome focussed, evidence based indicators are in place for 19 different tumour types. These QPIs ensure that activity is focused on those areas that are most important in terms of improving survival and individual care experience whilst reducing variation and supporting the most effective and efficient delivery of care for people with cancer. QPIs are kept under regular review and are responsive to changes in clinical practice and emerging evidence.

A programme to review and update the QPIs in line with evolving evidence is in place as well as a robust mechanism by which additional QPIs will be developed over the coming years.

1.1 Quality Assurance and Continuous Quality Improvement

The ultimate aim of the programme is to develop a framework, and foster a culture of continuous quality improvement, whereby real time data is reviewed regularly at an individual Multidisciplinary Team (MDT)/Unit level and findings actioned to deliver continual improvements in the quality of cancer care. This is underpinned and supported by a programme of regional and national comparative reporting and review.

NHS Boards are required to report against QPIs as part of a mandatory, publicly reported, programme at a national level. A rolling programme of reporting is in place, with approximately three national tumour specific summary reports published annually. These reports highlight the publication of performance data in the Cancer QPI Dashboard held within the Scottish Cancer Registry and Intelligence Service (SCRIS). The dashboard includes comparative reporting of performance against QPIs at MDT/Unit level across NHSScotland, trend analysis and survival. This approach helps to overcome existing issues relating to the reporting of small volumes in any one year.

In the intervening years, tumour specific QPIs are monitored on an annual basis through established Regional Cancer Network and local governance processes, with analysed data submitted to Public Health Scotland (PHS) for inclusion in the Cancer QPI Dashboard and subsequent national summary reports. This ensures that timely action is taken in response to any issues that may be identified through comparative reporting and systematic review.

2. Quality Performance Indicator Development Process

The QPI development process was designed to ensure that indicators are developed in an open, transparent and timely way.

The Colorectal Cancer QPI Development Group was convened in December 2011, chaired by Dr Rob Jones (Senior Lecturer and Honorary Consultant in Medical Oncology, Beatson West of Scotland Cancer Centre). Membership of this group included representatives drawn from the three regional cancer networks, Healthcare Improvement Scotland, Information Services Division (ISD) and patient/carer representatives.

The development process and membership of the development group can be found in appendix 1.

3. QPI Formal Review Process

As part of the National Cancer Quality Programme, a systematic rolling programme of national review process has been developed. This ensures all tumour specific QPIs are subject to formal review following every 3rd year of comparative QPI data analysis. The 3rd review of the Colorectal Cancer QPIs was undertaken later than planned due to a delay in the schedule following the Covid-19 pandemic.

The formal review process is clinically driven with proposals for change sought from specialty specific representatives in each of the Regional Cancer Networks. It is designed to be flexible in terms of the extent of review required with tumour specific Regional Clinical Leads undertaking a key role in this decision making. Formal review meetings to further discuss proposals are arranged where deemed necessary. The review builds on existing evidence using expert clinical opinion to identify where new evidence is available, and a full public engagement exercise will take place where significant revisions have been made or new QPIs developed.

During formal review QPIs may be archived and replaced with new QPIs. Triggers for doing so include significant change to clinical practice, targets being consistently met by all Boards, and publication of new evidence. Where QPIs have been archived, associated data items will continue to be collected where these are utilised for other indicators, or measures such as survival analysis.

Any new QPIs are developed in line with the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?
- **Evidence based** – is the indicator based on high quality clinical evidence?
- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

Three formal reviews of the Colorectal Cancer QPIs have been undertaken to date. Further information can be found in appendix 2.

4. Format of the Quality Performance Indicators

QPIs are designed to be clear and measurable, based on sound clinical evidence whilst also taking into account other recognised standards and guidelines.

- Each QPI has a **short title** which will be utilised in reports as well as a fuller **description** which explains exactly what the indicator is measuring.
- This is followed by a brief overview of the **evidence base and rationale** which explains why the development of this indicator was important.
- The measurability **specifications** are then detailed; these highlight how the indicator will actually be measured in practice to allow for comparison across NHSScotland.
- Finally a **target** is indicated, this dictates the level which each unit should be aiming to achieve against each indicator.

In order to ensure that the chosen target levels are the most appropriate and drive continuous quality improvement as intended they are kept under review and revised as necessary, if further evidence or data becomes available.

Rather than utilising multiple exclusions, a tolerance level has been built into the QPIs. It is very difficult to accurately measure patient choice, co-morbidities and patient fitness therefore target levels have been set to account for these factors. Further detail is noted within QPIs where there are other factors which influenced the target level.

Where 'less than' (<) target levels have been set the rationale has been detailed within the relevant QPI. All other target levels should be interpreted as 'greater than' (>) levels.

5. Supporting Documentation

A national minimum core dataset and a measurability specification have been developed in parallel with the indicators to support the monitoring and reporting of the Colorectal Cancer QPIs. The latest version of these documents can be found at:

Public Health Scotland Cancer Audit

6. Colorectal Cancer Definition

Approximately 0.8% of new colorectal cancer cases diagnosed in Scotland between 1st April 2015 and 31st March 2016 (based on National Colorectal Cancer audit data 2015/16) are appendiceal cancers. The presentation and management of these rare cancers is different from other colorectal tumours, therefore a decision was made by the Colorectal Cancer QPI Formal Review Group in 2016 to exclude appendiceal cancer from all QPIs.

7. Quality Performance Indicators for Colorectal Cancer

QPI 2: Pre-Treatment Imaging of the Colon

QPI Title:	Patients with colorectal cancer undergoing elective surgical resection should have the whole colon visualised before first treatment.	
Description:	Proportion of patients with colorectal cancer who undergo elective surgical resection who have the whole colon visualised by colonoscopy or CT colonography before first treatment, unless the non-visualised segment of colon has been removed.	
Rationale and Evidence:	The whole colon is visualised prior to treatment to avoid missing synchronous tumours and to remove synchronous adenomas[2]. Where colorectal cancer is suspected clinically, the whole of the large bowel should be examined to confirm a diagnosis of cancer. CT colonography can be used as a sensitive and safe alternative to colonoscopy[3].	
Specifications:	**Numerator:**	Number of patients who undergo elective surgical resection for colorectal cancer who have the whole colon visualised by colonoscopy or CT colonography before first treatment, unless the non-visualised segment of the colon has been removed.
	Denominator:	All patients who undergo elective surgical resection for colorectal cancer.
	Exclusions:	• Patients who undergo palliative surgery. • Patients who have incomplete bowel imaging due to obstructing tumour.
Target:	95% The tolerance within this target is designed to account for situations where patients are deemed clinically unsuitable or unfit to undergo colonoscopy or CT colonography. It also accounts for circumstances in which patients undergo first treatment prior to bowel imaging e.g. polypectomy patients who undergo endoscopic treatment prior to surgical resection.	

QPI 7: Surgical Margins

QPI Title:	Rectal cancers undergoing surgical resection should be adequately excised.
Description:	Proportion of patients with rectal cancer who undergo surgical resection in which the circumferential margin is clear of tumour. **Please note:** The specifications of this QPI are separated to ensure clear measurement of both patients who receive: (i) Primary surgery (i.e. surgery as initial treatment); and (ii) Surgery following neo-adjuvant treatment.
Rationale and Evidence:	The circumferential margin is an independent risk factor for the development of distant metastases and mortality. It is recognised that local recurrence of rectal cancer can be accurately predicted by pathological assessment of circumferential margin involvement in these tumours[3]. This indicator is a measure of the quality of both pre-operative assessment and resection.
Specification (i):	**Numerator:** Number of patients with rectal cancer who undergo elective primary surgical resection as initial treatment in which the circumferential margin is clear of tumour. **Denominator:** All patients with rectal cancer who undergo elective primary surgical resection as initial treatment. **Exclusions:** • Patients who undergo Transanal Endoscopic Microsurgery (TEM) / Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).
Target:	95%

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QPI 7: Surgical Margins.....(continued)

Specification (ii):	**Numerator:**	Number of patients with rectal cancer who undergo elective surgical resection following neo-adjuvant treatment in which the circumferential margin is clear of tumour.
	Denominator:	All patients with rectal cancer who undergo elective surgical resection following neo-adjuvant treatment.
	Exclusions:	• Patients who undergo Transanal Endoscopic Microsurgery (TEM) / Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).
Target:	95% The tolerance within this target is designed to account for the fact that patients who undergo neo-adjuvant radiotherapy are already acknowledged to have a tumour threatening the circumferential margin therefore are more likely to have positive surgical margins.	

QPI 8: Re-operation Rates

QPI Title:	For patients undergoing surgery for colorectal cancer re-operation rate should be minimised.	
Description:	Proportion of patients who undergo surgical resection for colorectal cancer that have an unplanned return to theatre to deal with complications related to the index procedure (within 30 days of surgery). **Please note:** The specifications of this QPI are separated to ensure clear measurement of patients with: (i) Colon cancer; and (ii) Rectal cancer.	
Rationale and Evidence:	It is important to minimise morbidity and mortality related to the treatment of colorectal cancer. Re-operation rates may offer a sensitive and relevant marker of surgical quality[4,5,6,7].	
Specification(i):	**Numerator:**	Number of patients with colon cancer who undergo surgical resection that have an unplanned return to theatre within 30 days of surgery to deal with complications related to the index procedure.
	Denominator:	All patients with colon cancer who undergo surgical resection.
	Exclusions:	• No exclusions
Specification(ii):	**Numerator:**	Number of patients with rectal cancer who undergo surgical resection that have an unplanned return to theatre within 30 days of surgery to deal with complications related to the index procedure.
	Denominator:	All patients with rectal cancer who undergo surgical resection.
	Exclusions:	• No exclusions
Target:	<5%	

QPI 9: Anastomotic Dehiscence

QPI Title:	For patients who undergo surgical resection for colorectal cancer anastomotic dehiscence should be minimised.	
Description:	Proportion of patients who undergo surgical resection for colorectal cancer with anastomotic leak as a post- operative complication. **Please note:** The specifications of this QPI are separated to ensure clear measurement of patients who undergo: (i) Colonic anastomosis; and (ii) Rectal anastomosis (including: anterior resection with total mesorectal excision (TME)).	
Rationale and Evidence:	Anastomotic dehiscence is a major cause of morbidity and a measure of the quality of surgical care[2]. Anastomotic leakage is an important and potentially fatal complication of colorectal cancer surgery, and measures to minimise it should be taken[3,8].	
Specification (i):	**Numerator:**	Number of patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the colon having anastomotic leak requiring any intervention (medical, endoscopic, radiological or surgical).
	Denominator:	All patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the colon.
	Exclusions:	• No exclusions.
Specification (ii):	**Numerator:**	Number of patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the rectum (including: anterior resection with TME) having anastomotic leak requiring any intervention (medical, endoscopic, radiological or surgical).
	Denominator:	All patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the rectum (including: anterior resection with TME).
	Exclusions:	• No exclusions
Target:	<5%	

QPI 11: Adjuvant Chemotherapy

QPI Title:	Patients with stage III colorectal cancer should be considered for adjuvant chemotherapy treatment within 8 weeks of surgical resection.
Description:	Proportion of patients who are <75 years of age at diagnosis with stage III colorectal cancer that receive adjuvant chemotherapy treatment within 8 weeks of surgical resection.
Rationale and Evidence:	All patients with stage III colorectal cancer should be considered for adjuvant chemotherapy to reduce the risk of local and systemic recurrence[3,8]. Decisions on adjuvant therapy for patients over 75 years of age should be considered individually on the basis of the balance between potential risks and benefits of treatment. Treatment is not restricted by age and is considered on an individual patient basis. Treatment may be restricted by co-morbidities, which are more common in the older patient group. Due to the difficulties associated with accurate measurement of co-morbidities and patient fitness these cannot be utilised as exclusions within this QPI. Therefore in order to set an appropriate target for the majority of suitable patients, the QPI group have selected patients who are <75 years of age.
Specifications:	**Numerator:** Number of patients <75 years of age at diagnosis with stage III colorectal cancer who undergo surgical resection and receive adjuvant chemotherapy treatment within 8 weeks. **Denominator:** All patients <75 years of age at diagnosis with stage III colorectal cancer who undergo surgical resection. **Exclusions:** • Patients who decline chemotherapy. • Patients who undergo neo-adjuvant treatment. • Patients with MSI-H cancer • Patients who die before adjuvant chemotherapy. • Patients who do not undergo adjuvant treatment due to participation in a clinical trial[a].
Target:	80% The tolerance within this target is designed to account for situations where patients may have post-operative complications or fitness levels that preclude adjuvant chemotherapy treatment within the optimal timeframe.

[a] For example, TRACC (Tracking mutations in cell free DNA to predict Relapse in eArly Colorectal Cancer) is a study designed to evaluate the use of circulating tumour DNA (ctDNA) to guide adjuvant chemotherapy treatment decisions.

Please note: Additional analysis will also be undertaken to measure performance against this QPI for patients <80 years of age at diagnosis.

QPI 15: Colorectal Liver Metastases

QPI Title:	Patients with a new diagnosis of colorectal liver metastases should be referred to a Hepatobiliary (HPB) multidisciplinary team (MDT) to discuss their management.	
Description:	Proportion of patients with a new diagnosis of colorectal liver metastases who are referred to a HPB MDT to discuss their management. **Please note:** The specifications of this QPI are separated to ensure clear measurement of the following: (i) Patients with a new diagnosis of synchronous colorectal liver metastases who are referred to a HPB MDT; and (ii) Patients who are registered at a Colorectal Cancer MDT with a new diagnosis of metachronous colorectal liver metastases who are referred to a HPB MDT.	
Rationale and Evidence:	Over 50% of patients with primary CRC will develop liver metastases. Liver resection has now been widely accepted as the treatment of choice for primary colorectal liver metastases (CRLM), providing the only potential curative treatment with 5-year survival rates of 40-60% reported. Approximately 20% of patients developing primary CRLM will be potential resection candidates[8,9,10,11]. Surgical resection should be considered in patients with metastatic colorectal cancer in the liver following discussion with an MDT with expertise in resection of the involved site i.e. specialist hepatobiliary MDT[8].	
Specification (i):	**Numerator:**	Number of patients with a new diagnosis of synchronous colorectal liver metastases who are referred to a HPB MDT.
	Denominator:	All patients with a new diagnosis of synchronous colorectal liver metastases.
	Exclusions:	• Patients in whom the primary colorectal cancer is unresectable. • Patients with extrahepatic disease. • Patients who are clinically unfit for surgery. • Patients who decline consideration of surgery.

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QPI 15: Colorectal Liver Metastases……(continued)

Specification (ii):	**Numerator:**	Number of patients registered at a Colorectal Cancer MDT with a new diagnosis of metachronous colorectal liver metastases who are referred to a HPB MDT.
	Denominator:	All patients registered at a Colorectal Cancer MDT with a new diagnosis of metachronous colorectal liver metastases.
	Exclusions:	• Patients in whom the primary colorectal cancer is unresectable. • Patients with extrahepatic disease. • Patients who are clinically unfit for surgery. • Patients who decline consideration of surgery.
Target:	95% **Please note:** Varying evidence exists regarding the most appropriate target level; therefore this may need redefined in the future, to take account of new evidence or when further data becomes available.	

Please note:
This issue of high importance identified by both Colorectal Cancer and Hepatobiliary Cancer QPI Formal Review Groups involves the collection and analysis of data out with the initial diagnostic pathway (specification ii).

Due to the resource that would be required to identify all patients with metachronous colorectal liver metastases, it has been agreed for ease of data capture that this QPI will focus only on those patients where the diagnosis of liver metastases has been identified through registration at a colorectal cancer MDT.

QPI 16: Assessment of Mismatch Repair (MMR)/Microsatellite Instability (MSI) Status

QPI Title:	Patients with a histological diagnosis of colorectal cancer should have their tumour Mismatch Repair (MMR)/Microsatellite Instability (MSI) status assessed and be referred to genetics if results are suggestive of Lynch Syndrome.
Description:	Proportion of patients with a histological diagnosis of colorectal cancer who have MMR/MSI status assessed[b], and where results are suggestive of Lynch Syndrome[c] are referred to genetics. **Please note:** The specifications of this QPI are separated to ensure clear measurement of the following: (i) Patients a histological diagnosis of colorectal cancer who have MMR/MSI status assessed; and (ii) Patients who are <70 years of age at diagnosis with results suggestive of Lynch Syndrome who are referred to genetics.
Rationale and Evidence:	Microsatellite instability (MSI) is a significant genetic marker in colorectal cancer that can be useful in diagnosis, prognosis, and prediction of Systemic Anti-Cancer Therapy (SACT) treatment efficacy. It can also be used diagnostically for tumour detection and classification. Approximately, 15-20 % of colorectal cancers display MSI[12]. Molecular testing strategies using Immunohistochemistry (IHC) or Microsatellite instability (MSI) testing is important to detect tumour changes that may indicate Lynch syndrome. Lynch syndrome is associated with a higher risk of certain types of cancer, and given that this is an inherited condition, patients and their families could benefit from genetic testing to determine if this is present in other family members[13]. Depending on family history, patients > 70 years of age may be further tested for Lynch syndrome, however due to difficulties with accurate measurement of these criteria, the QPI selects patients who are < 70 years of age. This enables an appropriate target to be set for the majority of suitable patients.

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[b] Analysis of MMR/MSI status should be assessed by either Immunohistochemistry (IHC) for MMR protein expression or analysis of MSI status in DNA.

[c] Results suggestive of Lynch Syndrome include the following: abnormal/aberrant IHC with wild type BRAF, or MSI-H and wild type BRAF.

QPI 16: Assessment of Mismatch Repair (MMR)/Microsatellite Instability (MSI) Status…… (continued)

Specification (i):	**Numerator:**	Number of patients with a histological diagnosis of colorectal cancer who have MMR/MSI status assessed.
	Denominator:	All patients with a histological diagnosis of colorectal cancer.
	Exclusions:	• No exclusions.
Target:	95% The tolerance within this target accounts for factors of patient choice, and for those with a known inherited cancer syndrome.	
Specification (ii):	**Numerator:**	Number of patients <70 years of age at diagnosis with colorectal cancer who have MMR/MSI status assessed and where results are suggestive of Lynch Syndrome are referred to genetics.
	Denominator:	All patients <70 years of age at diagnosis with colorectal cancer who have MMR/MSI status assessed where results are suggestive of Lynch Syndrome.
	Exclusions:	• No exclusions.
Target:	90% The tolerance within this target accounts for factors of patient choice, and for those with a known inherited cancer syndrome.	

QPI 17: TNM Staging

QPI Title:	Patients with colorectal cancer should have TNM staging recorded at the MDT meeting in order to guide treatment decision making.	
Description:	Proportion of patients with colorectal cancer who have clinical TNM stage recorded at the MDT meeting.	
Rationale and Evidence:	Accurate staging is necessary to detect metastatic disease, guide treatment decisions and avoid inappropriate surgery[3]. Patients with colorectal cancer who are potential candidates for treatment should be staged by contrast enhanced CT of the chest, abdomen and pelvis, to estimate the stage of disease, unless the use of intravenous iodinated contrast is contraindicated[3]. Patients with rectal cancer who are potential surgical candidates need to be appropriately staged with MRI and discussed by a multi-disciplinary team (MDT) preoperatively. A statement regarding clinical stage should be recorded at the MDT. This will ensure that all clinical investigations are undertaken and also improve the quality of documentation.	
Specifications:	**Numerator:**	Number of patients with colorectal cancer who have clinical TNM stage recorded at the MDT meeting.
	Denominator:	All patients with colorectal cancer who are discussed at the MDT meeting.
	Exclusions:	• No exclusions.
Target:	90% The tolerance within this target accounts for situations where patients may not be fit enough to undergo investigations and/or treatment; however, in these cases an attempt at TNM staging should be undertaken based on the information available. It also accounts for those patients who undergo definitive endoscopic treatment prior to staging or MDT discussion.	

QPI 18: Volume of Cases per Surgeon

QPI Title:	Rectal cancer surgery should be performed by surgeons who undertake an appropriate annual volume of such cases.
Description:	Number of elective surgical resections for rectal cancer (in the standard mesorectal plane) performed by a surgeon, over a 1 year period.
Rationale and Evidence:	National and international literature demonstrates that there is a relationship between increasing surgical volumes for rectal cancer surgery (major resection) and improved patient outcomes[8,14.] There is evidence to show a benefit in terms of resection margins, local recurrence and permanent stoma rates where there is a surgeon case volume threshold of between 5 and 10 cases per annum[8]. A minimum volume target of 6 procedures per year would bring Scotland in line with guidelines in both the rest of the UK and North America[8,14].
Specifications:	Number of elective surgical resections for rectal cancer (in the standard mesorectal plane) performed by each surgeon in a given year. **Exclusions:** • Patients undergoing 'Beyond TME'/ pelvic exenteration/ multivisceral resections. • Patients undergoing local excision of rectal cancer i.e. Transanal Endoscopic Microsurgery (TEM) / Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).
Target:	Minimum volume of 6 procedures per surgeon in a 1-year period. This is a minimum target level and is designed to ensure that all surgeons performing surgical resection for rectal cancer (in the standard mesorectal plane) undertake a minimum of 6 procedures per year. ***Please note:*** It is recognised that multiple factors affect overall performance and that the end point focus must be clinical outcomes in what is a team delivered goal.

QPI 19: Minimally Invasive Surgery

QPI Title:	Patients with colorectal cancer undergoing surgical resection should be managed with minimally invasive surgery[d], unless contraindicated.
Description:	Proportion of patients with colorectal cancer who have surgical resection completed by minimally invasive surgery.
Rationale and Evidence:	Minimal access surgery, by appropriately trained surgeons, is recommended for patients with colorectal cancer as it has been found to be feasible and surgically safe with reduced post-operative complications and length of stay[8,15,16,17] . With appropriate expertise, there is strong evidence to suggest that where no clinical contraindications are present, minimally invasive surgery is the preferred option for elective colectomy[16,17,18]. This indicator is important to ensure equity of access to minimally invasive surgery for all patients.
Specifications:	**Numerator:** Number of patients with colorectal cancer undergoing elective surgical resection completed by minimally invasive surgery. **Denominator:** All patients with colorectal cancer undergoing elective surgical resection. **Exclusions:** • Patients who undergo Transanal Endoscopic Microsurgery (TEM) /Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).
Target:	75% The tolerance within this target reflects the fact that for some people a minimal access procedure may not be clinically suitable e.g. previous surgery, multivisceral resection. It also accounts for situations in which conversion to open surgery may be necessary for clinical reasons.

[d] Minimally invasive surgery includes laparoscopic and robotic surgery.

QPI 20: Complete Pathology Reporting for Local Excision Specimens

QPI Title:	Pathology reports for patients with colorectal cancer undergoing local excision should contain full pathology information to inform treatment decision making.
Description:	Proportion of patients with colorectal cancer who undergo local excision* where the pathology report contains the full minimum dataset (as defined by the current Royal College of Pathologists dataset for the histopathological reporting of colorectal cancer).
Rationale and Evidence:	Local excision specimens of colorectal cancer require assessment of multiple parameters that are key to guiding subsequent management decisions for the patient[19]. Using a standardised dataset (and proforma reporting[20]) to report pathology specimens has been demonstrated to result in more complete provision of required data. The Royal College of Pathologists 'Dataset for the histopathological reporting of colorectal cancer'[21] sets out the minimum dataset of core items for reporting in local excisions of colorectal cancer. Core data items are items that are supported by robust published evidence and are required for cancer staging, optimal patient management and prognosis[22-26]. The dataset is available from: Royal College of Pathologists - histopathological reporting of colorectal cancer
Specification:	**Numerator:** Number of patients with colorectal cancer who undergo a local excision where the pathology report contains all data items (as defined by the current Royal College of Pathologists dataset). **Denominator:** All patients with colorectal cancer who undergo a local excision[e]. **Exclusions:** No exclusions
Target:	90% The tolerance within this target is designed to account for situations where it is not possible to report all components of the dataset due to the quality of the specimen i.e. specimens with lots of artefact.

[e] **Local excision to include:** Polypectomy, EMR - Endoscopic mucosal resection, ESD - Endoscopic submucosal dissection, TEMS - Transanal endoscopic microsurgery, TAMIS - Transanal minimally invasive surgery, EFTR - Endoscopic full thickness resection.

8. Survival

Improving survival forms an integral part of the national cancer quality improvement programme. Colorectal cancer survival analysis will be reported and analysed on a 3 yearly basis by Public Health Scotland (PHS). The specific issues which will be addressed will be identified by an expert group ahead of any analysis being undertaken, as per the agreed national cancer quality governance and improvement framework.

The Colorectal Cancer QPI Group has identified the following issues for survival analysis:

- Overall 1, 2 and 5 year survival.

To ensure consistent application of survival analysis, it has been agreed that a single PHS analyst on behalf of all three regional cancer networks undertakes this work. Survival analysis will be scheduled as per the national survival analysis and reporting timetable, agreed with the National Cancer Quality Improvement Board and Scottish Cancer Taskforce. This reflects the requirement for record linkage and the more technical requirements of survival analyses which would make it difficult for individual Boards to undertake routinely and in a nationally consistent manner.

9. Areas for Future Consideration

The Colorectal Cancer QPI Groups have not been able to identify sufficient evidence, or determine appropriate measurability specifications, to address all areas felt to be of key importance in the treatment of colorectal cancer, and therefore in improving the quality of care for patients affected by colorectal cancer.

The following areas for future consideration have been raised across the lifetime of the Colorectal Cancer QPIs:

- Biomarker testing (RAS, BRAF & MSI) in metastatic colorectal cancer to direct decisions on Systemic Anti-Cancer Therapy (SACT).
- Side effects and toxicities of SACT.
- Post treatment management.
- Post treatment MDT discussion.
- Organ preservation in rectal cancer.
- Management of advanced/metastatic disease.
- Early rectal cancer treatment and recurrence.
- Evaluation of frailty.
- Surgical Site Infection (SSI).
- Surgical margins for colon cancer.
- Surgical margins for ‘beyond TME’ surgery.
- Timely referral / rates of referral to (specialist) Palliative Care
- Prehabilitation

10. Governance and Scrutiny

A national and regional governance framework to assure the quality of cancer services in NHSScotland has been developed; key roles and responsibilities within this are set out below. Appendices 3 and 4 provide an overview of these governance arrangements diagrammatically. The importance of ensuring robust local governance processes are in place is recognised and it is essential that NHS Boards ensure that cancer clinical audit is fully embedded within established processes.

10.1 National

- Scottish Cancer Strategic Board
    - Accountable for overall national cancer quality programme and overseeing the quality of cancer care across NHSScotland.

- Healthcare Improvement Scotland
    - Proportionate scrutiny of performance.
    - Support performance improvement.
    - Quality assurance: ensure robust action plans are in place and being progressed via regions/Boards to address any issues identified.

- Public Health Scotland (PHS)
    - Publish national comparative report on tumour specific QPIs and survival for three tumour types per annum and specified generic QPIs as part of the rolling programme of reporting.

10.2 Regional – Regional Cancer Networks

- Annual regional comparative analysis and reporting against tumour-specific QPIs.
- Support national comparative reporting of specified generic QPIs.
- Identify and share good practice.
- In conjunction with constituent NHS Boards identify regional and local actions required to develop an action plan to address regional issues identified.
- Review and monitor progress against agreed actions.
- Provide assurance to NHS Board Chief Executive Officers and Scottish Cancer Strategic Board that any issues identified have been adequately and timeously progressed.

10.3 Local – NHS Boards

- Collect and submit data for regional comparative analysis and reporting in line with agreed measurability and reporting schedule (generic and tumour specific QPIs).
- Utilise local governance structures to review performance, develop local action plans and monitor delivery.
- Demonstrate continual improvements in quality of care through on-going review, analysis and feedback of clinical audit data at an individual multidisciplinary team (MDT) or unit level.

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12. Appendices

Appendix 1: QPI Development Process

Preparatory Work and Scoping

NHS Quality Improvement Scotland (QIS) Clinical Standards for Colorectal Cancer already existed, and were utilised nationally. It was therefore agreed that rather than undertake a lengthy QPI development process the extensive literature search and clinical discussion undertaken in the recent review of NHS QIS Colorectal Cancer standards (in 2008) was used as the basis for QPI development.

The preparatory work involved the development group members independently reviewing and assessing the existing NHS QIS Colorectal Cancer Standards against agreed criteria and identifying any potential gaps where they considered a need to develop new outcome focussed quality indicators. Responses were then collated and the output of this exercise used to inform development group discussions.

Bowel screening and primary care referral were not included within the scope of the QPI development process as significant work is already being undertaken across NHSScotland to measure and improve the quality of these important areas. Specifically this work includes the Scottish Bowel Screening Programme and the Scottish Governments Detect Cancer Early Initiative.

Indicator Development

The Colorectal Cancer QPI Development group defined evidence based, measurable indicators with a clear focus on improving the quality and outcome of care provided.

The Group developed QPIs using the clinical recommendations set out in the briefing paper as a base, ensuring all indicators met the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?
- **Evidence based** – is the indicator based on high quality clinical evidence?
- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

Engagement Process

A wide clinical and public engagement exercise was undertaken as part of development in April 2013 where the Colorectal Cancer QPIs, along with accompanying draft minimum core dataset and measurability specifications, were made available on the Scottish Government website. During the engagement period clinical and management colleagues from across NHSScotland, patients affected by colorectal cancer and the wider public were given the opportunity to influence the development of Colorectal Cancer QPIs.

Draft documentation was circulated widely to professional groups, health service staff, voluntary organisations and individuals for comment and feedback.

Following the engagement period all comments and responses received were reviewed by the Colorectal Cancer QPI Development Group and used to produce and refine the final indicators.

Colorectal Cancer QPI Development Group Membership (2013)

Name	Designation	Cancer Network
Rob Jones (Chair)	Consultant Oncologist	WoSCAN
Des Alcorn	Consultant Radiologist	WoSCAN (Gartnavel General Hospital, Glasgow)
Lesley Dawson	Consultant Oncologist	SCAN (Western General Hospital, Edinburgh)
Jim Docherty	Consultant Surgeon	NOSCAN (Raigmore Hospital, Inverness)
Grainne Dunn	Consultant Oncologist	WoSCAN (Beatson West of Scotland Cancer Centre)
Gail Dunsmore	Audit Facilitator	WoSCAN (Crosshouse Hospital, Kilmarnock)
Ann Haston	Clinical Nurse Specialist Stoma Care	SCAN (St John's Hospital, Livingston)
Michele Hilton Boon	Programme Manager	Healthcare Improvement Scotland
John Jamieson	Patient Representative	
Andy MacLeod	Consultant Radiologist	NOSCAN (Raigmore Hospital, Inverness)
James Mander	Consultant Surgeon	SCAN (Western General Hospital, Edinburgh)
John Morris	Consultant Gastroenterologist	WoSCAN (Glasgow Royal Infirmary)
Richard Molloy	Consultant Surgeon	WoSCAN (Gartnavel General Hospital, Glasgow)
Craig Mowat	Consultant Gastroenterologist	NOSCAN (Ninewells Hospital, Dundee)
Peigi Muir	Clinical Audit Facilitator	SCAN (Western General Hospital, Edinburgh)
Brian Murray	Principle Information Development Manager	Information Services Division
Graeme Murray	Consultant Pathologist	NOSCAN (Aberdeen Royal Infirmary)
Neil McLachlan	MCN Manager	NOSCAN
Jackie Rodger	Macmillan CRC Clinical Nurse Specialist	NOSCAN (Ninewells Hospital, Dundee)
Iona Scott	Project Manager	WoSCAN
Bob Steele	Consultant Surgeon	NOSCAN (Ninewells Hospital, Dundee)
Gillian Sweetman	Patient Representative	
Evelyn Thomson	Regional Manager (Cancer)	WoSCAN
Ruth Tipling	Colorectal Clinical Nurse Specialist	WoSCAN (Inverclyde Royal Hospital, Greenock)
Fiona White	Audit Facilitator	NOSCAN (Raigmore Hospital, Inverness)
John Wilson	Consultant Gastroenterologist	SCAN (Victoria Hospital, Fife)
Satheesh Yalamarthi	Consultant Surgeon	SCAN (Queen Margaret Hospital, Fife)

NOSCAN - North of Scotland Cancer Network
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

Appendix 2: Colorectal Cancer QPI Formal Reviews

Formal review of the Colorectal Cancer QPIs was undertaken for the first time in December 2016 following reporting of 3 years of national QPI data. A Formal Review Group was convened, chaired by Dr Rob Jones (Professor of Clinical Cancer Research and Honorary Consultant in Medical Oncology, Beatson West of Scotland Cancer Centre). Membership of this group is outlined below.

Colorectal Cancer QPI Formal Review Group Membership (2016)

Name	Designation	Cancer Network
Rob Jones (Chair)	Honorary Consultant Medical Oncology	WoSCAN
Lorna Bruce	Audit & Information Manager	SCAN
Jen Doherty	Project Co-ordinator	National Cancer Quality Programme
Sandie Ker	Information Officer	WoSCAN
James Mander	Clinical Lead – Colorectal Cancer MCN	SCAN
Andrew McMahon	Consultant Colorectal Cancer Surgeon	WoSCAN
Leslie Samuel	Consultant Clinical Oncologist	NOSCAN
Lorraine Stirling	Project Officer	National Cancer Quality Programme
Evelyn Thomson	Regional Manager (Cancer)	WoSCAN
Christine Urquhart	Cancer Audit Manager	NOSCAN
Mike Walker	Clinical Lead – Colorectal Cancer MCN	NOSCAN

Formal review of the Colorectal Cancer QPIs has been undertaken in consultation with various other clinical specialties e.g. oncology and pathology.

NOSCAN - North of Scotland Cancer Network
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

2nd Cycle Formal Review

The 2nd Cycle of Formal Review commenced in January 2020. This review was more selective and focussed on ensuring the ongoing clinical relevance of the QPIs. A Formal Review Group was convened with Dr Elizabeth Mallon, Consultant Pathologist, NHS Greater Glasgow and Clyde appointed as clinical Advisor/Chair to the group. Membership of this group is outlined below.

Colorectal Cancer QPI Formal Review Group Membership (2020/21)

Name	Designation	Cancer Network
Elizabeth Mallon (Chair)	Consultant Pathologist	WoSCAN
Jen Doherty	Project Co-ordinator	National Cancer Quality Programme
Janet Graham	Consultant Medical Oncologist and MCN Clinical Lead	WoSCAN

Name	Designation	Cancer Network
Anne-Marie Hobkirk	Health Intelligence Analyst	NCA
Bryan McKellar	Programme Coordinator	NCA
Leslie Samuel	Consultant Clinical Oncologist and MCN Clinical Lead	NCA
Lorraine Stirling	Project Officer	National Cancer Quality Programme
Christine Urquhart	Information Analyst	WoSCAN
Satheesh Yalamarthi	Consultant Colorectal Surgeon and MCN Clinical Lead	SCAN

Formal review of the Colorectal Cancer QPIs has been undertaken in consultation with various other clinical specialties e.g. genetics and pathology.

NCA - North Cancer Alliance
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

3rd Cycle Formal Review

The 3rd cycle of formal review commenced in November 2024. Mr Stuart Oglesby, Consultant Surgeon, NCA was appointed as Clinical Advisor/Chair to the group. Membership of this group is outlined below:

Colorectal Cancer QPI Formal Review Group Membership – 3rd Cycle (2024/25)

Name	Designation	Cancer Network
Stuart Oglesby	Consultant Surgeon	NCA
Sarah Buchan	Senior Cancer Information Analyst	SCAN
Jen Doherty	Project Co-ordinator	National Cancer Quality Programme
Tamasin Doig	Consultant Pathologist	SCAN
Stephen Glancy	Consultant Radiologist	SCAN
Janet Graham	Clinical Lead	WoSCAN
Graham Mackay	Consultant Surgeon & Regional & Regional Clinical Lead	WoSCAN
Geraldine O'Dowd	Consultant Diagnostic Pathologist	WoSCAN
Colin Richards	Consultant Surgeon	NCA
Les Samuel	Clinical Lead	NCA
Douglas Speake	Consultant Surgeon	SCAN
Lorraine Stirling	Project Officer	National Cancer Quality Programme

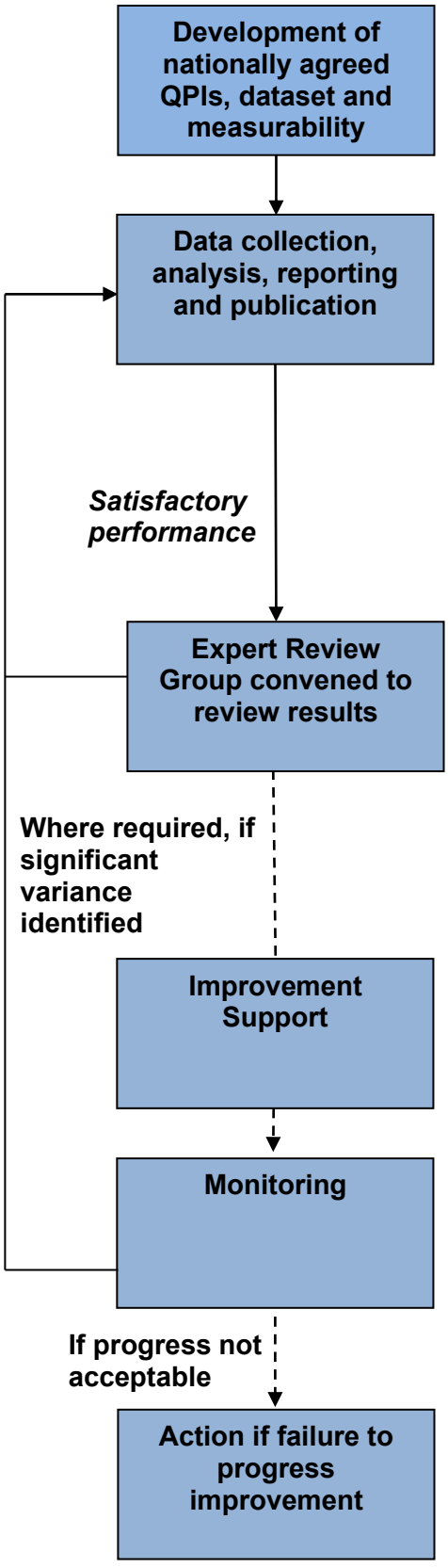
Name	Designation	Cancer Network / Base
Christine Urquhart	Information Analyst	WoSCAN
Shaun Walsh	Professor & Consultant Pathologist	NCA
Satheesh Yalamarthi	Clinical Lead	SCAN

Formal review of the Colorectal Cancer QPIs has been undertaken in consultation with various other clinical specialties e.g. Genetics.

NCA - North Cancer Alliance
SCAN – South East Scotland Cancer Network
WoSCAN – West of Scotland Cancer Network

Appendix 3: 3 Yearly National Governance Process & Improvement Framework for Cancer Care

This process is underpinned by the annual regional reporting and governance framework (see appendix 4).



1. National QPI Development Stage

- QPIs developed by QPI development groups, which include representation from Regional Cancer Networks, Healthcare Improvement Scotland, PHS, patient representatives and the Cancer Coalition.

2. Data Analysis Stage:

- NHS Boards and Regional Cancer Advisory Groups (RCAGs)* collect data and analyse on yearly basis using nationally agreed measurability criteria and produce action plans to address areas of variance, see appendix 4.
- Submit yearly reports to PHS for collation and publication every 3 years.
- National comparative report approved by NHS Boards and RCAGs.
- PHS produce comparative, publicly available, national report consisting of trend analysis of 3 years data and survival analysis.

3. Expert Review Group Stage (for 3 tumour types per year):

- Expert group, hosted by Healthcare Improvement Scotland, review comparative national results.
- Write to RCAGs highlighting areas of good practice and variances.
- Where required NHS Boards requested to submit improvement plans for any outstanding unresolved issues with timescales for improvement to expert group.
- Improvement plans ratified by expert group and Scottish Cancer Strategic Board.

4. Improvement Support Stage:

- Where required Healthcare Improvement Scotland provide expertise on improvement methodologies and support.

5. Monitoring Stage:

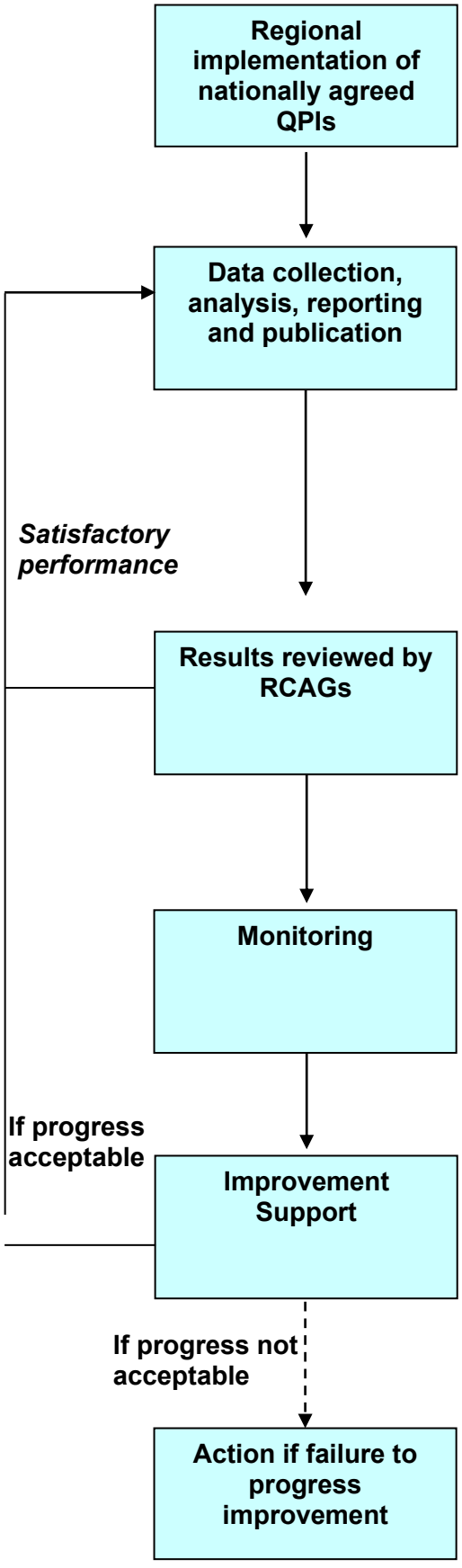
- RCAGs work with Boards to progress outstanding actions, monitor improvement plans and submit progress report to Healthcare Improvement Scotland.
- Healthcare Improvement Scotland report to Scottish Cancer Strategic Board as to whether progress is acceptable.

6. Escalation Stage:

- If progress not acceptable, Healthcare Improvement Scotland will visit the service concerned and work with the RCAG and Board to address issues.
- Report submitted to Scottish Cancer Strategic Board and escalation with a proposal to take forward to Scottish Government Health Department.

**The Regional Cancer Planning Group (South and East of Scotland) and the North Cancer Clinical Leadership Group (North Cancer Alliance) are equivalent to the Regional Cancer Advisory Group (RCAG) in the West of Scotland.*

Appendix 4: Regional Annual Governance Process and Improvement Framework for Cancer Care



1. Regional QPI Implementation Stage:

- National cancer QPIs and associated national minimum core dataset and measurability specifications, developed by QPI development groups.
- Regional implementation of nationally agreed dataset to enable reporting of QPIs.

2. Data Analysis Stage:

- NHS Boards collect data and data is analysed on a yearly basis using nationally agreed measurability criteria at local/ regional level.
- Data/results validated by Boards and annual regional comparative report produced by Regional Networks.
- Areas of best practice and variance across the region highlighted.
- Yearly regional reports submitted to PHS for collation and presentation in national report every 3 years.

3. Regional Performance Review Stage:

- RCAGs* review regional comparative report.
- Regional or local NHS Board action plans to address areas of variance developed.
- Appropriate leads identified to progress each action.
- Action plans ratified by RCAGs.

4. Monitoring Stage:

- Where required, NHS Boards monitor progress with action plans and submit progress reports to RCAGs.
- RCAGs review and monitor regional improvement.

5. Improvement Support Stage:

- Where required Healthcare Improvement Scotland maybe requested to provide expertise to NHS Boards/RCAGs on improvement methodologies and support.

6. Escalation Stage:

- If progress not acceptable, RCAGs will escalate any issues to relevant Board Chief Executives. If progress remains unacceptable RCAGs will escalate any relevant issues to Healthcare Improvement Scotland.

* The Regional Cancer Planning Group (South and East of Scotland) and the North Cancer Clinical Leadership Group (North Cancer Alliance) are equivalent to the Regional Cancer Advisory Group (RCAG) in the West of Scotland.

Appendix 5: Glossary of Terms

Active treatment	Treatment which is intended to improve the cancer and/or alleviate symptoms, as opposed to supportive care.
Adenoma	A benign (non malignant) tumour that develops from epithelial tissue.
Adjuvant therapy / treatment	Additional cancer treatment given after the primary treatment to lower the risk that the cancer will come back. Adjuvant therapy may include chemotherapy, radiation therapy, hormone therapy, targeted therapy, or biological therapy.
Anastomosis	An artificial connection, created by surgery, between two tubular organs or parts, especially between two parts of the intestine. For example, a junction created by a surgeon between two pieces of bowel which have been cut to remove the intervening section.
Anastomotic dehiscence/ leak	Bursting open or splitting of the surgical connection between two sections of intestine
Anterior resection	The procedure to remove a diseased section of rectum, and re-joining of the healthy tissue at either end of the diseased area.
Anti-cancer therapy	Any treatment which is designed to kill cancer cells.
Asymptomatic	Having no symptoms. You are considered asymptomatic if you: • Have recovered from an illness or condition and no longer have symptoms • Have an illness or condition (such as early stage high blood pressure or glaucoma) but do not have symptoms
Biopsy	Removal of a sample of tissue from the body to assist in diagnosis of a disease.
Bowel	The long, tube-shaped organ in the abdomen that completes the process of digestion. The bowel has two parts, the small bowel and the large bowel.
Cause-specific survival	A method of estimating net survival. Only deaths attributable to the cancer of diagnosis are counted as deaths, giving the probability of survival in the absence of other causes of death.
Chemoradiotherapy	Treatment that combines chemotherapy with radiotherapy.
Chemotherapy	The use of drugs that kill cancer cells, or prevent or slow their growth.
Circumferential margins (CRM)	Margins of tissue surrounding a rectal cancer after it has been removed.
Clinical effectiveness	Measure of the extent to which a particular intervention works.
Clinical Nurse Specialist (CNS)	A nurse with specialist training in a particular type of cancer.
Clinical trials	A type of research study that tests how well new medical approaches or medicines work. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease.
Colon	Part of the bowel. Also called the large intestine or large bowel. This structure has five major divisions: caecum, ascending colon, transverse colon, descending colon and sigmoid colon. The colon is responsible for forming, storing and expelling waste matter into the rectum.
Colonoscopy	Examination of the interior of the large bowel using a long, flexible, instrument (a colonoscope) inserted through the anus. A colonoscope is capable of reaching to the upper end of the large bowel (colon) and can be used to diagnose diseases of the large bowel.
Colorectal Cancer	Cancer that develops in the colon (the longest part of the large intestine) and/or the rectum (the last several centimetres of the large intestine before the anus).

Co-morbidity	The condition of having two or more diseases at the same time.
Computed Tomography (CT)	An X-ray imaging technique used in diagnosis that can reveal many soft tissue structures not shown by conventional radiography. A computer is used to assimilate multiple X-ray images into a two-dimensional and/or three-dimensional cross-sectional image.
CT Colonography	Computed tomography of the abdomen and pelvis that focuses on the colon. Computed tomography is an x-ray
Contraindicated	A symptom or medical condition that makes a particular treatment or procedure inadvisable because a person is likely to have a bad reaction.
Curative	Having properties which cure. Something which overcomes disease and promotes recovery.
Elective	Subject to the choice or decision of the patient or physician, applied to procedures that are advantageous to the patient, but not urgent.
Emergency Surgery	Unscheduled surgery performed promptly and often for lifesaving purposes.
Extramural vascular invasion	The direct invasion of a blood vessel (usually a vein) by tumour. In rectal cancer, this can occur on a macroscopic level and be detected on staging MRI. It is a significant prognostic factor, being a predictor of haematogenous spread.
Fatal	Results in death.
High risk	High risk colorectal cancer is defined as patients with pT4 (see TNM) disease and extramural vascular invasion.
Independent risk factor	A substance or condition that increases an individual's chances of getting a particular type of cancer.
Index procedure	Initial or first surgical procedure performed.
Interventional radiology	Refers to a range of techniques which rely on the use of radiological image guidance (X-ray fluoroscopy, ultrasound, computed tomography (CT) or magnetic resonance imaging (MRI) to precisely target therapy.
Intravenous iodinated contrast	A substance administered intravenously (directly into bloodstream) to enhance the visibility of structures on imaging.
KRAS	A gene which is found in the human body. If this gene mutates cancer can form.
KRAS testing	A test to establish the type of KRAS gene mutation present in a colorectal cancer.
Large bowel	Another name for the large intestine.
Long course radiotherapy	A course of radiotherapy lasting up to 6 weeks.
Lymph nodes	Small bean shaped structures located along the lymphatic system. Nodes filter bacteria or cancer cells that might travel through the lymphatic system.
Lynch Syndrome	An inherited condition that increases the risk of developing some types of cancer including cancer of the colon.
Metastatic disease	Spread of cancer away from the primary site to somewhere else via the bloodstream or the lymphatic system. Metastatic disease can be local (close to the area where the cancer is) or distant (in another area of the body).
Metachronous metastases	Metastases identified after initial diagnosis of the primary tumour.
Minimally Invasive Surgery	This surgical approach uses smaller incisions which reduce trauma to the body and enables quicker recovery. Examples include laparoscopic and robotic surgery.
Morbidity	How much ill health a particular condition causes.
Mortality	Either (1) the condition of being subject to death; or (2) the death rate, which reflects the number of deaths per unit of population in

	any specific region, age group, disease or other classification, usually expressed as deaths per 1000, 10,000 or 100,000.
Magnetic Resonance Imaging (MRI)	A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue.
Multi Disciplinary Team	The collective name for a group of clinicians from various medical and non-medical disciplines appropriate to the disease area.
Multi Disciplinary Team Meeting (MDTM)	A regular meeting where participants from various clinical disciplines appropriate to the disease meet to discuss and agree diagnosis and subsequent clinical management of patients.
Neo-adjuvant chemotherapy	Chemotherapy treatment which is given before the treatment of a primary tumour with the aim of improving the results of surgery and preventing the development of locally recurrent disease or metastases.
Palliative	Treatment which serves to alleviate symptoms due to the underlying cancer but is not expected to cure it.
Pathological	The study of disease processes with the aim of understanding their nature and causes. This is achieved by observing samples of fluid and tissues obtained from the living patient by various methods, or at post mortem.
Performance status	A measure of how well a patient is able to perform ordinary tasks and carry out daily activities. (PS WHO score of 0=asymptomatic, 4=bedridden).
Post operative complication	A complication or problem experienced following a surgical procedure.
Prognosis	An assessment of the expected future course and outcome of a person's disease.
Radical treatment	Treatment that aims to get to completely get rid of a cancer.
Radiotherapy	The use of radiation, usually X-rays or gamma rays, to kill tumour cells.
Rectal anastomosis	A surgical procedure where part of the colon or ano-rectum is removed and the remaining ends joined together.
Rectal Cancer	Cancer that forms in the tissues of the rectum (the last several centimetres of the large intestine closest to the anus).
Rectum	The distal or lowest portion of the large intestine.
Recurrence	When new cancer cells are detected, at the site of original tumour or elsewhere in the body, following treatment.
Short course radiotherapy	5 treatments of radiotherapy given (as a course of therapy) over 1 week prior to surgery being performed.
Staging	Process of describing to what degree cancer has spread from its original site to another part of the body. Staging involves clinical, radiological, surgical and pathological assessments.
Stoma	An artificial opening of the bowel that has been brought to the abdominal surface.
Surgery/Surgical Resection	Surgical removal of the tumour/lesion.
Synchronous tumours	Two or more colorectal tumours presenting at the same time in the colon or rectum.
Synchronous metastases	Metastases identified at the time of diagnosis of the primary tumour.
Systemic Anti Cancer Therapy (SACT)	Treatment of cancer using drugs which prevent the replication or growth of cancer cells. This encompasses biological therapies and cytotoxic chemotherapy.
Total mesorectal excision (TME)	A procedure in which any tissue surrounding the rectum which may contain tumour cells is removed at the same time as the rectum.

Transanal endoscopic microsurgery (TEM)	An alternative to open or laparoscopic excision whereby small rectal lesions are surgically excised using a minimally invasive approach.
Transanal minimally invasive surgery (TAMIS)	A minimally invasive procedure to remove polyps and early stage rectal cancer through the anus.
Transanal resection of tumour (TART)	Surgical procedure performed to remove a tumour in the rectum through the anus.