SCAN
South East Scotland Cancer Network

NHS SCOTLAND

Working regionally to improve cancer services

SOUTH EAST SCOTLAND CANCER NETWORK
PROSPECTIVE CANCER AUDIT

COLORECTAL CANCER 2021 – 2022
Quality Performance Indicators (QPI)
Comparative Report

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Document History

Version	Circulation	Date	Comments
Version 1	Lead Clinicians' Sign off Group	26/10/2022	Circulated prior to Lead Sign off Meeting on 04/11/2022
Version 2	Lead Clinicians	17/11/2022	Lead Clinicians commentary added. QPI 2 figures and comments updated. Hospital of Surgery QPIs now includes number of surgeries performed in other Boards. Action Plans identified.
Version 3	SCAN Group for final comments	22/11/2022	For SCAN Group final comments and approval
Version 4	SCAN Group, SCAN Governance Framework, SCAN Board Executive Leads	20/12/2022	Comments updated
Version 4w	Published to SCAN Website	15/03/2023	Comments updated for web version.

Comment by Chair of the SCAN Colorectal Group

This report provides information on the management of colorectal cancers in the South-East of Scotland from 1st April 2021 – 31st March 2022. This year was a challenge for all of us, as we were going through the Covid-19 pandemic, responding to the challenge of maintaining cancer care and considering re-mobilisation of services. The pandemic has put a huge strain on many aspects of the NHS with a particular impact on diagnostic services (colonoscopy and radiology), theatre workforce and pathological services. The clinical teams have responded to these challenges magnificently to maintain high standards of care.

This year we saw the introduction of 3 new Quality Performance Indicators (QPIs) for colorectal cancers across Scotland, in place of 3 other QPIs which have been archived.

The SCAN Audit Team and Sarah Buchan in particular, have worked well to compile the data that has generated this report. Data collection, as in previous years, has been of a high standard and we are grateful to the local cancer audit facilitators for this sustained effort.

Case ascertainment has been more than the previous 5-year average by 110 cancers with an increase noted across the majority of the Health Boards. A total of 1076 colorectal cancers were recorded on the Audit for the year, with 806 (75%) being colonic cancers (171 more than the previous year) and 270 (25%) rectal cancers (48 more than the previous year).

The bowel screening programme is now back up and running, following a temporary pause during the pandemic. 248 of the 1076 colorectal cancers (23%) were detected by screening. The screening programme remains well supported by diagnostic and pathology services.

Overall, 77% (829) of cancer patients had a surgical intervention with 64% having definitive surgery. Amongst those who had definitive surgery, the curative resection rate was 94% for colonic cancers and 98% for rectal cancers. Compared to last year the curative resections were higher.

Emergency presentations dropped down to our usual range, with 1 in 6 cancers undergoing surgery were for emergency presentations. This year just more than 40% of the cancers belonged to stage 1 or 2, which is an improvement to the previous year. 23% of cancers presented with metastatic disease.

Compliance was achieved in 8/12 QPIs across the region. The non-compliance was noted in pre-operative imaging of the colon (92%- target 95%); lymph node yield (85%- target 90%); and the newer QPIs (referral of patients with synchronous (66%) and metachronous (70%) liver metastases to Hepato-biliary MDM (target-95%) and assessment of MMR/ MSI Status (74%)-target 95%. It was expected that the newer QPIs will require some work and this is likely to improve over the coming years.

Despite all the challenges within radiology services during the pandemic, timely radiological staging for cancers were achieved in nearly 99% of cases. Surgical outcomes were good with low anastomotic leaks (3.5% for colonic and 5.8% for rectal resections); low re-operation rates (7.3%) and low 30-day elective (2.1%) and emergency (4.9%) mortality rates. Overall, the figures are marginally worse compared to the previous year, and this may represent the more complex presentations due to either overall patient condition or the more difficult pathology we are presented with.

Delivery of Oncological services was maintained to a high standard by our team of clinical and medical oncologists. Adjuvant chemotherapy was delivered to 88% of Stage 3 cancer patients. This has been the highest over the years and we should commend the team of oncologists. In terms of 30- and 90-day mortality rates after chemotherapy and radiotherapy, this was 0%.

In terms of surgical approach for the cancers, 55% of cancers were operated through minimally invasive means (laparoscopic 48.5% and robotic 6.5%). The use of robotics in SCAN is increasing with 2 centres using this technology (34%). A total of 55 robotic procedures were done during the year, with the 2nd centre becoming functional in Sep 2021. The robotic programme in Lothian was limited due to pressures from Covid in terms of theatre workforce.

Overall, despite the pressures from the pandemic and with the remobilisation period, it has been a good year with high standards of care being delivered across the region. With the introduction of the new QPIs, there is a recognition that more work needs to be done to achieve compliance. Robotic surgery will feature more in the coming years and the use and outcomes from this new technology will be monitored closely.

As Chairs of the group, we would like to thank all members of the network for their continued support in delivering the standards of care expected for our cancer patients. The group will continue their aspiration to maintain high quality work and make progressive improvements in certain areas, as evidenced by the introduction of new technology and appropriate assessment of tumour status to direct oncological treatment better.

Dr Stephen Glancy
Deputy Chair SCAN Colorectal Group

Mr S Yalamarthi
Chair SCAN Colorectal Group
December 2022

Action Plan 2021-2022

QPI	Action required	Person Responsible	Date for update
QPI 15 (i) & QPI 15 (ii)	Patients with synchronous and metachronous colorectal liver–limited metastases, who are fit for a surgical resection, should be referred to the HPB MDM. However, if a patient is not referred, the reason why no referral has been made is to be recorded in the patient's Colorectal MDM outcome.	Mr K Pal, NHS Borders Mr S Whitelaw, NHS D&G Mr J Robertson, NHS Fife Mr D Speake, NHS Lothian Board MDM Chairs	January 2023
QPI 16 (ii)	Patients with MMR/MSI results suggestive of Lynch Syndrome should have their results actioned by a single contact in each Board to ensure a referral is made to Clinical Genetics, either with or without further MDM input. A single contact should be identified within each Board to take this forward.	Mr K Pal, NHS Borders Mr S Whitelaw, NHS D&G Mr J Robertson, NHS Fife Mr D Speake, NHS Lothian	January 2023

CRC QPI Attainment Summary 2021-2022			Target%	Borders		D&G		Fife		Lothian		SCAN	
1. Radiological Staging & Diagnosis		Colon	95	N 41 D 43	95.3%	N 59 D 61	96.7%	N 95 D 96	99.0%	N 252 D 253	99.6%	N 447 D 453	98.7%
		Rectum	95	N 20 D 20	100%	N 19 D 21	90.5%	N 34 D 34	100%	N 73 D 73	100%	N 146 D 148	98.6%
2. Pre-operative imaging of the Colon			95	N 57 D 58	98.3%	N 64 D 68	94.1%	N 100 D 110	90.9%	N 274 D 303	90.4%	N 495 D 539	91.8%
5. Lymph Node Yield: surgical resection where ≥12 lymph nodes			90	N 47 D 56	83.9%	N 71 D 74	95.9%	N 100 D 126	79.4%	N 307 D 360	85.3%	N 525 D 616	85.2%
7. Surgical Margins	Primary surgery or surgery after short course XRT		95	N 15 D 16	93.8%	N 21 D 21	100%	N 21 D 21	100%	N 56 D 60	93.3%	N 113 D 118	95.8%
	After NACT, or long course XRT ± chemo, or short course XRT with long course intent		85	N 2 D 2	100%	N 1 D 1	100%	N 13 D 15	86.7%	N 15 D 17	88.2%	N 31 D 35	88.6%
8. Re-operation Rates			<10	N 4 D 53	7.5%	N 10 D 78	12.8%	N 12 D 151	7.9%	N 25 D 414	6.0%	N 51 D 696	7.3%
9. Anastomotic Dehiscence	Colon		<5	N 0 D 28	0%	N 5 D 37	13.5%	N 2 D 62	3.2%	N 4 D 185	2.2%	N 11 D 312	3.5%
	Rectum incl. TME		<10	N 1 D 29	3.4%	N 0 D 18	0.0%	N 1 D 52	1.9%	N 12 D 144	8.3%	N 14 D 243	5.8%
10 (i). 30 day mortality following surgical resection		Elective	<3	N 0 D 50	0%	N 1 D 72	1.4%	N 3 D 125	2.4%	N 8 D 325	2.5%	N 12 D 572	2.1%
		Emergency	<15	N 0 D 6	0%	N 1 D 5	20.0%	N 1 D 23	4.3%	N 4 D 88	4.5%	N 6 D 122	4.9%
10 (ii). 90 day mortality following surgical resection		Elective	<4	N 1 D 50	2.0%	N 2 D 69	2.9%	N 3 D 125	2.4%	N 10 D 317	3.2%	N 16 D 561	2.9%
		Emergency	<20	N 0 D 6	0%	N 2 D 5	40.0%	N 1 D 23	4.3%	N 7 D 87	8.0%	N 10 D 121	8.3%
11. Adjuvant Chemotherapy			70	N 10 D 11	90.9%	N 11 D 14	78.6%	N 22 D 25	88.0%	N 63 D 70	90.0%	N 106 D 120	88.3%

CRC QPI Attainment Summary 2021-2022		Target%	Borders		D&G		Fife		Lothian		SCAN	
12 (i). 30 day Mortality following Radical Radiotherapy	Neo-adjuvant	<1	N 0 D 0	-	N 0 D 0	-	N 0 D 6	0%	N 0 D 16	0%	N 0 D 22	0%
	Radiotherapy	<1	N 0 D 7	0%	N 0 D 6	0%	N 0 D 14	0%	N 0 D 25	0%	N 0 D 52	0%
12 (ii). 90 day Mortality following Radical Radiotherapy	Neo-adjuvant	<1	N 0 D 0	-	N 0 D 0	-	N 0 D 6	0%	N 0 D 16	0%	N 0 D 22	0%
	Radiotherapy	<1	N 0 D 7	0%	N 0 D 6	0%	N 0 D 14	0%	N 0 D 25	0%	N 0 D 52	0%
14. 30 day Mortality following SACT	Curable	<1	N - D -	-	N - D -	-	N - D -	-	N - D -	-	N - D -	-
	Non-Curable	<5	N - D -	-	N - D -	-	N - D -	-	N - D -	-	N - D -	-
15. Colorectal Liver Metastases	Synchronous	95	N 4 D 4	100%	N 6 D 10	60.0%	N 16 D 25	64.0%	N 32 D 49	65.3%	N 58 D 88	65.9%
	Metachronous	95	N 0 D 0	-	N 0 D 0	-	N 6 D 8	75.0%	N 8 D 12	66.7%	N 14 D 20	70.0%
16. Assessment of Mismatch Repair (MMR)/Microsatellite (MSI) Status	Assessed	95	N 69 D 83	83.1%	N 35 D 104	33.7%	N 99 D 195	50.8%	N 463 D 524	88.4%	N 666 D 906	73.5%
	Referred to Genetics	90	N 0 D 3	0%	N 1 D 1	100%	N 4 D 7	57.1%	N 4 D 7	57.1%	N 9 D 18	50.0%

KEY	*Numerator (N)*	*% Performance*
	Denominator (D)	

Introduction and Methods

Cohort and Personnel

This report is the fifteenth to present comparative data on patients newly diagnosed with colorectal cancer in South East Scotland Cancer Network (SCAN) at the following hospitals: Borders General Hospital (NHS Borders), Dumfries and Galloway Royal Infirmary (NHS Dumfries & Galloway), Victoria Hospital, Kirkcaldy (NHS Fife), and Western General Hospital, Edinburgh (NHS Lothian). The report covers data on patients newly-diagnosed in the twelve months from 1 April 2021 to 31 March 2022.

Lead Clinicians and staff involved in audit were as follows

SCAN Region	Hospital	Lead Clinician	Audit Support
NHS Borders	Borders General Hospital	Mr Karol Pal	Alistair Johnston
NHS Dumfries & Galloway	Dumfries & Galloway Royal Infirmary	Mr Stuart Whitelaw	Teresa Quintela/ Jennifer Bruce
NHS Fife	Victoria Hospital	Mr John Robertson	Maureen Lamb
SCAN & NHS Lothian	Western General Hospital	Mr Doug Speake	Sarah Buchan

Audit Processes and data recording

All Data was collected using eCase (electronic Cancer audit support environment) throughout SCAN. Data was analysed by the audit facilitators in each NHS Board according to the measurability document provided by PHS. SCAN data was collated by Sarah Buchan, SCAN Audit Facilitator for Colorectal cancer.

Data capture is focused round the process for the weekly multidisciplinary meetings i.e. ensuring that data covering patient referral, investigation, and diagnosis is being picked up through the routine process.

Surgical and Oncology data is obtained either from the clinical records (electronic systems and case notes) or by download from the Department of Clinical Oncology database within the Edinburgh Cancer Centre (ECC).

Each of the 4 hospitals provides surgery and chemotherapy but radiotherapy is provided centrally in Edinburgh Cancer Centre. Patients living closer to either Carlisle or Dundee may opt to have treatment outwith the SCAN region. All QPIs will be analysed and presented by Hospital of Diagnosis for data verification/sign off purposes with additional reports by Hospital of Surgery as appropriate.

The process remains dependent on audit staff for capture and entry of data, and for data quality checking.

Most patients are identified through weekly multidisciplinary meetings. The following sources are used to check for additional patients:

1. Pathology records
2. GRO Death lists
3. Dept of Clinical Oncology retrospective database
4. Clinical Nurse Specialist database
5. ACaDMe (Acute, Cancer, Deaths and Mental Health); a data mart part of Public Health Scotland.

Dataset and Definitions

The QPIs have been developed collaboratively with the three Regional Cancer Networks, Public Health Scotland (PHS), and Healthcare Improvement Scotland. QPIs will be kept under regular review and be responsive to changes in clinical practice and emerging evidence.

The overarching aim of the cancer quality work programme is to ensure that activity at NHS board level is focussed on areas most important in terms of improving survival and patient experience whilst reducing variance and ensuring safe, effective and person-centred cancer care.

Following a period of development, public engagement and finalisation, each set of QPIs is published by Healthcare Improvement Scotland[1]

Accompanying datasets and measurability criteria for QPIs are published on the PHS website[2]. NHS boards are required to report against QPIs as part of a mandatory, publicly reported, programme at a national level.

The standard QPI format is shown below:

QPI Title:	Short title of Quality Performance Indicator (for use in reports etc.)	
Description:	Full and clear description of the Quality Performance Indicator.	
Rationale and Evidence:	Description of the evidence base and rationale which underpins this indicator.	
Specifications:	Numerator:	Of all the patients included in the denominator those who meet the criteria set out in the indicator.
	Denominator:	All patients to be included in the measurement of this indicator.
	Exclusions:	Patients who should be excluded from measurement of this indicator.
	Not recorded for numerator:	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target.
	Not recorded for exclusion:	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard.
	Not recorded for denominator:	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard.
Target:	Statement of the level of performance to be achieved.	

[1] QPI documents : Cancer Quality Performance Indicators (QPIs) (healthcareimprovementscotland.org)
[2] Datasets and measurability documents : Cancer | Cancer Audit | Health Topics | ISD Scotland

The QPI dataset for Colorectal was implemented from 01/04/2013. The dataset has now undergone 2 formal reviews, the latest completed in August 2021. This review was due to be completed in 2020; however it was delayed because of pressures nationally due to the Covid-19 pandemic. All changes are now in place in this report (listed in the table below):

Update following 2nd Formal Review

QPI	Change	Year for Reporting
1 (i)	Palliative endoscopic treatment (stenting) has been added as an exclusion.	2021/22
1 (ii)	Palliative endoscopic treatment (stenting) and TAMIS have both been added as an exclusion.	2021/22
2	Pre-operative imaging now has to take place <180 days from final surgery.	2020/21
5	Palliative endoscopic treatment (stenting) has been added as an exclusion. New data fields -Two episodes of neo-adjuvant treatment can now recorded where applicable.	2021/22
7 (i)	Description of QPI amended: "short course radiotherapy with delay to surgery". "TAMIS" has been added as an exclusion. Denominator wording updated to reflect changes in dataset fields with two episodes of neo-adjuvant treatment now able to be recorded where applicable.	2021/22
7 (ii)	Description of QPI amended removing **"**long course intent". "TAMIS" added to exclusions. Denominator wording updated to reflect changes in dataset fields with two episodes of neo-adjuvant treatment now able to be recorded where applicable.	2021/22
8	No change following formal review.	2020/21
9 (i) & 9 (ii)	Numerator amended. Addition of anastomotic leak having any intervention including medical, endoscopic, radiological and surgical.	2021/22
10	No change following formal review.	2020/21
11	QPI Title amended: "Dukes C and high risk Dukes B" to: "Stage III". Now presented as one result rather than two, as previous. The lower age limit of 50 has been removed from this QPI.	2021/22
12	QPI Title amended "Radical Radiotherapy". Adjuvant chemotherapy has been removed from this QPI.	2021/22
13	Moved to Key Category section of the Report	2021/22
14	Addition of New QPI - 30 day Mortality following Systemtic Anti-Cancer Therapy SACT	tbc
15	Addition of New QPI - Colorectal Liver Metastases	2021/22
16	Addition of New QPI - Assessment of Mismatch Repair (MMR)/Microsatellite Instability (MSI Status)	2021/22

The following QPIs have been archived: 3, 4 and 6

Data Quality

Estimate of case ascertainment

An estimate of case ascertainment (the percentage of the population with colorectal cancer recorded in the audit) is made by comparison with the Scottish Cancer Registry five year average. High levels of case ascertainment provide confidence in the completeness of the audit recording and contribute to the reliability of results presented. Levels greater than 100% may be attributable to an increase in incidence. Allowance should be made when reviewing results where numbers are small and variation may be due to chance.

Number of cases recorded in audit: patients diagnosed 01/04/2021 to 31/03/2022

	Borders	D&G	Fife	Lothian	SCAN
Colon cancer	66	90	176	474	**806**
Rectal cancer	33	36	61	140	**270**
Total	99	126	237	614	**1076**

Estimate of case ascertainment: calculated using the average of the most recent available five years of Cancer Registry Data (2016-2020)

	Borders	D&G	Fife	Lothian	SCAN
Cases from Audit	99	126	237	614	**1076**
Cancer Registry 5 Year Average	98	119	241	508	**966**
Case Ascertainment %	**101%**	**106%**	**98%**	**121%**	**111%**

Source: Scottish Cancer Registry, ISD. Data extracted from ACaDMe on 08/09/2022. Note: Death certificate only cases have been excluded. Cases that have been diagnosed in the private sector but received any treatment in NHS hospitals have been included

Quality Assurance

External QA: SCAN Audit participates in external quality assurance (QA) of data by PHS, (i.e. when a sample of data is compared with the data definitions). A QA of the QPI colorectal dataset took place in February 2015 and overall accuracy percentage results are shown below. The next QA of the QPI colorectal dataset was due in to be undertaken in February 2021, however due to the Covid-19 pandemic, other cancer sites are taking priority at the moment, as there is no immediate concern regarding the Colorectal data recording accuracy.

	Borders	D&G	Fife	Lothian	Scotland
Accuracy of data recording (%)	99.4%	99.4%	98.3%	97.0%	99.0%

Clinical Sign-Off

This report compares data from reports prepared for individual Health Boards and signed off as accurate following review by the lead clinicians from each Board. The collated SCAN results are reviewed jointly by the lead clinicians, to assess variances and provide comments on results:

- Individual health board results were reviewed and signed-off locally.
- Collated results were presented and discussed at the SCAN Regional Leads Sign off Meeting on 04/11/2022.
- Final report circulated to SCAN Colorectal Group and Clinical Governance Framework on 20/12/2023.

Actions for Improvement

After final sign off, the process is for the report to be sent to the Clinical Governance groups within the four health boards and to the Regional Cancer Planning Group. Action plans and progress with plans will be highlighted to the groups. The report will be placed on the SCAN website once it has been fully signed-off and checked for any disclosive material.

Sarah Buchan
SCAN Audit Facilitator

DIAGNOSIS AND STAGING

QPI 1 (i): Radiological Diagnosis and Staging – Colon Cancer

Target 95%

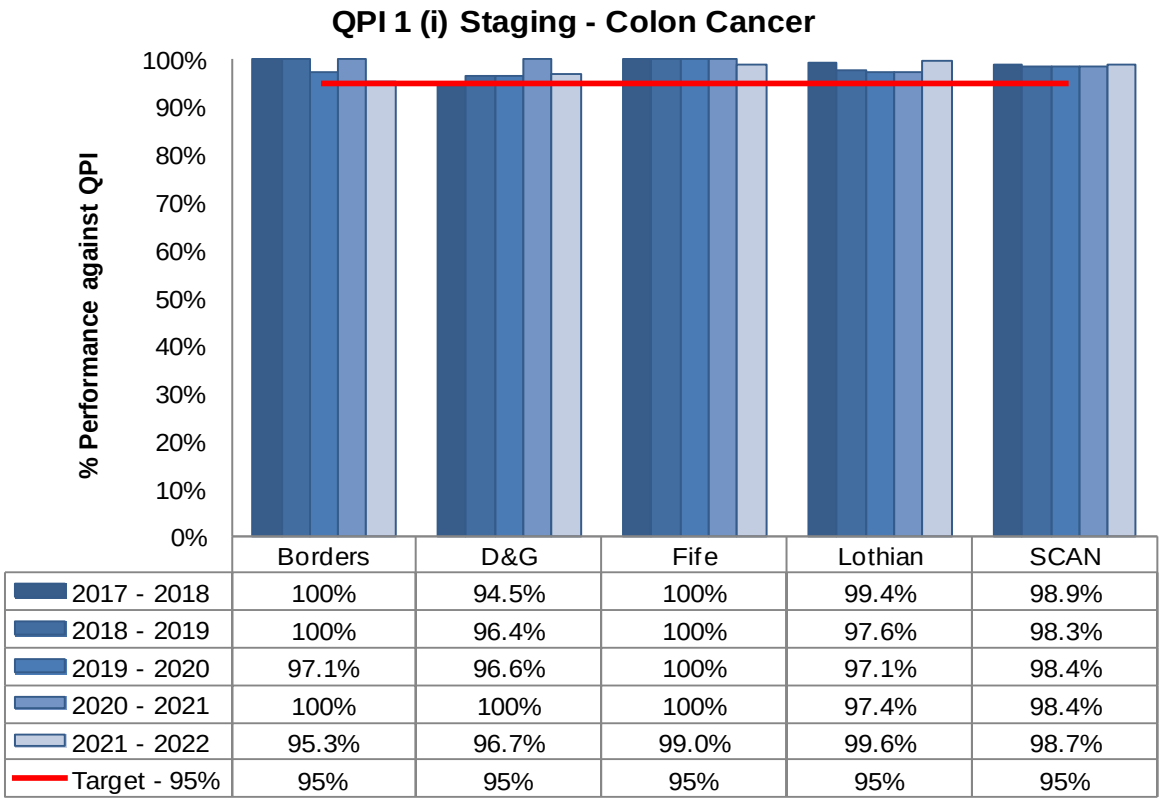
Numerator = Number of patients with **colon cancer** who undergo CT chest, abdomen and pelvis before definitive treatment.

Denominator = All patients with **colon cancer.**

Exclusions = Patients who decline investigation. Patients who undergo emergency surgery. Patients undergoing supportive care only. Patients who undergo palliative treatment (chemotherapy, radiotherapy, surgery or stenting). Patients who die before first treatment.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2021-2022 Cohort	99	126	237	614	**1076**
Ineligible for this QPI	56	65	141	361	**623**
Numerator	41	59	95	252	**447**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	43	61	96	253	**453**
Not Recorded for Exclusion	0	0	0	1	**1**
Not Recorded for Denominator	0	0	0	0	**0**
% Performance	95.3%	96.7%	99.0%	99.6%	**98.7%**

All Boards met this QPI



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	100%	94.5%	100%	99.4%	98.9%
2018 - 2019	100%	96.4%	100%	97.6%	98.3%
2019 - 2020	97.1%	96.6%	100%	97.1%	98.4%
2020 - 2021	100%	100%	100%	97.4%	98.4%
2021 - 2022	95.3%	96.7%	99.0%	99.6%	98.7%
Target - 95%	95%	95%	95%	95%	95%

Comment: It is clear we are doing consistently well over the years in SCAN despite the demands in Radiology. This is an important QPI – as can be an early warning system for things not going well.

QPI 1 (ii): Radiological Diagnosis and Staging – Rectal Cancer

Target 95%

Numerator = All patients with **rectal cancer** undergoing definitive treatment (chemoradiotherapy or surgical resection) who undergo CT chest, abdomen and pelvis and MRI pelvis before definitive treatment.

Denominator = All patients with **rectal cancer** undergoing definitive treatment (chemoradiotherapy or surgical resection).

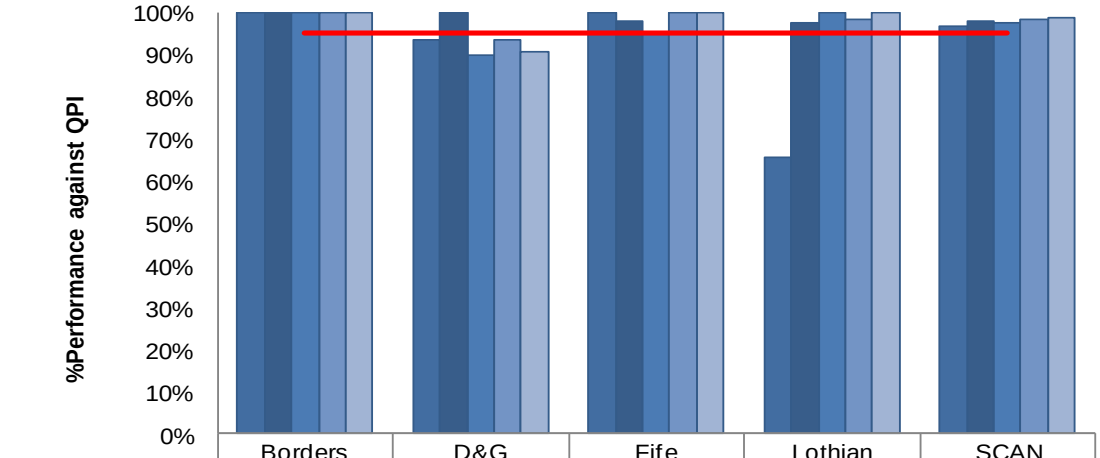
Exclusions = Patients who decline investigation. Patients who undergo emergency surgery[3] Patients with a contraindication to MRI. Patients who undergo Transanal Endoscopic Microsurgery (TEM)/Transanal Minimally Invasive Surgery (TAMIS). Patients who undergo Transanal Resection of Tumour (TART). Patients who undergo palliative treatment (chemotherapy, radiotherapy, surgery or stenting). Patients who died before first treatment.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for this QPI	79	105	203	541	**928**
Numerator	20	19	34	73	**146**
Not Recorded for Numerator	0	0	0	0	**0**
Denominator	20	21	34	73	**148**
Not Recorded for Exclusions	0	0	0	3	**3**
Not Recorded for Denominator	0	0	0	1	**1**
% Recorded	100%	90.5%	100%	100%	**98.6%**

Comments where this QPI was not met:

D&G: The QPI target was not met showing a shortfall of 4.5% (2 cases). In one patient the lesion was believed to be benign pre-operatively. Post op path showed a very early polyp cancer, which was completely removed. CT-CAP and MRI were completed after surgery. No indication for pre op staging as lesion thought to be benign and had curative treatment with local excision. One patient's lesion was distal sigmoid just above sacral promontory so no indication for MRI, but did have a pre-operative CT CAP.

QPI 1 (ii) Staging - Rectal Cancer



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	100%	93.3%	100%	65.5%	96.6%
2018 - 2019	100%	100%	97.8%	97.5%	98.1%
2019 - 2020	100%	90.0%	95.0%	100%	97.5%
2020 - 2021	100%	93.3%	100%	98.3%	98.3%
2021 - 2022	100%	90.5%	100%	100%	98.6%
Target - 95%	95%	95%	95%	95%	95%

[3] Emergency surgical resection is defined by the Consultant in Charge of the patient's care

QPI 2: Pre-Operative Imaging of the Colon
Target 95%

Numerator = Number of patients who undergo elective surgical resection for colorectal cancer who have the whole colon visualised by colonoscopy or CT colonography before surgery, unless the non-visualised segment of colon has been removed. (Date of Final Definitive (or only) Surgery minus Date of Imaging Large Bowel is less than 180 days).

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%	**Borders**	**D&G**	**Fife**	**Lothian**	**SCAN**
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for this QPI	41	56	126	311	**534**
Numerator	57	64	100	274	**495**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	58	68	110	303	**539**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for the Denominator	0	0	0	6	**6**
% Percentage	**98.3%**	**94.1%**	**90.9%**	**90.4%**	**91.8%**

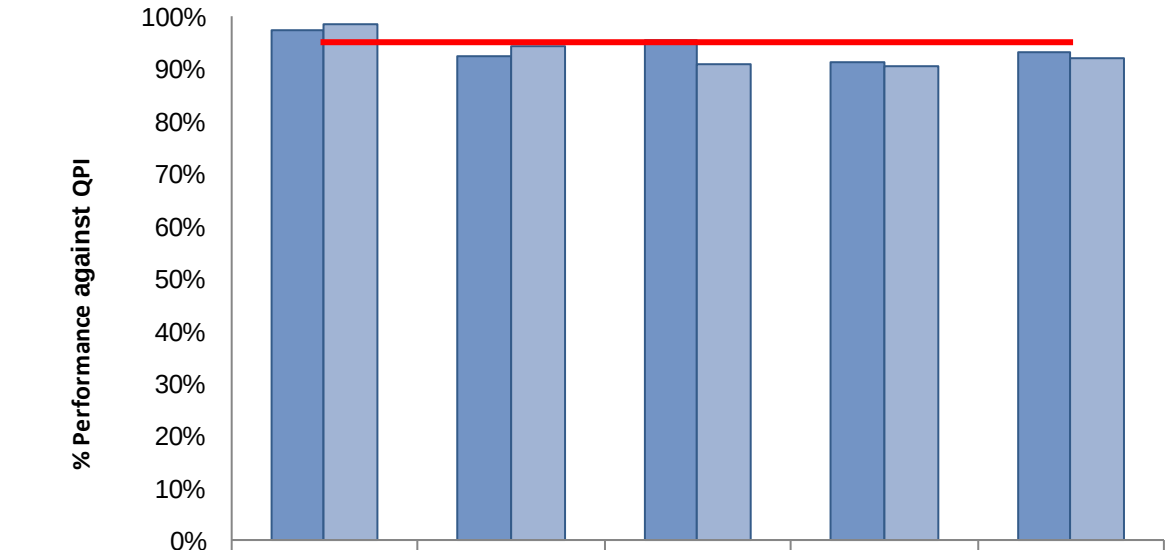
Comments where this QPI was not met:

D&G: The QPI target was not met showing a shortfall of 5.9% (4 cases): These 4 cases did not meet visualisation timescales due to co morbidities and other specific complications.

Fife: The QPI target was not met showing a shortfall of 4.9% (10 cases**)** – Information regarding all 10 cases has been reviewed. 7 cases out of 10 cases had neoadjuvant treatment and 3 cases either had specific issues requiring more urgent surgery, or cancer was not initially suspected.

Lothian: The QPI target was not met showing a shortfall of 4.6% (29 cases). All 29 cases have been reviewed by Clinicians and various complications noted to explain apparent delay

QPI 2 - Pre-Operative Imaging of Colon



	Borders	D&G	Fife	Lothian	SCAN
2020 - 2021	97.4%	92.1%	95.5%	91.3%	93.0%
2021 - 2022	98.3%	94.1%	90.9%	90.4%	91.8%
Target - 95%	95%	95%	95%	95%	95%

SURGICAL OUTCOMES

QPI 5: Lymph Node Yield – Hospital of Surgery

Target 90%

Numerator = Number of patients with colorectal cancer who undergo curative surgical resection where ≥ 12 lymph nodes are pathologically examined.

Denominator = All patients with colorectal cancer who undergo curative surgical resection (with or without neo-adjuvant short course radiotherapy).

Exclusions = Patients with rectal cancer who undergo long course neo-adjuvant chemoradiotherapy or radiotherapy. Patients who undergo Transanal Endoscopic Microsurgery (TEM)/Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).

Target 90%	Borders	D&G	Fife	Lothian	SCAN
Numerator	47	71	100	307	**525**
Not Recorded for the Numerator	0	0	0	1	**1**
Denominator	56	74	126	360	**616**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	3	**3**
% Percentage	83.9%	95.9%	79.4%	85.3%	**85.2%**

5 patients from Borders were operated on in Glasgow and will appear in the WoSCAN report
The patients below are included in Lothian's figures above;
2 Borders patients, 3 D&G patients, and 1 Forth Valley patient all operated on in Lothian

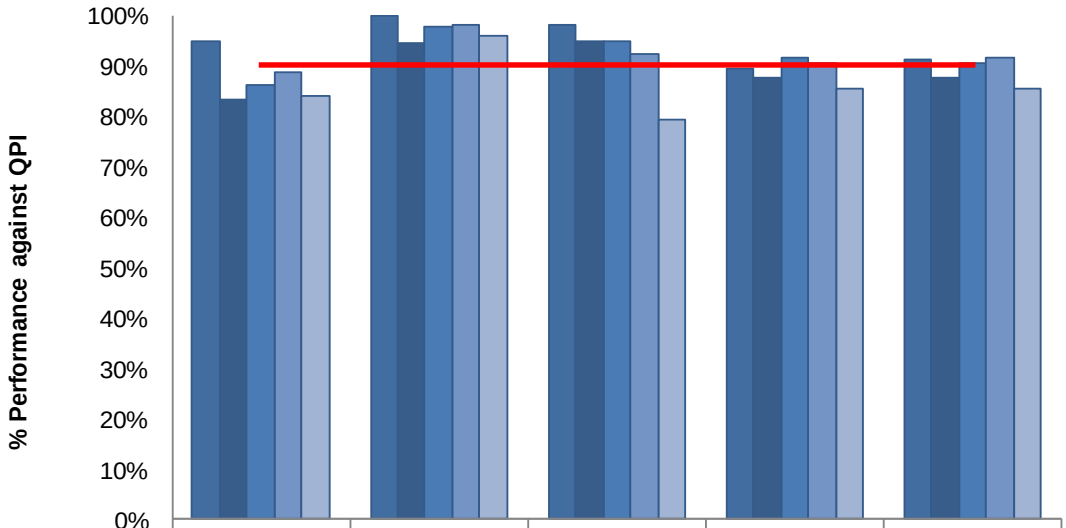
Comments where this QPI was not met:

Borders: The QPI target was not met showing a shortfall of 6.1% (9 cases) the cases with <12 lymph nodes were dissected by a variety of pathologists. In many cases the paucity of lymph node was noted at the time of macroscopic examination and the lymph nodes found were small.

Fife: The QPI target was not met showing a shortfall of 10.5% (26 cases) of the 26 cases: 16 were pT1 or pT2 - lymph node yield tends to be lower in early cancers; one patient had neo-adjuvant therapy - lymph node count tends to be lower in patients with pre-op treatment; one patient path report states: "Initial dissection did not yield many lymph nodes and further examination was carried out with no definitive nodes being identified"; one patient's path "Only seven lymph nodes were retrieved for examination and these show no evidence of metastatic carcinoma. Levels have been examined on some sections". 10 patients low lymph node yield - no reason can be found for these patients.

Lothian: This QPI was not met with a shortfall of 4.7% (53 cases) the majority of cases with low lymph node yields (30/53) were in cases where other factors were identified which would suggest referral for adjuvant chemotherapy. The remaining cases 23 cases contained 15 which were pT1 or pT2 where lymph node yields tend to be lower and 2 cases post neo-adjuvant therapy where lymph nodes are often very small. Cases came from a large number of surgeons and a large number of pathologists carried out the specimen dissections with no obvious patterns identified. In many of the cases, comment was made at specimen dissection that nodes were difficult to find.

QPI 5 - Lymph Node Yield



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	94.8%	100%	97.9%	89.4%	91.0%
2018 - 2019	83.3%	94.5%	94.7%	87.6%	87.5%
2019 - 2020	86.0%	97.5%	94.7%	91.6%	90.5%
2020 - 2021	88.6%	98.0%	92.4%	90.5%	91.6%
2021 - 2022	83.9%	95.9%	79.4%	85.3%	85.2%
Target - 90%	90%	90%	90%	90%	90%

Comment: It is noted that the QPI target was increased from 80% to 90% following the 3-year formal review. The old target was continuously met in previous years by all Boards, but each Board is aware of the new target and will strive to meet this. It is noted in the HIS Colorectal QPI paper (http://www.healthcareimprovementscotland.org/his/idoc.ashx?docid=f399d719-8597-48f6-999a-1e248d5ab6aa&version=-1) that varying evidence exists regarding the most appropriate target level. The SCAN Lead Pathologist feels the current target is unrealistic and requires further discussion.

QPI 7 (i): Surgical Margins – Hospital of Surgery

Target 95%

Numerator = Number of patients with **rectal cancer** who undergo elective primary surgical resection or immediate / early surgical resection following neo-adjuvant short course radiotherapy in which the circumferential margin is clear of tumour.

Denominator = All patients with **rectal cancer** who undergo elective primary surgical resection or immediate / early surgical resection following neo-adjuvant short course radiotherapy.

Exclusions = Patients who undergo Transanal Endoscopic Microsurgery (TEM)/Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).

Target 95%	**Borders**	**D&G**	**Fife**	**Lothian**	**SCAN**
Numerator	15	21	21	56	**113**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	16	21	21	60	**118**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	1	**1**
% Percentage	93.8%	100%	100%	93.3%	**95.8%**

The patients below are included in Lothian's figures above;
2 Borders patient, 1 D&G patient, and 1 Forth Valley patient all operated on in Lothian.

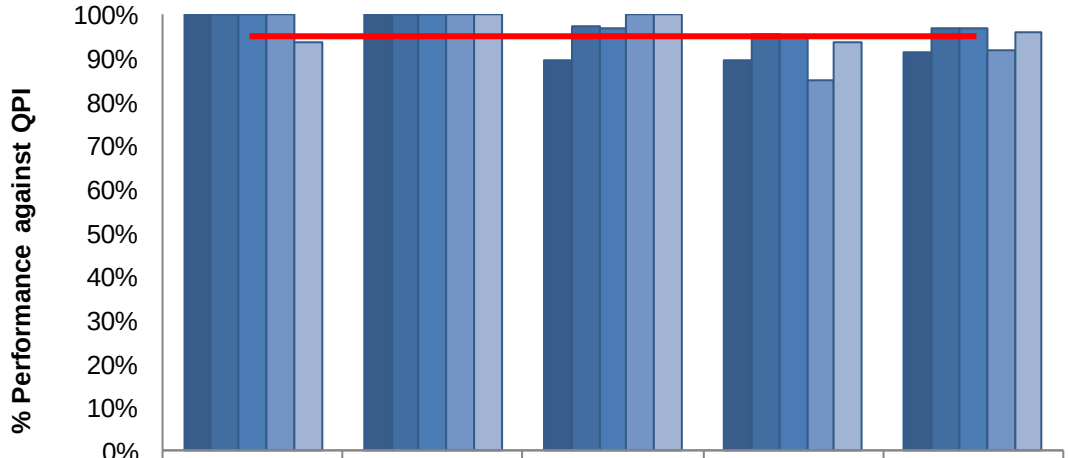
Comments where this QPI was not met:

Borders: The QPI target was not met showing a shortfall of 1.2% (1 case). This case has been reviewed by Clinicians.

Lothian: The QPI target was not met showing a shortfall of 1.7% (4 cases). Once again 3 of the patients had R1 resections by merit of a lymph node at the margin, confirming the challenge of determining node positivity on preoperative imaging. Two of these patients did receive preoperative radiotherapy (SCPRT with immediate surgery) recognising the risk of local recurrence but not being able to determine the CRM status on small indeterminate nodes. One patient had a synchronous colon tumour and it was felt appropriate to expedite the surgery, i.e. SCPRT and immediate resection to allow the colonic tumour to be resected in a timeous manner. The other patient with a node at the margin was unable to have an MRI due to a pacemaker, thus making nodal clarification even more challenging. This patient had no indicators for preoperative radiotherapy on the CT. These 3 outliers do not need any further investigation. The 4th patient underwent surgery for a R1 rectal polyp cancer and clearly the disease was more extensive than originally thought. Further review of their pathway to be undertaken.

QPI 7 (i) Surgical Margins

Primary surgery or surgery following neo-adjuvant short course radiotherapy



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	100%	100%	89.6%	89.6%	91.4%
2018 - 2019	100%	100%	97.0%	95.3%	96.7%
2019 - 2020	100%	100%	96.6%	95.0%	96.6%
2020 - 2021	100%	100%	100%	84.9%	91.8%
2021 - 2022	93.8%	100%	100%	93.3%	95.8%
Target - 95%	95%	95%	95%	95%	95%

Comment: SCAN Lead Pathologist - there are new pathology guidelines under review at the moment but have not yet been finalised. New guidelines may have an impact on this QPI in the future.

QPI 7 (ii): Surgical Margins – Hospital of Surgery

Target 85%

Numerator = Number of patients with **rectal cancer** who undergo elective surgical resection following neo-adjuvant chemotherapy, long course chemoradiotherapy, long course radiotherapy or short course radiotherapy with long course intent (delay to surgery) in which the circumferential margin is clear of tumour.

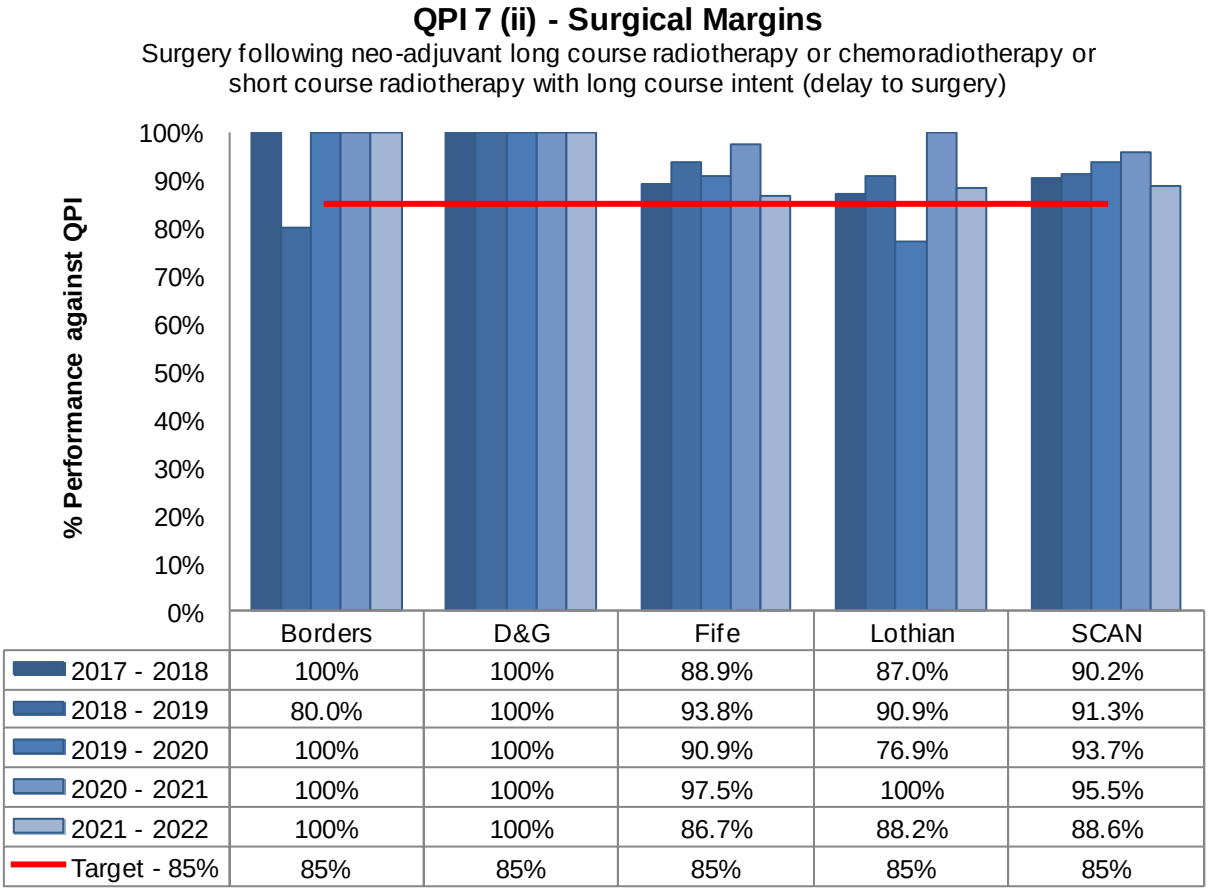
Denominator = All patients with **rectal cancer** who undergo elective surgical resection following neo-adjuvant chemotherapy, long course chemoradiotherapy, long course radiotherapy or short course radiotherapy with long course intent (delay to surgery).

Exclusions = Patients who undergo Transanal Endoscopic Microsurgery (TEM)/Transanal Minimally Invasive Surgery (TAMIS) or Transanal Resection of Tumour (TART).

Target 85%	Borders	D&G	Fife	Lothian	SCAN
Numerator	2	1	13	15	**31**
Not Recorded for the Numerator	0	0	0	1	**1**
Denominator	2	1	15	17	**35**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	4	**4**
% Percentage	100%	100%	86.7%	88.2%	**88.6%**

The patients below are included in Lothian's figures above;
1 patient from D&G and 1 patient from Lanarkshire were operated on in Lothian

All Boards met this QPI



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	100%	100%	88.9%	87.0%	90.2%
2018 - 2019	80.0%	100%	93.8%	90.9%	91.3%
2019 - 2020	100%	100%	90.9%	76.9%	93.7%
2020 - 2021	100%	100%	97.5%	100%	95.5%
2021 - 2022	100%	100%	86.7%	88.2%	88.6%
Target - 85%	85%	85%	85%	85%	85%

QPI 8: Re-operation Rates - Hospital of Surgery
Target <10%

Numerator = Number of patients with colorectal cancer who undergo surgical resection who return to theatre following initial surgical procedure (within 30 days of surgery) to deal with complications related to the index procedure.

Denominator = All patients with colorectal cancer who undergo surgical resection.

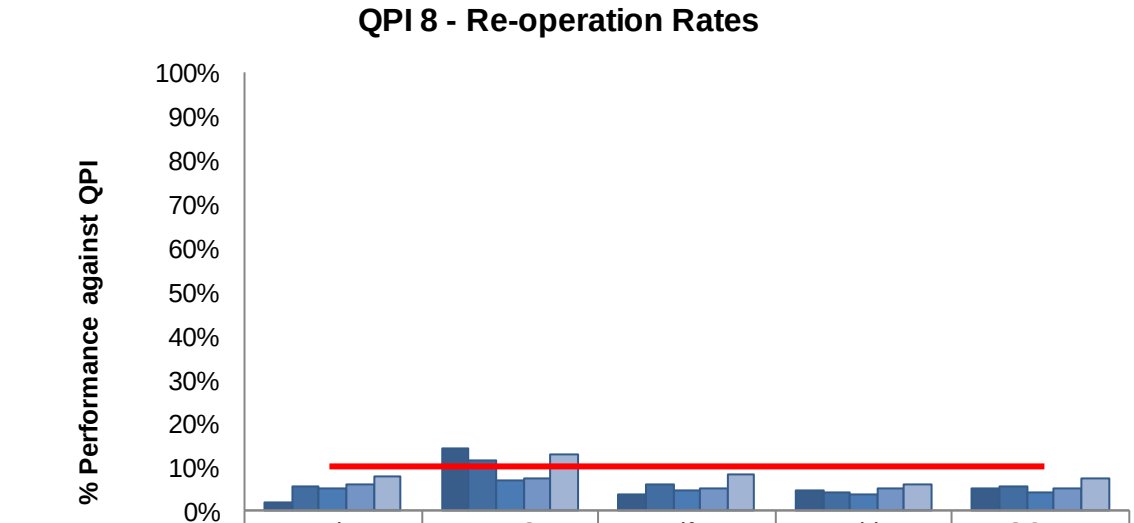
Exclusions = No exclusions.

Target <10%	Borders	D&G	Fife	Lothian	SCAN
Numerator	4	10	12	25	**51**
Not Recorded for the Numerator	0	0	0	1	**1**
Denominator	53	78	151	414	**696**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	6	**6**
% Percentage	7.5%	12.8%	7.9%	6.0%	**7.3%**

5 Borders patients were operated on in Glasgow and will appear in the WoSCAN report.
1 Tayside patient was operated on in Fife and is included in Fife's figures.
The patients below are included in Lothian's figures above;
3 Borders patients, 3 D&G patients, 1 Lanarkshire patient and 1 Forth Valley patient operated on in Lothian.

Comments where this QPI was not met:

D&G: The QPI target was exceeded by 2.8% (10 cases) 5 patients had an anastomotic leak, 1 patient had suspected anastomotic leak but pathological examination of specimen showed anastomosis intact, 1 patient with spleen injury, 1 patient with divided ureter which required further surgery, 1 patient with mechanical bowel obstruction and 1 patient with adhesions.



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	1.7%	13.9%	3.4%	4.7%	5.2%
2018 - 2019	5.3%	11.4%	6.0%	4.0%	5.6%
2019 - 2020	5.1%	7.0%	4.3%	3.4%	4.2%
2020 - 2021	6.0%	7.1%	4.9%	4.9%	5.2%
2021 - 2022	7.5%	12.8%	7.9%	6.0%	7.3%
Target - <10%	10%	10%	10%	10%	10%

QPI 9 (i): Anastomotic Dehiscence – Hospital of Surgery

Target <5%

Numerator = Number of patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the colon having anastomotic leak requiring 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.

Target <5%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	5	2	4	**11**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	28	37	62	185	**312**
Not Recorded for Exclusions	0	0	0	0	0
Not Recorded for Denominator	0	0	0	6	6
% Percentage	0%	13.5%	3.2%	2.2%	**3.5%**

1 Borders patient was operated on in Glasgow and will appear in the WoSCAN report.
1 Tayside patient was operated on in Fife and is included in Fife's figures above.

Comments where this QPI was not met:

D&G: The QPI target was exceeded by 8.5% (5 cases) All had surgical intervention for anastomotic leaks - the leaks had different causes, including one with an internal hernia with a volvulus.

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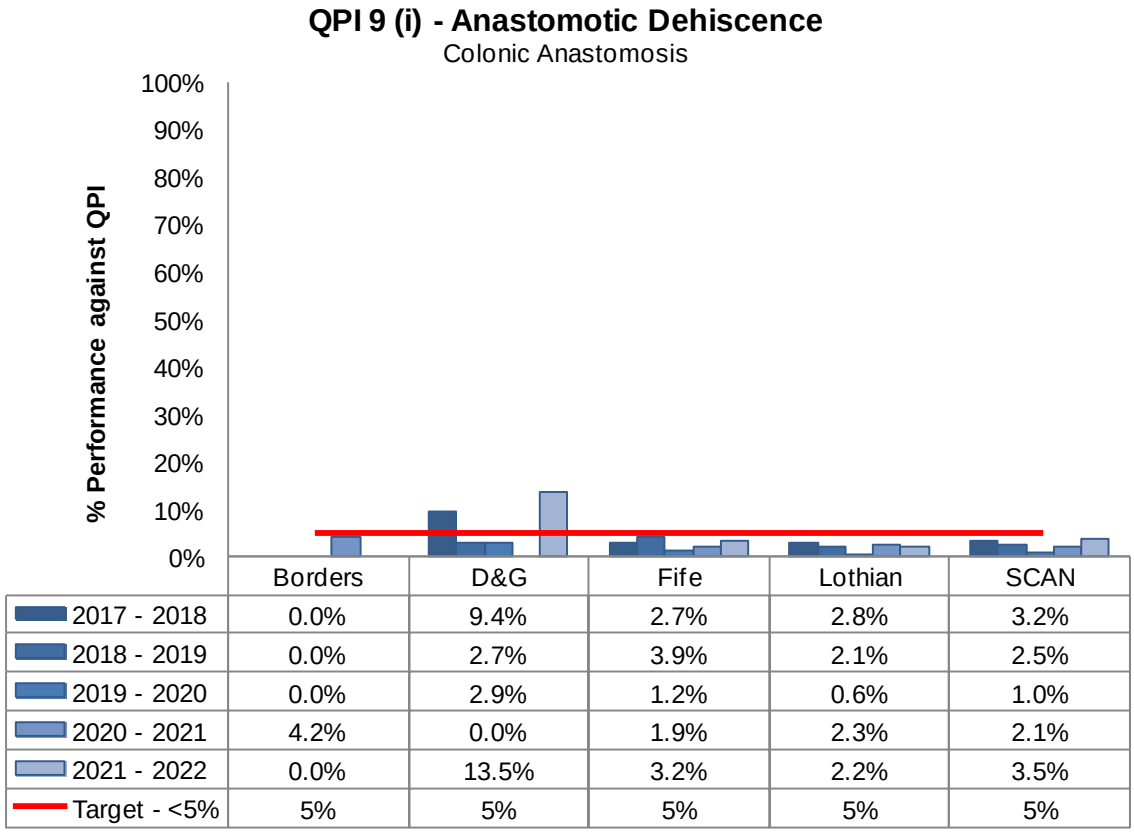


	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	0.0%	9.4%	2.7%	2.8%	3.2%
2018 - 2019	0.0%	2.7%	3.9%	2.1%	2.5%
2019 - 2020	0.0%	2.9%	1.2%	0.6%	1.0%
2020 - 2021	4.2%	0.0%	1.9%	2.3%	2.1%
2021 - 2022	0.0%	13.5%	3.2%	2.2%	3.5%
Target - <5%	5%	5%	5%	5%	5%

QPI 9 (ii): Anastomotic Dehiscence – Hospital of Surgery

Target <10%

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 intervention (medical, endoscopic, radiological or surgical).

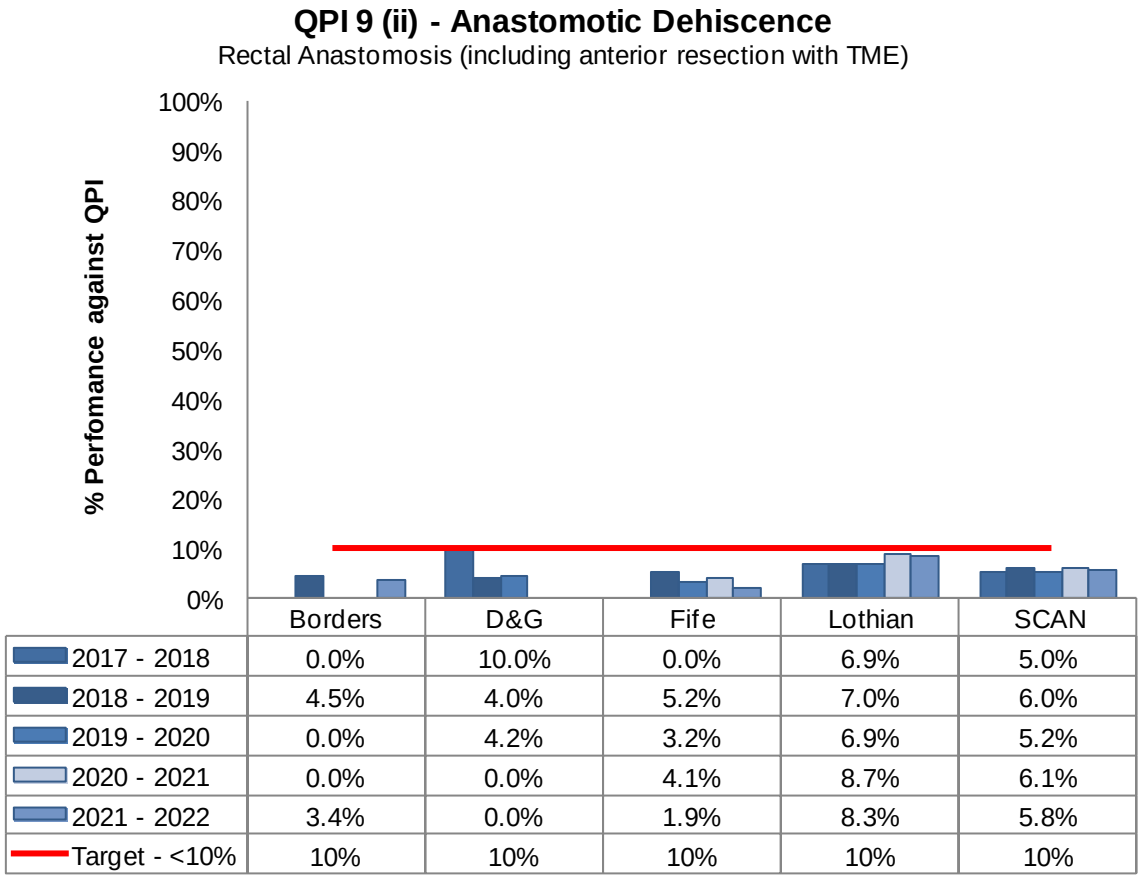
Denominator = All patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the rectum (including anterior resection with TME)

Exclusions = None.

Target <10%	Borders	D&G	Fife	Lothian	SCAN
Numerator	1	0	1	12	**14**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	29	18	52	144	**243**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	6	**6**
% Percentage	3.4%	0.0%	1.9%	8.3%	**5.8%**

4 Borders patients were operated on in Glasgow and will appear in the WoSCAN report.
1 Tayside patient was operated on in Fife and is included in Fife's figures.
1 Forth Valley patient operated on in Lothian and is included in Lothian's figures.

All Boards met this QPI



	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	0.0%	10.0%	0.0%	6.9%	5.0%
2018 - 2019	4.5%	4.0%	5.2%	7.0%	6.0%
2019 - 2020	0.0%	4.2%	3.2%	6.9%	5.2%
2020 - 2021	0.0%	0.0%	4.1%	8.7%	6.1%
2021 - 2022	3.4%	0.0%	1.9%	8.3%	5.8%
Target - <10%	10%	10%	10%	10%	10%

QPI 10 (i): 30 Day Mortality Following Surgical Resection – Hospital of Surgery

Target: Elective surgical resection - 30 day mortality <3%
Emergency surgical resection - 30 day mortality<15%

Numerator = Number of patients with colorectal cancer who undergo emergency or elective surgical resection who die within 30 days of surgery.

Denominator = All patients with colorectal cancer who undergo emergency or elective surgical resection.

Exclusions = No exclusions

Elective Surgery - 30 day mortality

Target <3%	Borders	D&G	Fife	Lothian	SCAN
Numerator (elective surgery)	0	1	3	8	**12**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	50	72	125	325	**572**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0%	1.4%	2.4%	2.5%	**2.1%**

5 Borders patients were operated on in Glasgow and will appear in the WoSCAN report.
1 Tayside patient was operated on in Fife and is included in Fife's figures.
The patients below are included in Lothian's figures above;
3 Borders patients, 3 D&G patients, 1 Lanarkshire patient and 1 Forth Valley patient operated on in Lothian.

Emergency Surgery - 30 day mortality

Target <15%	Borders	D&G	Fife	Lothian	SCAN
Numerator (emergency surgery)	0	1	1	4	**6**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	6	5	23	88	**122**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0%	20.0%	4.3%	4.5%	**4.9%**

Comments where this QPI was not met:

D&G: The QPI target was exceeded by 5% (1 case): Patient passed away following small bowel ischaemia secondary to portal vein thrombosis.

QPI 10 (ii): 90 Day Mortality Following Surgical Resection – Hospital of Surgery

Target: Elective surgical resection - 90 day mortality <4%
Emergency surgical resection - 90 day mortality <20%

Numerator = Number of patients with colorectal cancer who undergo emergency or elective surgical resection who die within 90 days of surgery.

Denominator = All patients with colorectal cancer who undergo emergency or elective surgical resection.

Exclusions = No exclusions

Elective Surgery - 90 day mortality

Target <4%	Borders	D&G	Fife	Lothian	SCAN
Numerator (elective surgery)	1	2	3	10	**16**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	50	69	125	317	**561**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	2.0%	2.9%	2.4%	3.2%	**2.9%**

5 Borders patients were operated on in Glasgow and will appear in the WoSCAN report.
1 Tayside patient was operated on in Fife and is included in Fife's figures.
The patients below are included in Lothian's figures above;
3 Borders patients, 3 D&G patients, 1 Lanarkshire patient and 1 Forth Valley patient operated on in Lothian

Emergency Surgery - 90 day mortality

Target <20%	Borders	D&G	Fife	Lothian	SCAN
Numerator (emergency surgery)	0	2	1	7	**10**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	6	5	23	87	**121**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0%	40.0%	4.3%	8.0%	**8.3%**

Comments where this QPI was not met:

D&G: The QPI target was exceeded by 20% (2 cases) 1 patient died following small bowel ischaemia secondary to portal vein thrombosis, 1 patient died in the community following palliative surgery.

Comment:

Allowances should be made where small numbers and variation may be due to chance. Aggregation of results over time may be useful, in future years, to clarify results where numbers are small.

ONCOLOGICAL TREATMENT OUTCOMES

QPI 11: Adjuvant Chemotherapy

Target 70%

Numerator = Number of patients ≤74 years of age at diagnosis with stage III colorectal cancer who undergo surgical resection that receive adjuvant chemotherapy.

Denominator = All patients ≤74 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.

Target 70%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for the QPI	88	112	212	544	**956**
Numerator	10	11	22	63	**106**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	11	14	25	70	**120**
Not Recorded for Exclusions	0	0	0	1	**1**
Not Recorded for Denominator	0	1	0	0	**1**
% Percentage	90.9%	78.6%	88.0%	90.0%	**88.3%**

All Boards met this QPI

Comment: NHS Lothian had two patients included in the denominator who died before adjuvant SACT could be discussed. It is felt that an additional exclusion be added to this QPI – Patients who die before SACT.

Addendum: PHS have been made aware of this issue and it will be discussed when this QPI undergoes formal review.

QPI 12 (i): 30 Day Mortality Following Radical Radiotherapy

Target <1%

Numerator = Number of patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy or radiotherapy with curative intent who die within 30 days of treatment.

Denominator = All patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy or radiotherapy with curative intent.

Exclusions = No exclusions.

30 day mortality after neo-adjuvant chemoradiotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	0	**0**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	0	0	6	16	**22**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	N/A	N/A	0.0%	0.0%	**0.0%**

30 day mortality after radiotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	0	**0**
Not Recorded for the Numerator	0	0	0	1	**1**
Denominator	7	6	14	25	**52**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	7	**7**
% Percentage	0.0%	0.0%	0.0%	0.0%	**0.0%**

All Boards met this QPI

QPI 12 (ii): 90 Day Mortality Following Radical Radiotherapy

Target <1%

Numerator = Number of patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy or radiotherapy with curative intent who die within 90 days of treatment.

Denominator = All patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy or radiotherapy with curative intent.

Exclusions = No exclusions.

90 day mortality after neo-adjuvant chemoradiotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	0	**0**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	0	0	6	16	**22**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	N/A	N/A	0.0%	0.0%	**0.0%**

90 day mortality after radiotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	0	**0**
Not Recorded for the Numerator	0	0	0	1	**1**
Denominator	7	6	14	25	**52**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	6	**6**
% Percentage	0.0%	0.0%	0.0%	0.0%	**0.0%**

All Boards met this QPI

QPI 14: 30 Day Mortality following Systemic Anti-Cancer Therapy (SACT)

Target = Curable - <1% Non-curable - <5%

Numerator = Number of patients with colorectal cancer who undergo SACT that die within 30 days of treatment.

Denominator = All patients with colorectal cancer who undergo SACT.

Exclusions = No exclusions.

Curable

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	-	-	-	-	-
Not Recorded for the Numerator	-	-	-	-	-
Denominator	-	-	-	-	-
Not Recorded for Exclusions	-	-	-	-	-
Not Recorded for Denominator	-	-	-	-	-
% Percentage	-	-	-	-	-

Non-Curable

Target <5%	Borders	D&G	Fife	Lothian	SCAN
Numerator	-	-	-	-	-
Not Recorded for the Numerator	-	-	-	-	-
Denominator	-	-	-	-	-
Not Recorded for Exclusions	-	-	-	-	-
Not Recorded for Denominator	-	-	-	-	-
% Percentage	-	-	-	-	-

Comment:

QPI 14 is a standardised 30 day SACT Mortality QPI which will be a generic QPI across all the tumour types covered by the QPI program. This QPI replaces QPI 12 (i) adjuvant chemotherapy and QPI 12 (ii) palliative chemotherapy

Measurement is being revised to use data from Chemocare (electronic chemotherapy prescribing system) for reporting in order to utilise existing data and provide an accurate picture of all patients with colorectal cancer undergoing chemotherapy, rather than the subset of all diagnosed in the audit year cohort only.

The development of a National reporting tool is currently underway through a collaboration with Public Health Scotland and the 3 Cancer Networks; NCA, SCAN and WoSCAN. This is to ensure that reporting in consistent throughout Scotland.

Progress has been complicated by the differences in the 5 instances of Chemocare across Scotland and a date for initial reporting is yet to be confirmed at the time of writing this report.

QPI 15 (i): Colorectal Liver Metastasis

Target 95%

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.

Target – 95%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for the QPI	95	116	212	565	**988**
Numerator	4	6	16	32	**58**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	4	10	25	49	**88**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	100%	60.0%	64.0%	65.3%	**65.9%**

Comments where this QPI was not met:

D&G: The QPI target was not met showing a shortfall of 35% (4 cases): 2 with rapid clinical decline and 2 with inoperable liver metastases.

Fife: The QPI target was not met showing a shortfall of 31% (9 cases): Reason for not referring to HPB MDT not recorded

Lothian: The QPI target was not met showing a shortfall of 29.7% (17 cases). The Colorectal MDM did not record a reason why no referral was made to the HPB MDM. 12 of the patients are now deceased with 5 patients undergoing best supportive care or palliative treatment.

Comment: SCAN Lead Oncologist commented that all patients with liver-limited metastases who would be fit for a surgical resection should be referred to HPB to allow the HPB MDT to advise on which patients might have metastases suitable for resection +/- ablation. It is noted when this QPI was implemented the HPB National Lead requested all patients who meet the denominator, should be referred to a HPB MDM for discussion.

Action: All SCAN MDMs to ensure all patients with clinically suitable synchronous and metachronous colorectal liver metastases are referred to the HPB MDM. If patients are not referred, the reason why no referral has been made is to be recorded in the patient's Colorectal MDM outcome.

QPI 15 (ii): Colorectal Liver Metastasis

Target 95%

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%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for the QPI	99	126	229	602	**1056**
Numerator	0	0	6	8	**14**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	0	0	8	12	**20**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	N/A	N/A	75.0%	66.7%	**70.0%**

Comments where this QPI was not met:

Fife: The QPI target was not met showing a shortfall of 20% (2 cases): Reason for not being referred to HPB MDT not recorded.

Lothian: The QPI target was not met showing a shortfall of 28.3% (4 cases). The Colorectal MDM did not record a reason why no referral was made to the HPB MDM. 3 patients are now deceased and 1 patient is still alive undergoing palliative treatment. MDM Chair and Co-ordinator have been approached to ensure a comment is added to the Lothian Colorectal MDM outcome where it is inappropriate to refer a patient to the HBP MDM.

Comment: SCAN Lead Oncologist commented that all clinically suitable patients with liver-limited metastases should be referred and it is the HPB MDT who should make the decision on options for surgical treatment, where applicable.

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

Target 95%

Numerator = Number of patients with colorectal cancer who have MMR/MSI status assessed.

Denominator = All patients with colorectal cancer.

Exclusions = No exclusions.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for the QPI	16	22	42	88	**170**
Numerator	69	35	99	463	**666**
Not Recorded for the Numerator	0	0	0	2	**2**
Denominator	83	104	195	524	**906**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	1	**1**
% Percentage	83.1%	33.7%	50.8%	88.4%	**73.5%**

Comments where this QPI was not met:

Borders: The QPI target was not met showing a shortfall of 11.9% (14 cases). Prior to November 2021, NHS Lothian routinely tested all colorectal cancers for evidence of MMR/MSI only in those 60 years or under. Only 1 patient did not have MMR/MSI carried out after this date. (Molecular Pathology has now been alerted to this case and a report should be issued).

D&G: The QPI target was not met showing a shortfall of 61.3% (69 cases) - MMR/MSI status not assessed.

Fife: The QPI target was not met showing a shortfall of 44.2% (96 cases). Prior to November 2021 NHS Fife did not routinely test all colorectal cancers for MMR/MSI - only in those 60 years or younger.

Lothian: The QPI target was not met showing a shortfall of 7.2% (61 cases). 52 patients had no molecular studies requested. 8 patients had molecular studies requested, but not completed. 1 patient had no viable tumour for testing post chemoradiotherapy/surgery (initial diagnosis at Murrayfield) **NOTE:** Prior to November 2021, NHS Lothian only routinely tested MMR/MSI in colorectal cancer for patients 60 years or younger to look for features suggestive of Lynch syndrome. A further subset of patients with tumours with poor prognostic features would have MMR/MSI testing requested post-operatively to guide adjuvant chemotherapy decisions and a small subset would be tested based on morphological appearances. The cases not meeting the QPI here represent those patients who did not fall into the group tested in the earlier part of 2021 (age over 60, with no poor prognostic features or morphological features suggestive of MMR defect). A single patient under the age of 60 is in the group who did not meet the QPI. They had a polyp cancer but should have had MMR testing due to age. This has now been requested and the relevant clinicians will be contacted.

Comment: Following discussion by Regional Leads and for clarification a query has been sent to PHS that if a patient has had a previous colorectal cancer and has undergone MMR/MSI testing, can this result be recorded? Audit colleagues throughout Scotland felt clinical input was required to answer this question. Reply from PHS forthcoming.

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

Target 90%

Numerator = Number of patients with colorectal cancer who have MMR/MSI status assessed and where the results are suggestive of Lynch Syndrome are referred to Genetics.

Denominator = All patients with colorectal cancer who have MMR/MSI status assessed where results are suggestive of Lynch Syndrome.

Exclusions = No exclusions.

Target 90%	Borders	D&G	Fife	Lothian	SCAN
2021-22 Cohort	99	126	237	614	**1076**
Ineligible for the QPI	96	125	230	607	**1058**
Numerator	0	1	4	4	**9**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	3	1	7	7	**18**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	1	**1**
% Percentage	0%	100%	57.1%	57.1%	**50.0%**

Comments where this QPI was not met:

Borders: The QPI target was not met showing a shortfall of 90% (3 cases), 1 with MSI-High result but no recommendation to refer to Genetics, 1 who was recommended for referral but this was missed (it has been completed now) and 1 who declined surgery following discussion with anaesthetics. Molecular testing result on the biopsy was missed, but the patient has now been referred to Genetics.

Fife: The QPI target was not met showing a shortfall of 32.9% (3 cases)

Lothian: The QPI target was not met showing a shortfall of 32.9% (3 cases), 1 with results suggestive of Lynch syndrome, 1 suggestive of another abnormality (the so-called Lynch-like syndrome) and 1 in whom results were equivocal, probably secondary to previous radiotherapy, and it would be a matter of clinical judgement whether to refer to genetics. Consultant Colorectal Surgeon for each of these cases has been emailed to flag this up.

Comment: Following discussion it was felt there should be a single point of contact for Molecular Pathology to contact in each Board regarding patients who have results suggestive of Lynch Syndrome to ensure these patients are referred to Clinical Genetics. It was felt inappropriate for audit staff to be a single point of contact. It was felt in Fife the best way forward was to have these patients with their results discussed at MDM.

Action Plan: Patients with MMR/MSI results suggestive of Lynch Syndrome should have their results actioned by a single contact in each Board to ensure a referral is made to Clinical Genetics, either with or without further MDM input. A single contact should be identified within each Board to take this forward.

KEY CATEGORIES

Table 1: Rectal v Other Colorectal Patients, percentage of patients undergoing Surgery

	Number of Patients Diagnosed	All patients who had surgery		Number of patients diagnosed with rectal cancer		Number of patients diagnosed with rectal cancer who had surgery	
Borders	99	74	74.7%	33	33.3%	25	75.8%
D&G	126	94	74.6%	36	28.6%	27	75.0%
Fife	237	169	71.3%	61	25.7%	49	80.3%
Lothian	614	492	80.1%	140	22.8%	112	80.0%
SCAN	**1076**	**829**	**77.0%**	270	**25.1%**	**213**	**78.9%**

Table 2: Rectal v Other Colorectal Patients, percentage of patients undergoing definitive Surgery
(Excluding non definitive surgery – Endoscopic Treatment/Stents/Defunctioning Stomas/Bypass Surgery)

	Number of Patients Diagnosed	All patients who had definitive surgery		Number of patients diagnosed with rectal cancer		Number of patients diagnosed with rectal cancer who had definitive surgery	
Borders	99	67	67.7%	33	33.3%	23	69.7%
D&G	126	79	62.7%	36	28.6%	22	61.1%
Fife	237	145	61.2%	61	25.7%	36	59.0%
Lothian	614	399	65.0%	140	22.8%	81	57.9%
SCAN	**1076**	**690**	**64.1%**	**270**	**25.1%**	**162**	**60.0%**

Table 3: Emergency v Elective Surgery
(Excluding non definitive surgery – Endoscopic Treatment/Stents/Defunctioning Stomas/Bypass Surgery)

	All patients who had definitive surgery	Elective		Emergency		Inapplicable		Missing Data	
Borders	67	66	98.5%	1	1.5%	0	0.0%	0	0.0%
D&G	79	74	93.7%	5	6.3%	0	0.0%	0	0.0%
Fife	145	122	84.1%	23	15.9%	0	0.0%	0	0.0%
Lothian	399	311	77.9%	88	22.1%	0	0.0%	0	0.0%
SCAN	**690**	**573**	**83.0%**	**117**	**17.0%**	**0**	**0.0%**	**0**	**0.0%**

Table 4: Rectal Cancer Patients Emergency V Elective Surgery
(Excluding non definitive surgery – Endoscopic Treatment/Stents/Defunctioning Stomas/Bypass Surgery)

	All patients diagnosed with rectal cancer who had definitive surgery	Elective		Emergency		Not Recorded		Missing Data	
Borders	23	23	100%	0	0.0%	0	0.0%	0	0.0%
D&G	22	22	100%	0	0.0%	0	0.0%	0	0.0%
Fife	36	36	100%	0	0.0%	0	0.0%	0	0.0%
Lothian	81	77	95.1%	4	4.9%	0	0.0%	0	0.0%
SCAN	**162**	**158**	**97.5%**	**4**	**2.5%**	**0**	**0.0%**	**0**	**0.0%**

Table 5: Intent of Surgery
(Excluding non definitive surgery – Endoscopic Treatment/Stents/Defunctioning Stomas/Bypass Surgery)

	All patients who had definitive Surgery	Curative		Palliative		Not Recorded		Missing Data	
Borders	67	64	95.5%	3	4.5%	0	0.0%	0	0.0%
D&G	79	78	98.7%	1	1.3%	0	0.0%	0	0.0%
Fife	145	133	91.7%	12	8.3%	0	0.0%	0	0.0%
Lothian	399	370	92.7%	29	7.3%	0	0.0%	0	0.0%
SCAN	**690**	**645**	**93.5%**	**45**	**6.5%**	**0**	**0.0%**	**0**	**0.0%**

Table 6: Intent of Surgery – Rectal Cancer
N=All patients diagnosed with rectal cancer who had definitive surgery
(Excluding non definitive surgery – Endoscopic Treatment/Stents/Defunctioning Stomas/Bypass Surgery)

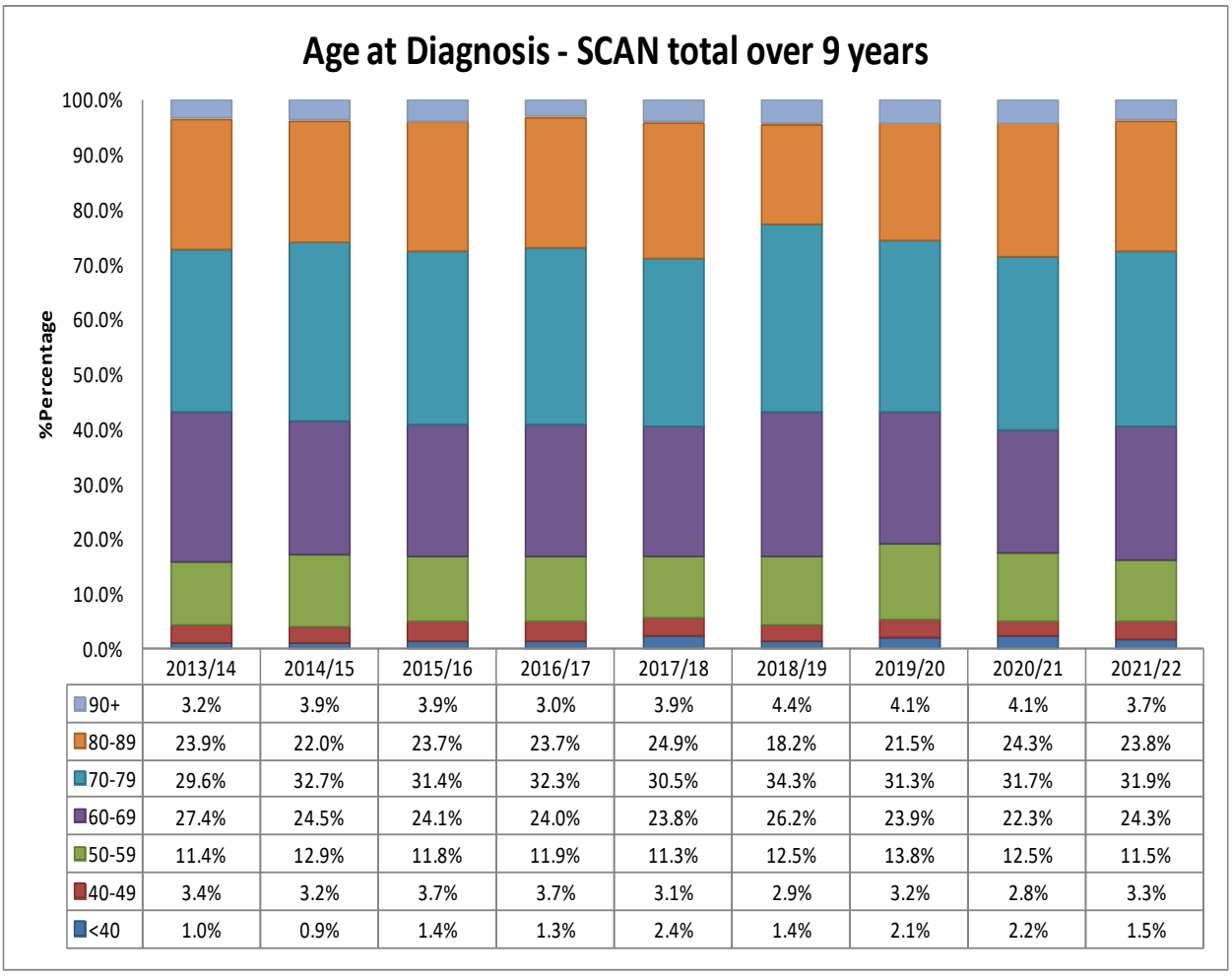
	All patients diagnosed with rectal cancer who had definitive surgery	Curative		Palliative		Not Recorded		Missing Data	
Borders	23	21	91.3%	2	8.7%	0	0.0%	0	0.0%
D&G	22	22	100%	0	0.0%	0	0.0%	0	0.0%
Fife	36	36	100%	0	0.0%	0	0.0%	1	2.8%
Lothian	81	74	91.4%	7	8.6%	0	0.0%	0	0.0%
SCAN	**162**	**153**	**94.4%**	**9**	**5.6%**	**0**	**0.0%**	**1**	**0.6%**

Table 7: Gender
N= All patients diagnosed

	Total Patients Diagnosed	Male		Female	
Borders	99	50	50.5%	49	49.5%
D&G	126	65	51.6%	61	48.4%
Fife	237	136	57.4%	101	42.6%
Lothian	614	329	53.6%	285	46.4%
SCAN	**1076**	**580**	**53.9%**	**496**	**46.1%**

Table 8: Age at Diagnosis
N=All patients diagnosed

Age	Borders		D&G		Fife		Lothian		SCAN	
<40	2	2.0%	0	0.0%	6	2.5%	8	1.3%	16	1.5%
40-49	3	3.0%	2	1.6%	8	3.4%	22	3.6%	35	3.3%
50-59	13	13.1%	17	13.5%	22	9.3%	72	11.7%	124	11.5%
60-69	22	22.2%	25	19.8%	56	23.6%	159	25.9%	262	24.3%
70-79	34	34.3%	41	32.5%	86	36.3%	182	29.6%	343	31.9%
80-89	20	20.2%	38	30.2%	50	21.1%	148	24.1%	256	23.8%
90+	5	5.1%	3	2.4%	9	3.8%	23	3.7%	40	3.7%
Total	**99**	**100%**	**126**	**100%**	**237**	**100%**	**614**	**100%**	**1076**	**100%**



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
90+	3.2%	3.9%	3.9%	3.0%	3.9%	4.4%	4.1%	4.1%	3.7%
80-89	23.9%	22.0%	23.7%	23.7%	24.9%	18.2%	21.5%	24.3%	23.8%
70-79	29.6%	32.7%	31.4%	32.3%	30.5%	34.3%	31.3%	31.7%	31.9%
60-69	27.4%	24.5%	24.1%	24.0%	23.8%	26.2%	23.9%	22.3%	24.3%
50-59	11.4%	12.9%	11.8%	11.9%	11.3%	12.5%	13.8%	12.5%	11.5%
40-49	3.4%	3.2%	3.7%	3.7%	3.1%	2.9%	3.2%	2.8%	3.3%
<40	1.0%	0.9%	1.4%	1.3%	2.4%	1.4%	2.1%	2.2%	1.5%

Table 9: Age at Diagnosis by Sex

N=All patients diagnosed

Age at Diagnosis	Borders		D&G		Fife		Lothian		SCAN	
	M	F	M	F	M	F	M	F	M	F
<45	0	2	1	0	9	1	13	9	**23**	**12**
45-49	0	3	0	1	2	2	6	2	**8**	**8**
50-54	1	4	2	4	7	4	17	14	**27**	**26**
55-59	5	3	8	3	5	6	18	23	**36**	**35**
60-64	5	3	5	3	18	8	39	34	**67**	**48**
65-69	10	4	9	8	17	13	55	31	**91**	**56**
70-74	6	10	9	15	26	27	52	48	**93**	**100**
75-79	10	8	8	9	24	9	48	34	**90**	**60**
80-84	10	6	15	11	16	14	49	39	**90**	**70**
85+	3	6	8	7	12	17	32	51	**55**	**81**
Total	50	49	65	61	136	101	329	285	**580**	**496**

Table 10: Tumour Site
N=All patients diagnosed

Site of Tumour	Borders		D&G		Fife		Lothian		SCAN	
Ascending Colon	12	12.1%	15	11.9%	31	13.1%	72	11.7%	**130**	**12.1%**
Caecum	9	9.1%	25	19.8%	43	18.1%	102	16.6%	**179**	**16.6%**
Colon, unspecified	1	1.0%	0	0.0%	1	0.4%	4	0.7%	**6**	**0.6%**
Descending Colon	3	3.0%	2	1.6%	13	5.5%	30	4.9%	**48**	**4.5%**
Hepatic Flexure	5	5.1%	9	7.1%	9	3.8%	32	5.2%	**55**	**5.1%**
Rectum	33	33.3%	36	28.6%	61	25.7%	140	22.8%	**270**	**25.1%**
Sigmoid Colon	22	22.2%	28	22.2%	56	23.6%	129	21.0%	**235**	**21.8%**
Splenic Flexure	2	2.0%	3	2.4%	6	2.5%	29	4.7%	**40**	**3.7%**
Transverse Colon	4	4.0%	8	6.3%	17	7.2%	41	6.7%	**70**	**6.5%**
Overlapping Lesion	8	8.1%	0	0.0%	0	0.0%	35	5.7%	**43**	**4.0%**
Not Recorded	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Missing Data	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	99	100%	126	100%	237	100%	614	100%	**1076**	**100%**

Table 11: Cancer Stage
N=All patients (final staging as reported by the Colorectal MDM)

	Borders		D&G		Fife		Lothian		SCAN	
Stage I	20	20.2%	26	20.6%	48	20.3%	109	17.8%	**203**	**18.9%**
Stage II	20	20.2%	25	19.8%	55	23.2%	134	21.8%	**234**	**21.7%**
Stage III	22	22.2%	26	20.6%	40	16.9%	150	24.4%	**238**	**22.1%**
Stage IV	16	16.2%	19	15.1%	63	26.6%	147	23.9%	**245**	**22.8%**
Not Applicable	17	17.2%	0	0.0%	28	11.8%	52	8.5%	**97**	**9.0%**
Not Recorded	4	4.0%	30	23.8%	3	1.3%	22	3.6%	**59**	**5.5%**
Total	99	100%	126	100%	237	100%	614	**100%**	**1076**	**100%**

This table has been updated from previous reports to account for the move from TNM 5 to TNM 8 Colorectal Cancer Staging.

Table 12: Clinical Stage IV

N=All patients diagnosed **presenting** with Final M1 Stage of disease at presentation

Patients presenting with Clinical Stage IV disease	Borders		D&G		Fife		Lothian		SCAN	
Metastatic Disease	12	12.1%	19	15.1%	64	27.0%	110	17.9%	**205**	**19.1%**
No Metastatic Disease	66	66.7%	87	69.0%	170	71.7%	421	68.6%	**744**	**69.1%**
Cannot Determine	17	17.2%	1	0.8%	0	0.0%	46	7.5%	**64**	**5.9%**
Not Recorded	4	4.0%	19	15.1%	3	1.3%	37	6.0%	**63**	**5.9%**
Missing Data	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	99	100%	126	100%	237	100%	614	100%	**1076**	**100%**

Table 13: Clinical Stage IV – SCAN yearly %Totals

SCAN Patients presenting with Clinical Stage IV disease	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Metastatic Disease	17.7%	24.0%	18.8%	22.2%	16.4%	22.8%	19.1%
No Metastatic Disease	64.5%	65.8%	72.2%	74.3%	78.0%	70.9%	69.1%
Cannot Determine	14.5%	8.8%	4.6%	0.7%	2.8%	4.5%	5.9%
Not Recorded	2.9%	1.2%	0.7%	2.8%	0.8%	1.8%	5.9%
Missing Data	0.3%	0.2%	4.8%	0.0%	2.0%	0.1%	0.0%

Table 14: Radiotherapy

N = All patients diagnosed with **rectal cancer** who received Radiotherapy or Chemoradiotherapy

	Borders		D&G		Fife		Lothian		SCAN	
Neo-adjuvant single therapy	5	50.0%	6	66.7%	14	56.0%	16	28.6%	**41**	**41.0%**
Neo-adjuvant combined therapy	1	10.0%	0	0%	6	24.0%	15	26.8%	**22**	**22.0%**
Neo-adjuvant Long Course RT only	0	0%	0	0%	0	0%	3	5.4%	**3**	**3.0%**
Neo-adjuvant Radiotherapy-Chemotherapy (RAPIDO approach)	0	0%	0	0%	4	16.0%	7	12.5%	**11**	**11.0%**
Primary radical	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
Adjuvant only	0	0%	3	33.3%	0	0%	2	3.6%	**5**	**5.0%**
Palliative	4	40%	0	0%	5	20.0%	14	25.0%	**23**	**23.0%**
Not Recorded	0	0%	0	0%	0	0%	6	10.7%	**6**	**6.0%**
Total	10	100%	9	100%	25	100%	56	100%	**100**	**100%**

Table 15: Chemotherapy
N=All patients who receive Chemotherapy or Chemoradiotherapy

	Borders		D&G		Fife		Lothian		SCAN	
Neo-adjuvant Combined therapy	1	5.0%	0	0%	6	9.1%	16	8.3%	**23**	**7.6%**
Palliative Combined therapy	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
Neo-adjuvant Chemotherapy	3	15.0%	3	11.5%	4	6.1%	7	3.6%	**17**	**5.6%**
Neo-adjuvant Radiotherapy-Chemotherapy (RAPIDO approach)	0	0%	0	0%	4	6.1%	7	3.6%	**11**	**3.6%**
Primary Chemotherapy	0	0%	0	0%	0	0%	0	0%	**0**	**0%**
Palliative Chemotherapy	3	15.0%	7	26.9%	22	33.3%	38	19.8%	**70**	**23.0%**
Adjuvant Chemotherapy	16	80.0%	19	73.1%	34	51.5%	114	59.4%	**183**	**60.2%**
Not Recorded	0	0%	0	0%	4	6.1%	10	5.2%	**14**	**4.6%**
Total	20	100%	26	100%	66	100%	192	100%	**304**	**100%**

Table 16: Staging - Screened Patients v Non-Screened Patients
N=All colorectal patients

	Borders		D&G		Fife		Lothian		SCAN	
SCREENED PATIENTS										
Stage I	10	10.1%	10	7.9%	22	9.3%	54	8.8%	**96**	**8.9%**
Stage II	7	7.1%	7	5.6%	7	3.0%	32	5.2%	**53**	**4.9%**
Stage III	11	11.1%	6	4.8%	14	5.9%	41	6.7%	**72**	**6.7%**
Stage IV	1	1.0%	2	1.6%	5	2.1%	7	1.1%	**15**	**1.4%**
Not Applicable	6	6.1%	0	0.0%	0	0.0%	0	0.0%	**6**	**0.6%**
Not Recorded	0	0.0%	5	4.0%	1	0.4%	0	0.0%	**6**	**0.6%**
Total - Screened	35		30		49		134		**248**	
NON-SCREENED PATIENTS										
Stage I	10	10.1%	16	12.7%	26	11.0%	55	9.0%	**107**	**9.9%**
Stage II	13	13.1%	18	14.3%	48	20.3%	102	16.6%	**181**	**16.8%**
Stage III	11	11.1%	20	15.9%	26	11.0%	109	17.8%	**166**	**15.4%**
Stage IV	15	15.2%	17	13.5%	58	24.5%	140	22.8%	**230**	**21.4%**
Not Applicable	15	15.2%	0	0.0%	28	11.8%	52	8.5%	**95**	**8.8%**
Not Recorded	0	0.0%	25	19.8%	2	0.8%	22	3.6%	**49**	**4.6%**
Total - Non-screened	64		96		188		480		**828**	
TOTAL PATIENTS	**99**	**100%**	**126**	**100%**	**237**	**100%**	**614**	**100%**	**1076**	**100%**

Table 17: Type of First Cancer Treatment
N=All colorectal patients

	Borders		D&G		Fife		Lothian		SCAN	
Surgery	61	61.6%	83	65.9%	139	58.6%	372	60.6%	**655**	**60.9%**
Radiotherapy	9	9.1%	7	5.6%	14	5.9%	36	5.9%	**66**	**6.1%**
Chemoradiotherapy	0	0.0%	1	0.8%	5	2.1%	15	2.4%	**21**	**2.0%**
SACT	3	3.0%	4	3.2%	12	5.1%	24	3.9%	**43**	**4.0%**
Radical Endoscopic (e.g. EMR)	9	9.1%	8	6.3%	15	6.3%	36	5.9%	**68**	**6.3%**
Palliative Endoscopic (e.g. stent)	0	0.0%	0	0.0%	0	0.0%	42	6.8%	**42**	**3.9%**
Other therapy	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Supportive Care only	15	15.2%	22	17.5%	36	15.2%	58	9.4%	**131**	**12.2%**
Patient died before treatment	0	0.0%	0	0.0%	3	1.3%	9	1.5%	**12**	**1.1%**
Patient refused treatment	2	2.0%	1	0.8%	13	5.5%	22	3.6%	**38**	**3.5%**
Not Recorded	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	99	100%	126	100%	237	100%	614	100%	**1076**	**100%**

Table 18: Surgical Approach
N=All colorectal cancer patients undergoing surgery

	Borders		D&G		Fife		Lothian		SCAN	
Laparoscopic	46	64.8%	22	25.9%	65	38.2%	200	40.7%	**333**	**40.7%**
Laparoscopic converted to Open	6	8.5%	9	10.6%	7	4.1%	42	8.5%	**64**	**7.8%**
Open	9	12.7%	51	60.0%	50	29.4%	151	30.7%	**261**	**31.9%**
Transanal Endoscopic Microsurgery	4	5.6%	1	1.2%	0	0.0%	15	3.0%	**20**	**2.4%**
Transanal Resection of Tumour	0	0.0%	1	1.2%	6	3.5%	2	0.4%	**9**	**1.1%**
Robotic	5	7.0%	0	0.0%	26	15.3%	18	3.7%	**49**	**6.0%**
Robotic converted to Open	1	1.4%	0	0.0%	2	1.2%	3	0.6%	**6**	**0.7%**
Endoscopic	0	0.0%	0	0.0%	11	6.5%	53	10.8%	**64**	**7.8%**
Not Recorded	0	0.0%	1	1.2%	3	1.8%	8	1.6%	**12**	**1.5%**
Total	71	100%	85	100%	170	100%	492	100%	**818**	**100%**

Table 19: Grade of Differentiation
N= All colorectal cancer patients

	Borders		D&G		Fife		Lothian		SCAN	
Well/Moderate	60	60.6%	92	74.2%	144	60.8%	380	61.9%	**676**	**62.9%**
Poor	17	17.2%	13	10.5%	31	13.1%	85	13.8%	**146**	**13.6%**
Not applicable (Mucinous or other special type)	0	0.0%	0	0.0%	15	6.3%	42	6.8%	**57**	**5.3%**
Not applicable (No path available)	20	20.2%	16	12.9%	40	16.9%	71	11.6%	**147**	**13.7%**
Not Recorded	2	2.0%	3	2.4%	7	3.0%	36	5.9%	**48**	**4.5%**
Total	99	1.0%	124	100.0%	237	100.0%	614	100.0%	**1074**	**100.0%**

Table 20: EMR/TEMS/TAMIS Resection

N= all patients having endoscopic mode of first treatment (excluding colonic stents)

	Borders		D&G		Fife		Lothian		SCAN	
Endoscopic Mucosal Resection	4		8		11		33		**56**	
EMR followed by definitive Surgery	0	0.0%	1	12.5%	4	36.4%	17	51.5%	**22**	**39.3%**
TEMS resection	3		0		0		11		**14**	
TEMS followed by definitive surgery	0	0.0%	0	N/A	0	N/A	0	0.0%	**0**	**0.0%**
TAMIS resection	1		0		6		0		**7**	
TAMIS followed by definitive surgery	0	0.0%	0	N/A	0	0.0%	0	N/A	**0**	**0.0%**

Table 21: Permanent Stoma rate is not more than 40% in patients with rectal tumours
(Old QIS Standard 8b1)

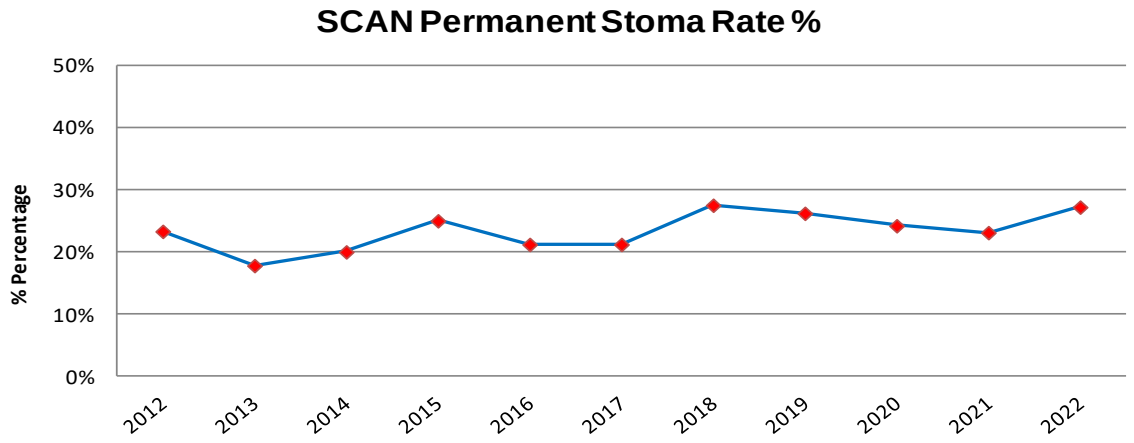
In many cases it is not possible to tell if a stoma is permanent until a number of years have passed. For the purposes of this report, a stoma is defined as permanent only for those procedures (abdominoperineal resection and colostomy and panproctocolectomy and ileostomy) which the stoma was fashioned with the intention of being permanent.

N= All Rectal Cancer patients undergoing elective surgery excluding non-definitive surgery

	Borders		D&G		Fife		Lothian		SCAN	
All Rectal Cancer patients undergoing elective Surgery	23		22		36		**81**		**162**	
Patients undergoing APER with Colostomy OR Panproctocolectomy with ileostomy left with a permanent stoma	2	8.7%	6	27.3%	11	30.6%	25	30.9%	**44**	**27.2%**

Table 22: SCAN %Permanent Stoma rates

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCAN	23.3%	17.8%	20.0%	25.0%	21.2%	21.2%	27.5%	26.2%	24.2%	23.1%	27.2%



Clinical Trial and Research Study Access

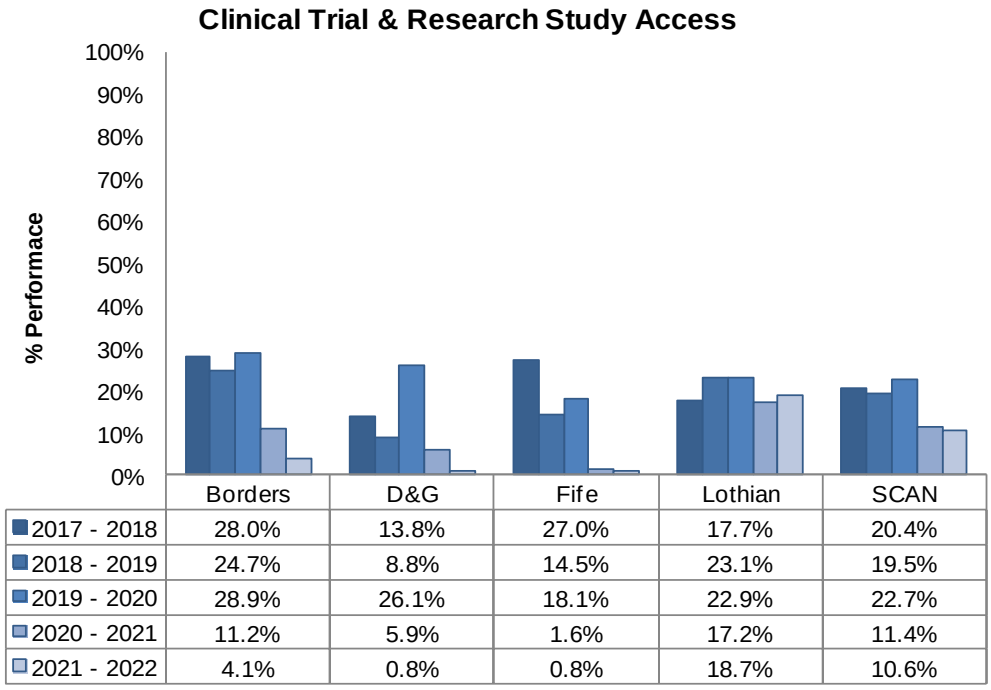
From this year the Clinical Trial and Research Study Access QPI has been dropped and will no longer be reported on as a QPI. However, it was felt useful by the Colorectal SCAN Group to keep reporting this data in the Key Category section of this report.

Numerator = Number of patients with colorectal cancer consented for a clinical trial/research study. Data provided by SCRN.

Denominator = Cancer Registry colorectal cancer 5 year average (2016-2020)

	Borders	D&G	Fife	Lothian	SCAN
Numerator	4	1	2	95	102
Denominator	98	119	241	508	966
% Performance	**4.1%**	**0.8%**	**0.8%**	**18.7%**	**10.6%**

Open Trials 2021	**Numbers consented**
A Phase I trial of LY3143921 hydrate in solid tumours	1
A study of NUC-7738 for the treatment of solid cancers or lymphoma	1
Add-Aspirin Trial	20
ANICCA-Class II	6
ART27.13-100	1
Biobank SR1418	34
CCP-Cancer UK	4
Cell Free DNA	1
LEAP 17	3
Mint5	5
Revolution Study – Lothian St Columba's Hospice	4
SCCAMP V1.0	12
Scottish Colorectal Cancer Genetic Susceptibility study 3 (SOCCS3)	9
Total	**101**
Trials not currently registered with SCRN (supplied by Clinician)	
CReST2	1

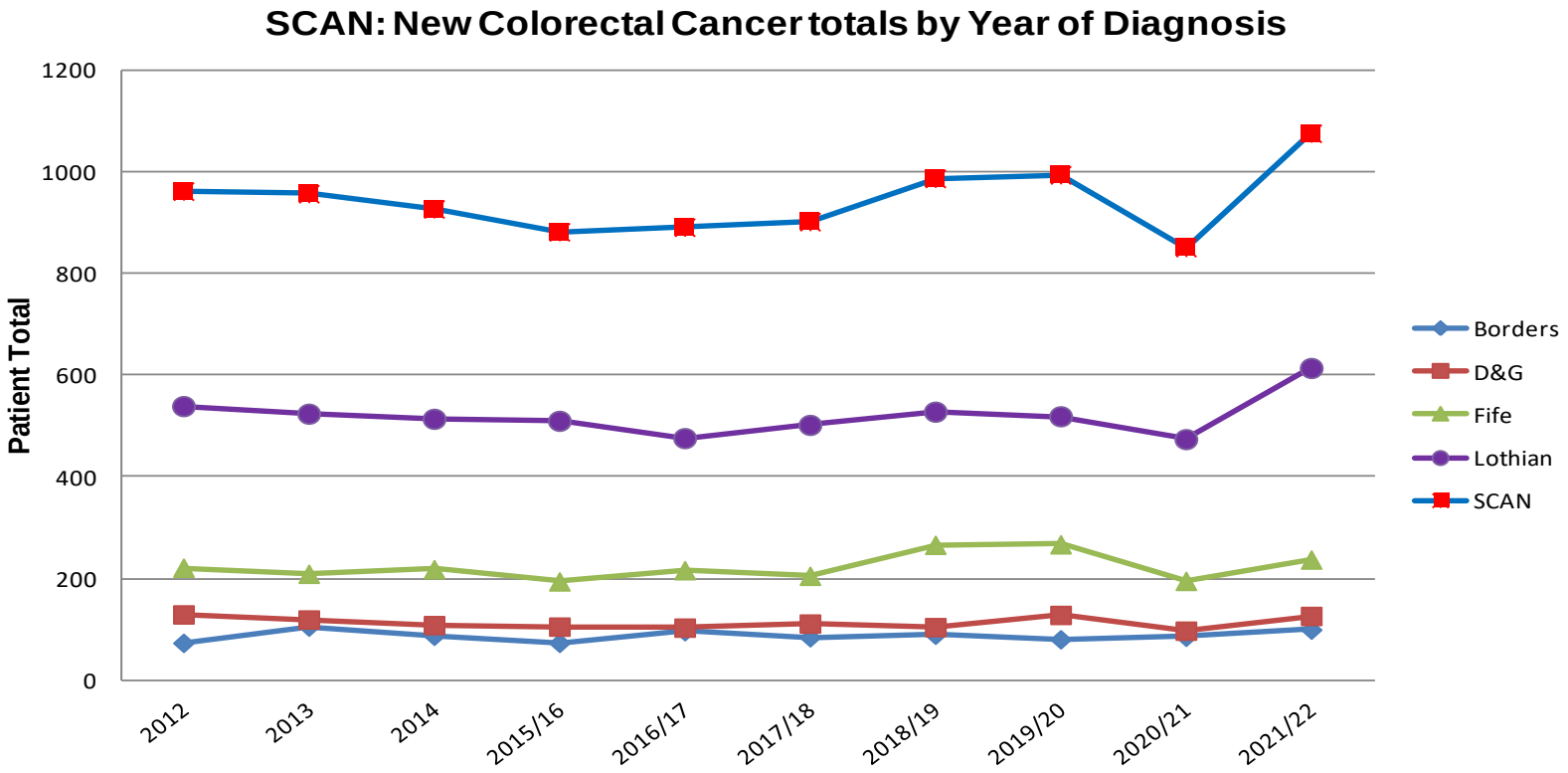


	Borders	D&G	Fife	Lothian	SCAN
2017 - 2018	28.0%	13.8%	27.0%	17.7%	20.4%
2018 - 2019	24.7%	8.8%	14.5%	23.1%	19.5%
2019 - 2020	28.9%	26.1%	18.1%	22.9%	22.7%
2020 - 2021	11.2%	5.9%	1.6%	17.2%	11.4%
2021 - 2022	4.1%	0.8%	0.8%	18.7%	10.6%

SCAN: New Colorectal Cancer totals by Year of Diagnosis

Note: Totals reflect collection of data by calendar year until 2015 when period of audit changed to financial year

	2012	2013	2014	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Borders	73	105	87	73	96	84	89	80	85	99
D&G	129	119	108	105	103	111	104	128	97	126
Fife	221	209	218	194	216	205	266	267	195	237
Lothian	539	524	514	510	476	502	528	519	474	614
SCAN	**962**	**957**	**927**	**882**	**891**	**902**	**987**	**994**	**851**	**1076**



CRC QPI Attainment Summary 2020-2021		Target%	Borders		D&G		Fife		Lothian		SCAN	
1. Radiological Staging & Diagnosis	Colon	95	N 25 D 25	100%	N 30 D 30	100%	N 73 D 73	100%	N 189 D 194	97.4%	N 317 D 322	98.4%
	Rectum	95	N 16 D 16	100%	N 14 D 15	93.3%	N 27 D 28	92.1%	N 57 D 58	98.3%	N 116 D 118	98.3%
2. Pre-operative imaging of the Colon		95	N 37 D 38	97.4%	N 35 D 38	92.1%	N 85 D 89	95.5%	N 200 D 219	91.3%	N 357 D 384	93.0%
5. Lymph Node Yield: surgical resection where ≥12 lymph nodes		90	N 39 D 44	88.6%	N 50 D 51	98.0%	N 97 D 105	92.4%	N 239 D 264	90.5%	N 425 D 464	91.6%
7. Surgical Margins	Primary surgery or surgery after short course XRT	95	N 11 D 11	100%	N 13 D 13	100%	N 20 D 20	100%	N 45 D 53	84.9%	N 89 D 97	91.8%
	After NACT, or long course XRT ± chemo, or short course XRT with long course intent	85	N 1 D 1	100%	N 2 D 2	100%	N 7 D 8	87.5%	N 11 D 11	100%	N 21 D 22	95.5%
8. Re-operation Rates		<10	N 3 D 50	6.0%	N 4 D 56	7.1%	N 6 D 123	4.9%	N 15 D 309	4.9%	N 28 D 538	5.2%
9. Anastomotic Dehiscence	Colon	<5	N 1 D 24	4.2%	N 0 D 31	0.0%	N 1 D 52	1.9%	N 3 D 130	2.3%	N 5 D 237	2.1%
	Rectum incl. TME	<10	N 0 D 14	0.0%	N 0 D 12	0.0%	N 2 D 49	4.1%	N 9 D 104	8.7%	N 11 D 179	6.1%
10i). 30 day mortality following surgical resection	Elective	<3	N 0 D 36	0.0%	N 0 D 45	0.0%	N 0 D 98	0.0%	N 1 D 234	0.4%	N 1 D 413	0.2%
	Emergency	<15	N 1 D 13	7.7%	N 0 D 11	0.0%	N 0 D 25	0.0%	N 3 D 74	4.1%	N 4 D 123	3.3%
10ii) 90 day mortality following surgical resection	Elective	<4	N 0 D 35	0.0%	N 1 D 43	2.3%	N 0 D 98	0.0%	N 1 D 229	0.4%	N 2 D 405	0.5%
	Emergency	<20	N 2 D 13	15.4%	N 0 D 11	0.0%	N 0 D 25	0.0%	N 8 D 74	10.8%	N 10 D 123	8.1%
11. Adjuvant Chemotherapy	HR Dukes B	50	N 3 D 5	60.0%	N 4 D 5	80.0%	N 6 D 9	66.7%	N 15 D 16	93.8%	N 28 D 35	80.0%
	Dukes C	70	N 5 D 8	62.5%	N 0 D 0	N/A	N 19 D 26	73.1%	N 31 D 40	77.5%	N 55 D 74	74.3%

CRC QPI Attainment Summary 2020-2021		Target%	Borders	D&G	Fife	Lothian	SCAN
12i) 30 day Mortality after Curative Oncological Treatment	Neo-adjuvant	<1	N 0 D 2 0.0%	N 0 D 3 0.0%	N 0 D 5 0.0%	N 0 D 9 0.0%	N 0 D 19 0.0%
	Radiotherapy	<1	N 0 D 6 0.0%	N 0 D 5 0.0%	N 0 D 13 0.0%	N 0 D 24 0.0%	N 0 D 48 0.0%
	Adjuvant Chemotherapy	<1	N 0 D 13 0.0%	N 0 D 14 0.0%	N 0 D 35 0.0%	N 0 D 77 0.0%	N 0 D 139 0.0%
12i) 90 day Mortality after Curative Oncological Treatment	Neo-adjuvant	<1	N 0 D 2 0.0%	N 0 D 3 0.0%	N 0 D 5 0.0%	N 0 D 9 0.0%	N 0 D 19 0.0%
	Radiotherapy	<1	N 0 D 6 0.0%	N 0 D 5 0.0%	N 0 D 13 0.0%	N 0 D 24 0.0%	N 0 D 48 0.0%
	Adjuvant Chemotherapy	<1	N 0 D 13 0.0%	N 0 D 12 0.0%	N 0 D 35 0.0%	N 1 D 63 1.6%	N 1 D 123 0.8%
12ii). 30 day Mortality after Palliative Chemotherapy		<10	N 1 D 7 14.3%	N 0 D 4 0.0%	N 2 D 16 12.5%	N 0 D 34 0.0%	N 3 D 61 4.9%
13. Clinical Trials		15	N 11 D 98 11.2%	N 7 D 119 5.9%	N 4 D 243 1.6%	N 90 D 523 17.2%	N 112 D 983 11.4%

KEY	*Numerator (N)*	*% Performance*
	Denominator (D)	

GLOSSARY

Active treatment: Treatment which is intended to improve the cancer and/or alleviate symptoms, as opposed to supportive care.

Adenocarcinoma: A malignant growth of glandular tissue.

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 rejoining 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

Audit: The measuring and evaluation of care against best practice with a view to improving current practice and care delivery.

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.

Cancer: The name given to a group of diseases that can occur in any organ of the body, and in blood, and which involve abnormal uncontrolled growth of cells.

Cancer Centre: Cancer services are based in cancer centres. Such centres provide the entire spectrum of cancer care - both on-site and to associated cancer units.

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 Governance: Ensures that patients receive the highest quality of care possible, putting each patient at the centre of his or her care. This is achieved by making certain that those providing services work in an environment that supports them and places the safety and quality of care at the top of the organisation's agenda.

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.

Dataset: A list of required and specific information relating to a single disease.

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.

HIS Healthcare Improvement Scotland: Healthcare Improvement Scotland (HIS) brings together the roles of the former Clinical Standards Board of Scotland (CSBS) and NHS Quality Improvement Scotland (NHS QIS). This is a statutory body whose purpose is to support healthcare providers in Scotland to deliver high quality, evidence-based, safe, effective and person-centred care; and to scrutinise those services to provide public assurance about the quality and safety of that care. www.healthcareimprovementscotland.org

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.

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).

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 Meeting (MDM): 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 Therapy: The use of chemotherapy and/or radiotherapy prior to surgery. The aim of neo-adjuvant therapy is to reduce the size of any cancerous tumour.

NCA: North Cancer Alliance.

Oncologist: A doctor who specialises in the treatment of cancer patients. A clinical oncologist, or radiotherapist, specialises in treating cancer with radiation or drugs, and a medical oncologist specialises in treating cancer with drugs.

Outcome: A measure of effects, beneficial or adverse, which a person experiences as a result of the care, treatments or services they have received.

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).

PHS: Public Health Scotland is Scotland's lead national agency for improving and protecting the health and wellbeing of all Scotland's people. www.publichealthscotland.scot

Polyp: A small finger-like growth arising from the skin or a mucus surface, usually attached by a stem.

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.

Quality assurance (QA): When a sample of data is compared with the data definitions.

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.
SACT: All anti-cancer drug treatments such as chemotherapy and immunotherapy.
SCAN: South East Scotland Cancer Network.
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.
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 resection of tumour (TART): Surgical procedure performed to remove a tumour in the rectum through the anus.
WoSCAN: West of Scotland Cancer Network.