SCAN
South East Scotland Cancer Network

NHS SCOTLAND

Working regionally to improve cancer services

SOUTH EAST SCOTLAND CANCER NETWORK
PROSPECTIVE CANCER AUDIT

COLORECTAL CANCER 2019 – 2020
Quality Performance Indicators (QPI)
Comparative Report

Mr S Yalamarthi, NHS Fife, Lead Colorectal Cancer Clinician, SCAN Group Chair

Mr K Pal, NHS Borders
Mr S Whitelaw, NHS Dumfries & Galloway
Mr N Manimaran, NHS Fife
Mr D Speake, NHS Lothian
Dr S Glancy, Consultant Radiologist, NHS Lothian, Deputy SCAN Group Chair
Dr H Philips, Clinical Oncologist, NHS Lothian

Sarah Buchan
SCAN Colorectal Cancer Audit Facilitator

Leanne Robinson, Cancer Audit Facilitator, NHS Borders
Christy Bell, Cancer Audit Facilitator, NHS Dumfries & Galloway
Jennifer Bruce, Senior Analyst, NHS Dumfries & Galloway
Maureen Lamb, Cancer Audit Facilitator, NHS Fife

Report number: SA C01/21 W

SCAN Audit Office, c/o Department of Clinical Oncology,
Western General Hospital, Crewe Road, Edinburgh EH4 2XU
T: 0131 537 2266
W: **www.scan.scot.nhs.uk**
Lorna.Bruce@luht.scot.nhs.uk

Contents

Document History

Version	Circulation	Date	Comments
Version 1	Lead Clinicians' Sign off Group	11/11/2020	Circulated prior to Lead Sign off Meeting on 20/11/2020
Version 2	Lead Clinicians	25/11/2020	Minor corrections. Lead clinicians commentary added
Version 3	SCAN Group for final comments	18/12/2020	No comments received
Version 4	SCAN Group, SCAN Governance Framework, SCAN Board Executive Leads	19/01/2021	No comments received.
Version 4w	Published to SCAN Website	05/04/2021	Disclosure check completed. Web Version released.

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 2019 – 31st March 2020. Once again, the SCAN Audit Team and Sarah Buchan in particular, have worked well to compile the data which 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. The accuracy of data recording has been 99%, which is commendable. SCAN data continue to hold up extremely well in comparison to other UK areas in terms of surgical outcomes for colorectal cancers. Towards the end of the audit year, COVID restrictions came into play affecting some activity.

Along with other tumour specific groups, we took part in the Health improvement Scotland QPI review in August 2019. The HIS team were very positive and complimentary, highlighting amongst other things, the teamwork, dedication and cross regional working across SCAN.

A total of 994 colorectal cancers were recorded on the Audit for the year, with 726 (72%) being colonic cancers and 268 rectal cancers (28%). This is marginally higher compared to the previous year (987 cancers).

Compliance to complete radiological staging for colon cancers has been high (98.4%) and is comparable to the previous year. This QPI was an area for development a few years back. Similarly for rectal cancer patients, 97.5% had their appropriate radiological staging. The radiology services have done well in delivering on this aspect of the patient journey.

For the second year running since the start of the QPIs, SCAN has delivered on the target for complete pre-operative colonic imaging. We have been able to complete the colonic imaging in 96% of patients. Pre-operative stoma marking by a stoma nurse has been consistently high with 99.3% of patients having their stoma site marked.

Overall, 77% of cancer patients had surgical intervention. Amongst those who had definitive surgery- the curative resection rate was 94% for colonic cancers and 98% for rectal cancers. These have been the highest in SCAN, which is reflective of selecting a very high volume of patients with curative intent.

Despite the intervention of screening and other modalities of presentation over the years, the emergency operations still continue to be close to 1 in 5 of all cancers (18% this year).

Radiotherapy was offered to just more than 1 in 3 rectal cancer patients (101- 37.7%), with 31.7% of these patients receiving neoadjuvant chemoradiotherapy and 40.5% short course radiotherapy. Palliative radiotherapy was used in 19.8% of patients. This year, 75% of patients with threatened or involved CRM on pre-operative MRI scan received neo-adjuvant therapy. Review of the data revealed that the majority of the threatened margins were due to nodes and patients went direct for surgery with subsequent clear resection margins. Few of these patients had short course radiotherapy with longer waits.

Laparoscopic surgery continues to be offered to majority of patients (57%) with a conversion rate of nearly 10%. The rates of laparoscopic surgery vary across the region (33% to 69%). Amongst those having definitive surgery, TEMS has been used as a modality of treatment in 7 patients (1%), which is lower than previous years.

Robotic Assisted Surgery (RAS) for colorectal cancers has commenced in SCAN this year with 31 cancer resections done by the Lothian team.

In terms of surgical results, there were more positive resection margins with rectal cancer surgery following radiotherapy this year (7/43). Relatively smaller numbers amongst those with chemo-radiotherapy accounts for this higher percentage.

Anastomotic leak rates for colonic and rectal cancer surgery continue to be low (1% for colonic and 5.2% for rectal cancer surgery). Overall re-operation rate was 4.2% which compares very favourably with other high performing regions across the UK.

30-day mortality for Elective and Emergency surgery were 0.5% and 2.4%,with 90-day mortality figures and 0.5% and 5.7% respectively. This compares well with National Large Bowel Cancer Audit.

Oncological input continues to be delivered by our excellent team of Oncologists within the region. Adjuvant Chemotherapy was delivered to 59.6% of High-risk Dukes B and 83% of Dukes C patients and both were above their respective targets of 50% and 70% respectively. Mortality rates after Chemotherapy and Radiotherapy have been very low as in previous years.

Overall, it has been a good year with high standards of care being delivered across the region. Whilst it is important to maintain these good results in future years, there will be continued pressures especially during the current pandemic. The focus of the group is to continue making progressive improvements in line with current best practice and ensure that the standards of care are maintained across the network. The main highlight this year was the safe introduction of RAS in SCAN which has come from Lothian.

As Chairs of the group, we would like to thank all members of the Network for their continued support in delivering the best possible care for our colorectal cancer patients.

Dr Stephen Glancy
Deputy Chair SCAN Colorectal Group

Mr Satheesh Yalamarthi
Chair SCAN Colorectal Group

Action points for 2019-20

QPI	Action required	Person Responsible	Date for update
QPI 3	Patients should be referred to the MDM for registration purposes. Audit staff should feedback to MDT if patients identified by audit staff have not been registered with the MDT.	Leanne Robinson/ Christy Bell/Maureen Lamb/Sarah Buchan	January 2022
QPI 5	Pathology outliers should be reviewed by a Pathologist prior to Regional Sign off. Sarah Buchan will liaise with Leanne Robinson if necessary for next year's report.	Leanne Robinson Sarah Buchan	January 2022

Action Points from 2018-19

QPI	Action required	Progress
QPI 4	NHS D&G to provide explanation for not meeting QPI 4: Stoma Care, **3 cases**	All 3 cases reviewed by lead clinician. All were unplanned stoma formations and no learning identified
QPI 8	NHS D&G to provide explanation for not meeting QPI 8: Reoperation Rates (elective)**, 8 cases**	All cases reviewed by lead clinician, no recurrent themes noted and all elective patients made a full recovery
QPI 10	NHS D&G to provide explanation for not meeting QPI 10: 30d mortality in Emergency surgery, **2 cases**	Cases reviewed, patients presented with acute bowel obstructions and palliative procedures undertaken. Reviewed in M&M meeting and no learning identified

CRC QPI Attainment Summary 2019-20			Target%	Borders		D&G		Fife		Lothian		SCAN	
1. Radiological Staging & Diagnosis		Colon	95	N 33 D 34	97.1%	N 57 D 59	96.6%	N 117 D 117	100%	N 211 D 215	98.1%	N 418 D 425	98.4%
		Rectum	95	N 14 D 14	100%	N 18 D 20	90.0%	N 38 D 40	95.0%	N 83 D 83	100%	N 153 D 157	97.5%
2. Pre-operative imaging of the Colon			95	N 46 D 48	95.8%	N 67 D 71	94.4%	N 142 D 148	95.9%	N 254 D 263	96.6%	N 509 D 530	96.0%
3. MDT before definitive treatment			95	N 63 D 66	95.5%	N 107 D 112	95.5%	N 217 D 226	96.0%	N 377 D 398	94.7%	N 764 D 802	95.3%
4. Stoma Care: stoma site marked pre-operatively			95	N 14 D 14	100%	N 26 D 26	100%	N 32 D 33	97.0%	N 77 D 77	100%	N 149 D 150	99.3%
5. Lymph Node Yield: surgical resection where ≥12 lymph nodes			90	N 49 D 57	86.0%	N 78 D 80	97.5%	N 141 D 163	86.5%	N 282 D 308	91.6%	N 550 D 608	90.5%
6. Neo-adjuvant Radiotherapy (rectal)			90	N 0 D 0	n/a	N 1 D 2	50.0%	N 11 D 13	84.6%	N 24 D 33	72.7%	N 36 D 48	75.0%
7. Surgical Margins	Primary surgery or surgery after short course XRT		95	N 13 D 13	100%	N 15 D 15	100%	N 28 D 29	96.6%	N 57 D 60	95.0%	N 113 D 117	96.6%
	After NACT, or long course XRT ± chemo, or short course XRT with long course intent		85	N 2 D 2	100%	N 4 D 4	100%	N 10 D 11	90.9%	N 20 D 26	76.9%	N 36 D 43	83.7%
8. Re-operation Rates			<10	N 3 D 59	5.1%	N 6 D 86	7.0%	N 8 D 184	4.3%	N 12 D 357	3.4%	N 29 D 689	4.2%
9. Anastomotic Dehiscence		Colon	<5	N 0 D 32	0.0%	N 1 D 34	2.9%	N 1 D 86	1.2%	N 1 D 160	0.6%	N 3 D 312	1.0%
		Rectum incl. TME	<10	N 0 D 16	0.0%	N 1 D 24	4.2%	N 2 D 62	3.2%	N 9 D 130	6.9%	N 12 D 232	5.2%
		TME	<20	N D	-	N D	-	N D	-	N D	-	N D	-
10i). 30 day mortality following surgical resection		Elective	<3	N 0 D 48	0.0%	N 2 D 77	2.6%	N 0 D 160	0.0%	N 1 D 275	0.4%	N 3 D 563	0.5%
		Emergency	<15	N 0 D 11	0.0%	N 2 D 9	22.2%	N 0 D 24	0.0%	N 1 D 79	1.3%	N 3 D 123	2.4%

CRC QPI Attainment Summary 2019-20		Target%	Borders		D&G		Fife		Lothian		SCAN	
10ii) 90 day mortality following surgical resection	Elective	<4	N 0 D 48	0.0%	N 2 D 77	2.6%	N 0 D 160	0.7%	N 1 D 272	0.4%	N 3 D 557	0.5%
	Emergency	<20	N 1 D 11	9.1%	N 3 D 9	33.3%	N 0 D 24	0.0%	N 3 D 79	3.8%	N 7 D 123	5.7%
11. Adjuvant Chemotherapy	HR Dukes B	50	N 2 D 6	33.3%	N 2 D 4	50.0%	N 10 D 20	50.0%	N 17 D 22	77.3%	N 31 D 52	59.6%
	Dukes C	70	N 6 D 10	60.0%	N 6 D 8	75.0%	N 26 D 30	86.7%	N 55 D 64	85.9%	N 93 D 112	83.0%
12i) 30 day Mortality after Curative Oncological Treatment	Neo-adjuvant	<1	N 0 D 1	0.0%	N 0 D 1	0.0%	N 0 D 9	0.0%	N 0 D 22	0.0%	N 0 D 33	0.0%
	Radiotherapy	<1	N 0 D 5	0.0%	N 0 D 2	0.0%	N 0 D 12	0.0%	N 0 D 21	0.0%	N 0 D 40	0.0%
	Adjuvant Chemotherapy	<1	N 0 D 17	0.0%	N 0 D 15	0.0%	N 0 D 45	0.0%	N 1 D 108	0.9%	N 1 D 185	0.5%
12i) 90 day Mortality after Curative Oncological Treatment	Neo-adjuvant	<1	N 0 D 1	0.0%	N 0 D 1	0.0%	N 0 D 9	0.0%	N 0 D 22	0.0%	N 0 D 33	0.0%
	Radiotherapy	<1	N 0 D 5	0.0%	N 0 D 2	0.0%	N 0 D 12	0.0%	N 0 D 21	0.0%	N 0 D 40	0.0%
	Adjuvant Chemotherapy	<1	N 0 D 13	0.0%	N 0 D 13	0.0%	N 1 D 40	2.5%	N 1 D 101	1.0%	N 2 D 167	1.2%
12ii). 30 day Mortality after Palliative Chemotherapy		<10	N 0 D 4	0.0%	N 0 D 4	0.0%	N 0 D 20	0.0%	N 3 D 29	10.3%	N 3 D 57	5.3%
13. Clinical Trials		15	N 28 D 97	28.9%	N 31 D 119	26.1%	N 42 D 232	18.1%	N 119 D 520	22.9%	N 220 D 968	22.7%

Key

Numerator (N)	% Performance
Denominator (D)	

Introduction and Methods

Cohort and Personnel

This report is the thirteenth 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 2019 to 31 March 2020.

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	Leanne Robinson
NHS Dumfries & Galloway	Dumfries & Galloway Royal Infirmary	Mr Stuart Whitelaw	Christy Bell/ Jennifer Bruce
NHS Fife	Victoria Hospital	Mr Natarajan Manimaran	Maureen Lamb
SCAN & NHS Lothian	Western General Hospital	Mr Doug Speake	Sarah Buchan

Audit Processes and data recording

Data was analysed by the audit facilitators in each NHS Board according to the measurability document provided by ISD. 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 NHS National Services Scotland.

In all Boards the data was collected using E-case and analysed using SSRS.

Dataset and Definitions

The QPIs have been developed collaboratively with the three Regional Cancer Networks, Information Services Division (ISD), 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 ISD website[2]. NHS boards are required to report against QPIs as part of a mandatory, publicly reported, programme at a national level.

The QPI dataset for Colorectal was implemented from 01/04/2013. Following year 3 results the Colorectal QPIs were subject to a formal review and revised documents for data collection were published in August 2017. This is the seventh publication of QPI results for colorectal cancer within SCAN.

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 are available at www.healthcareimprovementscotland.org
[2] Datasets and measurability documents are available at www.isdscotland.org

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 01.04.2019 to 31.03.2020

	Borders	D&G	Fife	Lothian	SCAN
Colon cancer	57	99	195	375	**726**
Rectal cancer	23	29	72	144	**268**
Total	80	128	267	519	**994**

Estimate of case ascertainment: calculated using the average of the most recent available five years of Cancer Registry Data (2014-2018)

	Borders	D&G	Fife	Lothian	SCAN
Cases from Audit	80	128	267	519	**994**
Cancer Registry 5 Year Average	97	119	232	520	**968**
Case Ascertainment %	82.5	107.6	115.1	99.8	**102.7**

Source: Scottish Cancer Registry, ISD. Data extracted from ACaDMe on 16/10/2020. 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 ISD Scotland, (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 is due in February 2021.

	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 20th November 2019.
- Final report circulated to SCAN Colorectal Group and Clinical Governance Framework on 19/01/2021.

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.

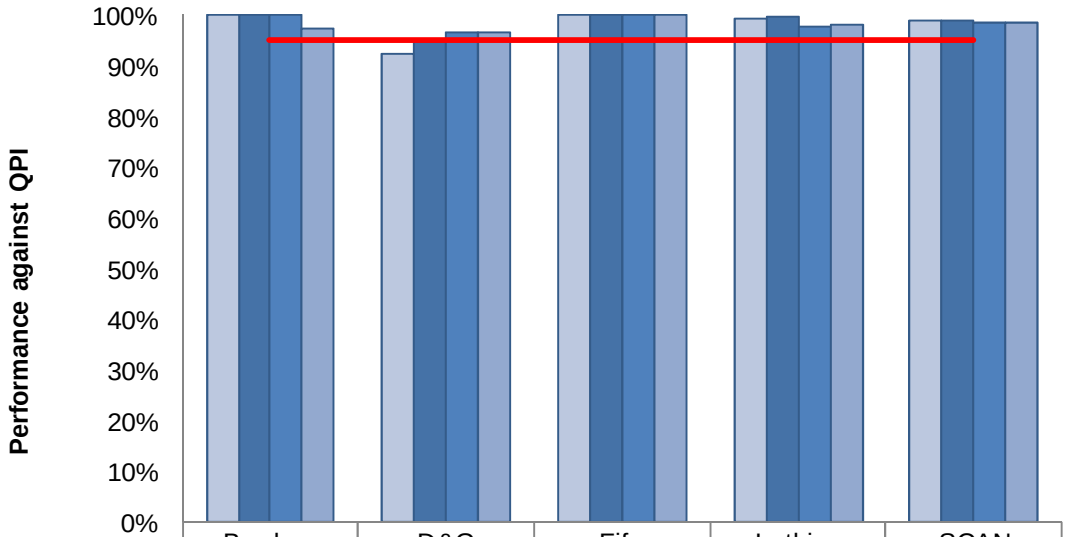
Denominator = All patients with **colon cancer.**

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

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2019-2020 Cohort	80	128	267	519	**994**
Ineligible for this QPI	46	69	150	304	**569**
Numerator	33	57	117	211	**418**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	34	59	117	215	**425**
Not Recorded for Exclusion	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Performance	97.1%	96.6%	100%	98.1%	**98.4%**

All Boards met this QPI

QPI 1 (i) Radiological Diagnosis & Staging - Colon Cancer
2016/17 to 2019/20

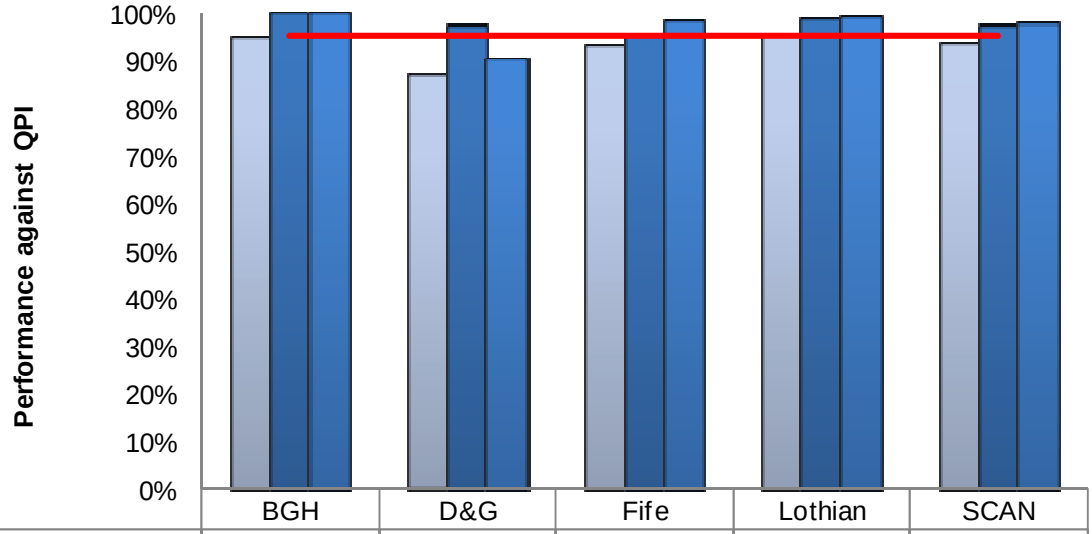


	Borders	D&G	Fife	Lothian	SCAN
2016/17	100	92.3	100	99.0	98.6
2017/18	100	94.5	100	99.4	98.9
2018/19	100	96.4	100	97.6	98.3
2019/20	97.1	96.6	100	98.1	98.4
QPI Target 95%	95	95	95	95	95

Following formal review after year 3, QPI 1 (i) was updated. The inclusion of appendiceal cancers was removed from the dataset and additional exclusions were added; (d) Patients who undergo palliative treatment (chemotherapy, radiotherapy or surgery) (e) Patients who die before first treatment.

Below are the QPI 1 (i) figures from the first 3 years of QPI collection.

QPI 1 (i) Radiological Diagnosis & Staging - Colon Cancer 2013/14 to 2015/16



	BGH	D&G	Fife	Lothian	SCAN
2013/14	94.9	87.1	92.8	95.3	93.3
2014/15	100	97.1	95.3	98.4	97.3
2015/16	100	90.5	98.1	98.8	97.9
QPI Target 95%	95	95	95	95	95

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).

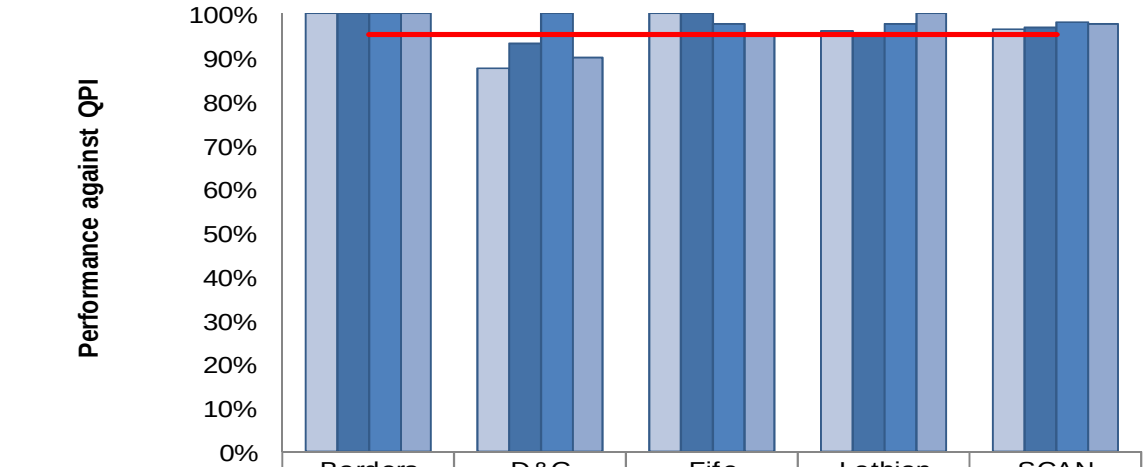
Exclusions = Patients who decline investigation. Patients who undergo emergency surgery[3] Patients with a contraindication to MRI. Patients who undergo Transanal Endoscopic Microsurgery (TEM). Patients who undergo Transanal Resection of Tumour (TART). Patients who undergo palliative treatment (chemotherapy,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

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2019-20 Cohort	80	128	267	519	**994**
Ineligible for this QPI	66	108	227	436	**837**
Numerator	14	18	38	83	**153**
Not Recorded for Numerator	0	0	0	0	**0**
Denominator	14	20	40	83	**157**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Recorded	100%	90.0%	95.0%	100%	**97.5%**

Comments where this QPI was not met:

D&G: This QPI was not met with a shortfall of 5% (2 cases) **-** One had no MRI rectum but MRI liver due to liver metastases (see comment). One had surgery for presumed benign rectal polyp, no MRI rectum performed and histology revealed cancer.

QPI 1 (ii) Radiological Diagnosis & Staging - Rectal Cancer 2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	100	87.5	100	96.1	96.5
2017/18	100	93.3	100	95.5	96.6
2018/19	100	100	97.8	97.5	98.1
2019/20	100	90.0	95.0	100	97.5
QPI Target 95%	95	95	95	95	95

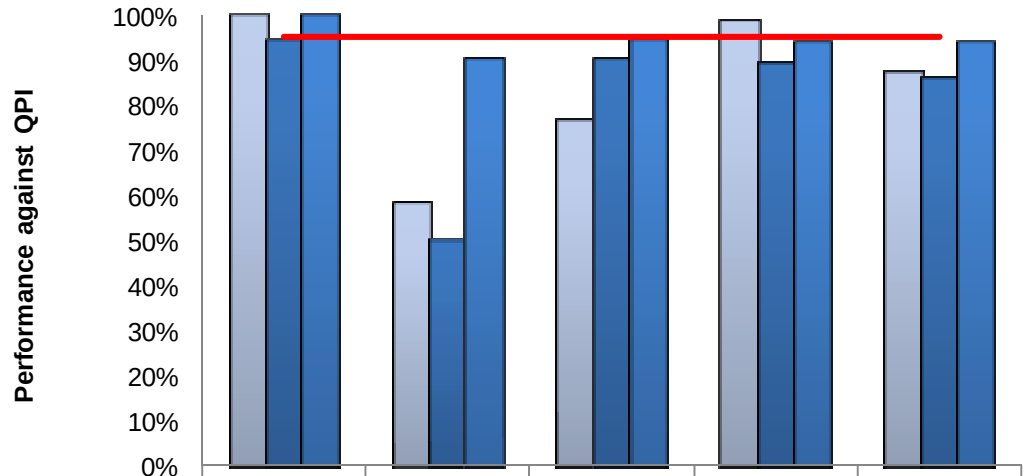
[3] Emergency surgical resection is defined by the Consultant in Charge of the patient's care

Comment:

D&G were asked at Regional Sign off to recheck one case that did not meet the QPI. This was done and D&G confirmed they are happy the case has been included appropriately in this QPI (liver metastases not confirmed by MRI liver until after definitive surgery) and the data should stay as originally submitted.

Note: Following formal review after year 3, QPI 1 (ii) was updated. Additional exclusions were added; Patients who undergo Transanal Endoscopic Microsurgery (TEM),Transanal Resection of Tumour (TART), palliative treatment or those who die before first treatment. Below are the QPI 1(ii) figures comparing the first 3 years of data collected.

QPI 1 (ii) Radiological Diagnosis & Staging - Rectal Cancer 2013/14 to 2015/16



	Borders	D&G	Fife	Lothian	SCAN
2013/14	100	58.3	76.5	98.8	86.9
2014/15	94.7	50.0	90.0	89.2	85.7
2015/16	100	90.0	94.6	94.4	94.4
QPI Target 95%	95	95	95	95	95

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.

Denominator = All patients who undergo elective surgical resection for colorectal cancer.

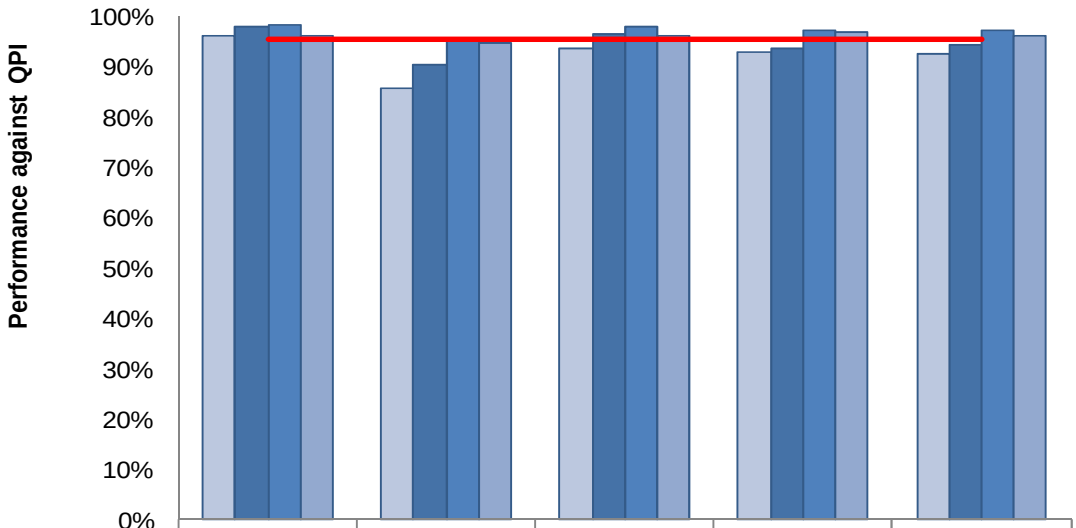
Exclusions = Patients who undergo palliative surgery. Patients who have incomplete bowel imaging due to obstructing tumour.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2019-20 Cohort	80	128	267	519	**994**
Ineligible for this QPI	32	57	119	256	**464**
Numerator	46	67	142	254	**509**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	48	71	148	263	**530**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for the Denominator	0	0	0	1	**1**
% Percentage	95.8%	94.4%	95.9%	96.6%	**96.0%**

Comments where this QPI was not met:

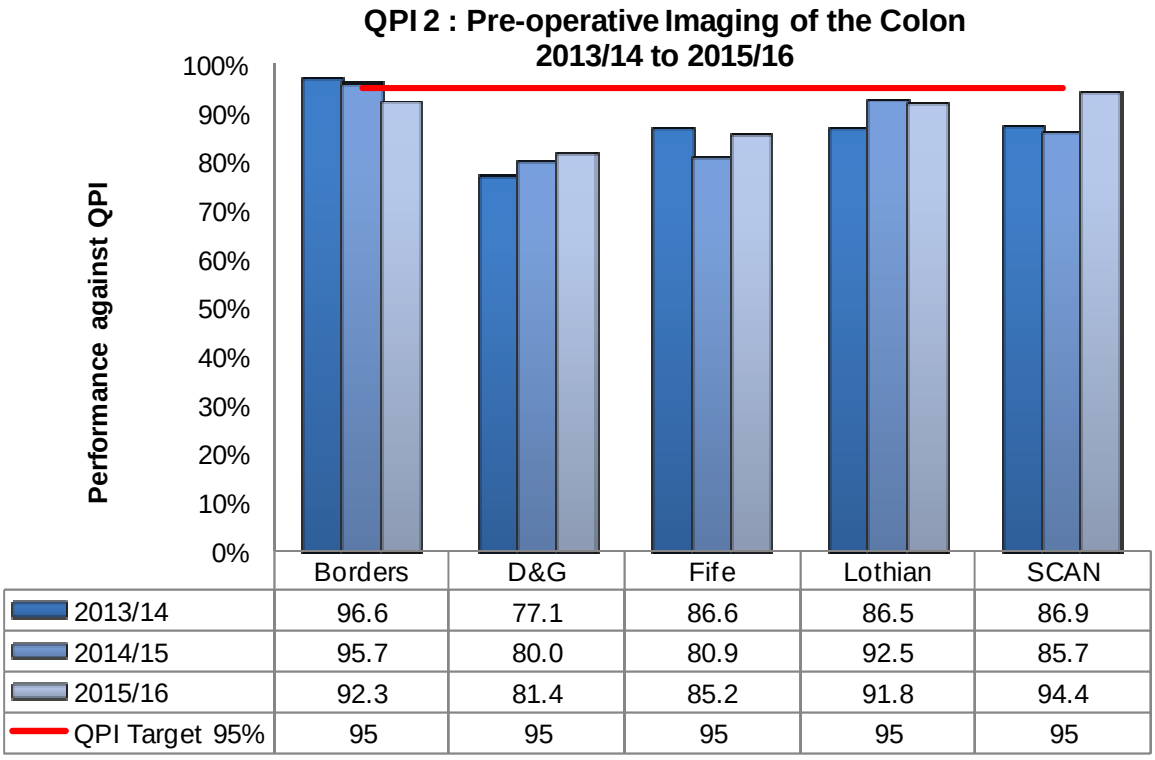
D&G: This QPI was not met with a shortfall of 0.6% (4 cases) - One had obstructing sigmoid lesion on sigmoidoscopy had CT C/A/P rather than CT colon; one had sigmoidoscopy only; one was initially deemed unfit for resection, had sigmoidoscopy and CT C/A/P, subsequently pre-assessed- high risk but opted to proceed to Hartmann's; one ano-rectal tumour, had sigmoidoscopy, CT and MRI pre-op but not full colonoscopy.

QPI 2 Pre-operative Imaging of the Colon
2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	95.8	85.5	93.4	92.5	92.3
2017/18	97.6	90.2	96.4	93.2	94.0
2018/19	98.1	95.1	97.8	96.9	97.0
2019/20	95.8	94.4	95.9	96.6	96.0
QPI Target 95%	95	95	95	95	95

Following formal review after year 3 QPI 2 was updated: The inclusion of appendiceal cancers was removed from the dataset. A new value was added to the field Large Bowel Imaging in the Colorectal Data Definitions, “Incomplete due to obstructing tumour”. This value has been added for patients diagnosed from year 5 (01/04/2017 to 31/03/2018). Below are QPI 2 figures from the first 3 years of QPI collection.



	Borders	D&G	Fife	Lothian	SCAN
2013/14	96.6	77.1	86.6	86.5	86.9
2014/15	95.7	80.0	80.9	92.5	85.7
2015/16	92.3	81.4	85.2	91.8	94.4
QPI Target 95%	95	95	95	95	95

QPI 3: Multi-Disciplinary Team (MDT) Meeting

Target 95%

Numerator = Number of patients with colorectal cancer discussed at the MDT before definitive treatment.

Denominator = All patients with colorectal cancer.

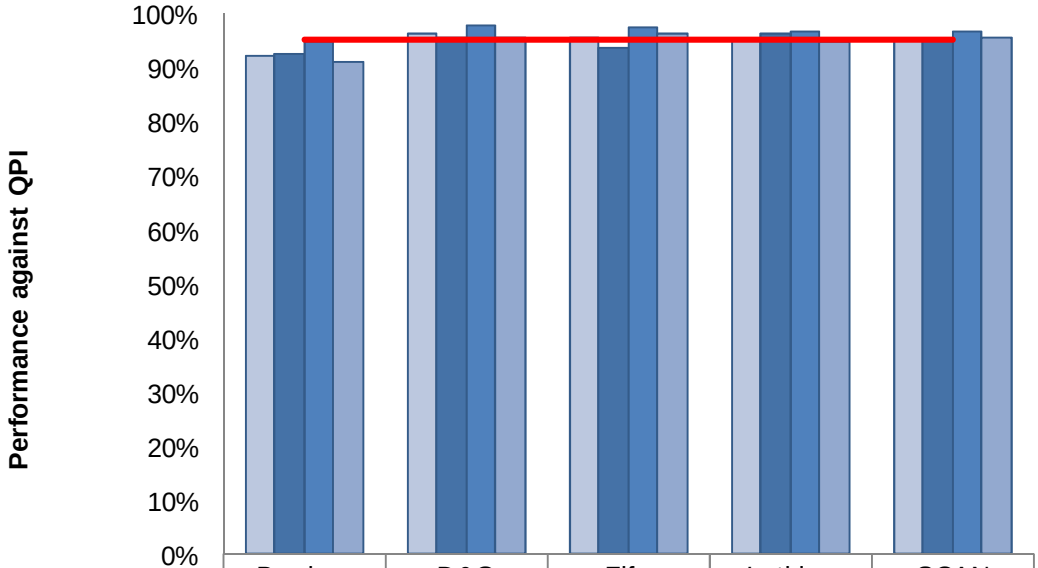
Exclusions = Patients who died before first treatment, patients undergoing emergency surgery and patients undergoing treatment with endoscopic polypectomy only.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
2019-20 Cohort	80	128	267	519	**994**
Ineligible for this QPI	14	16	41	121	**192**
Numerator	63	107	217	377	**764**
Not Recorded for Numerator	0	0	0	0	**0**
Denominator	66	112	226	398	**802**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Recorded	95.5%	95.5%	96.0%	94.7%	**95.3%**

Comments where the QPI was not met:

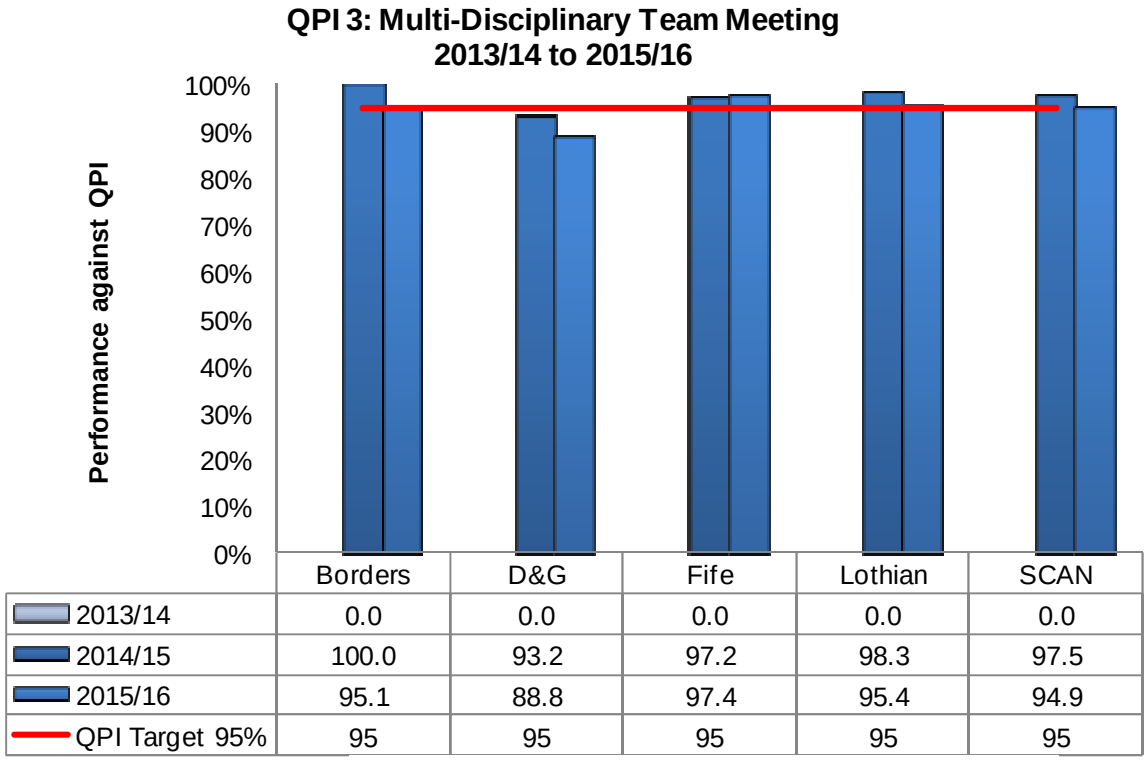
Lothian: The target was not met showing a shortfall of 0.3% (21 cases) - 2 had cancer found unexpectedly at surgery. 3 had surgery before discussion at MDM. 16 were not discussed, of which 3 declined treatment and 13 for supportive care only.

QPI 3: Multi-Disciplinary Team Meeting
2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	92.2	96.3	95.5	95.0	94.9
2017/18	92.4	95.3	93.4	96.1	95.0
2018/19	94.7	97.7	97.2	96.7	96.7
2019/20	91.0	95.5	96.0	94.7	95.3
QPI Target 95%	95	95	95	95	95

Following formal review after year 3 QPI 3 was updated: The inclusion of appendiceal cancers was removed from the dataset. Multi-Disciplinary Team (MDT) Meeting information was not collected in year 1 of the QPI implementation. Figures for years 2 and 3 are below.



	Borders	D&G	Fife	Lothian	SCAN
2013/14	0.0	0.0	0.0	0.0	0.0
2014/15	100.0	93.2	97.2	98.3	97.5
2015/16	95.1	88.8	97.4	95.4	94.9
QPI Target 95%	95	95	95	95	95

Action: Patients that have not been discussed at local MDMs have been reviewed by the relevant Lead Clinician. Patients should be referred to the relevant MDM for registration purposes. Audit staff should feedback to MDTs..

Comment: This QPI is a reflection of good case ascertainment by the audit staff.

QPI 4: Stoma Care – Hospital of Surgery

Target 95%

Numerator = Number of patients with colorectal cancer who undergo elective surgical resection which involves stoma creation who are seen by and have their stoma site marked preoperatively by a nurse with expertise in stoma care.

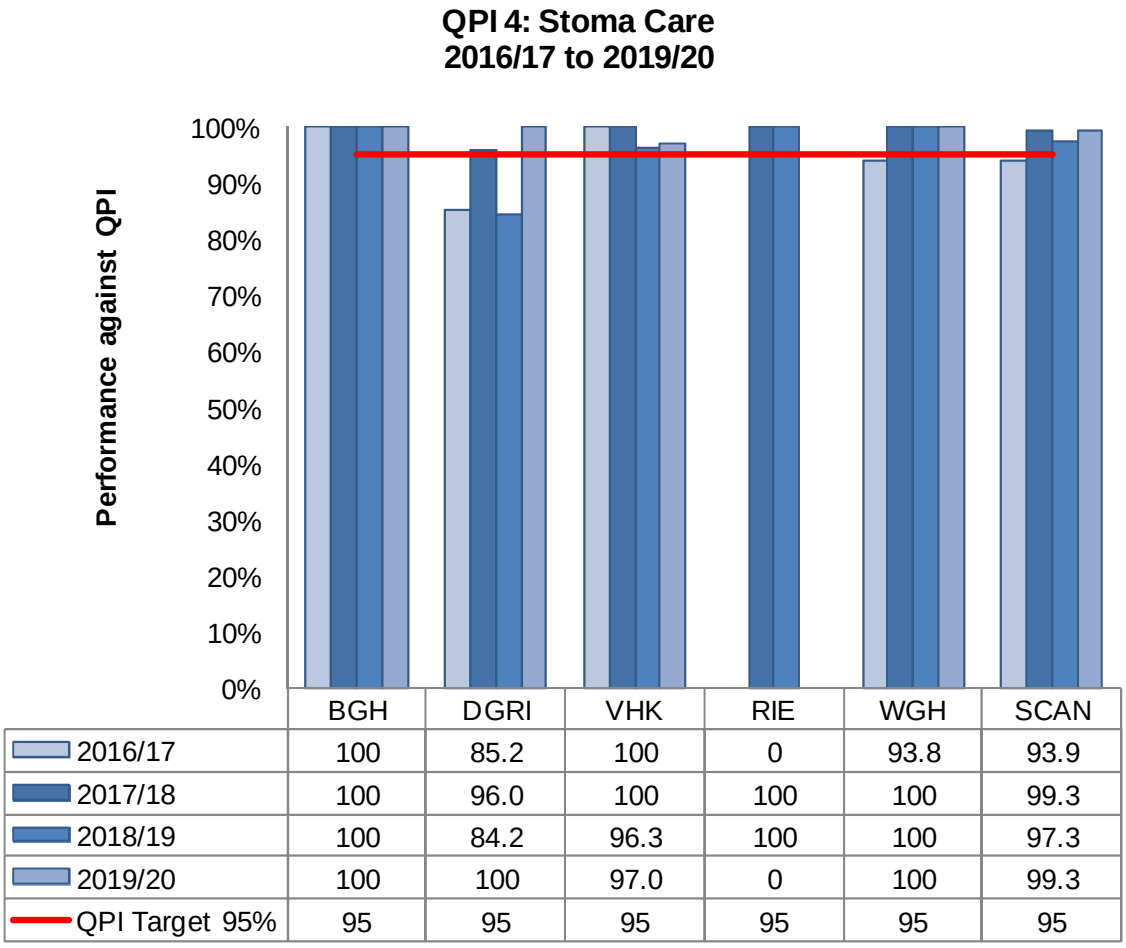
Denominator = All patients with colorectal cancer who undergo elective surgical resection which involves stoma creation.

Exclusions = Patients who decline to be seen by a nurse with expertise in stoma care.

Target 95%	Borders	D&G	Fife	Lothian	SCAN
Numerator	14	26	32	77	**149**
Not Recorded for Numerator	0	0	0	0	**0**
Denominator	14	26	33	77	**150**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Recorded	100.0%	100.0%	97.0%	100.0%	**99.3%**

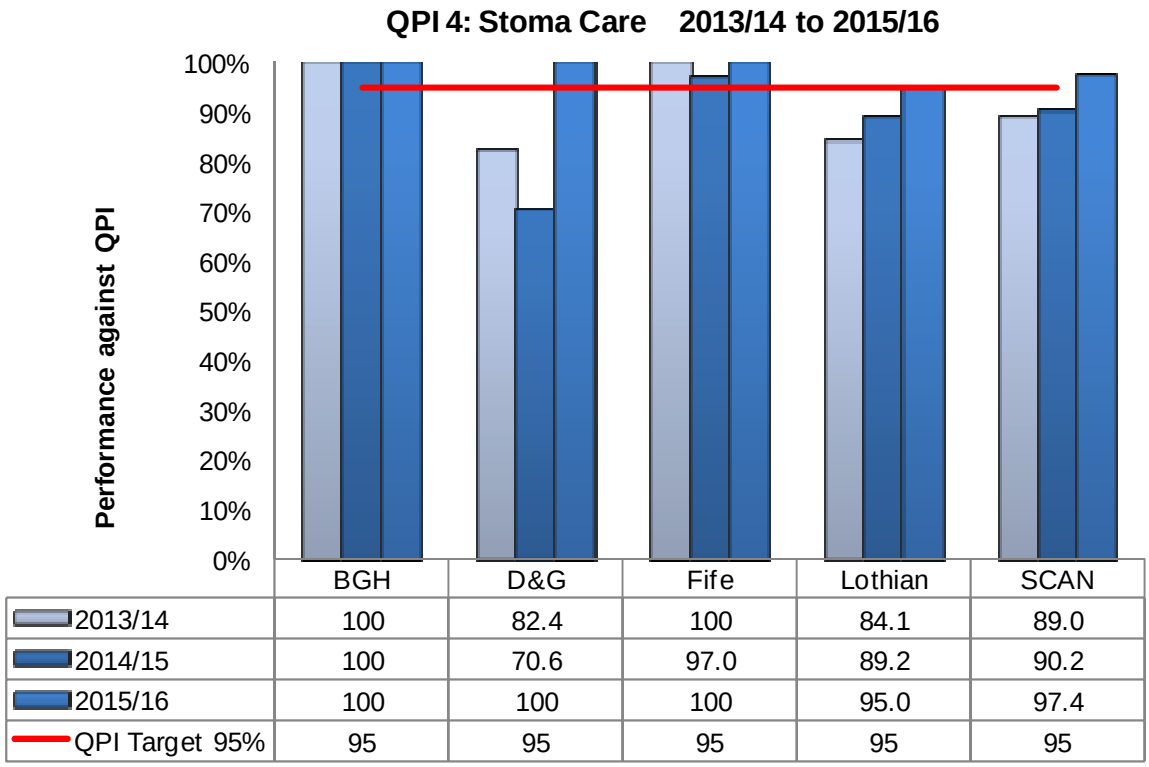
All Boards Met this QPI

Comment: Although Fife met the QPI target, there was one case which did not. The intra operative findings dictated an unplanned stoma creation.



	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	100	85.2	100	0	93.8	93.9
2017/18	100	96.0	100	100	100	99.3
2018/19	100	84.2	96.3	100	100	97.3
2019/20	100	100	97.0	0	100	99.3
QPI Target 95%	95	95	95	95	95	95

Following formal review after year 3 QPI 3 was updated: The inclusion of appendiceal cancers was removed from the dataset. Below are the QPI 4 figures from the first 3 years of QPI collection.



	BGH	D&G	Fife	Lothian	SCAN
2013/14	100	82.4	100	84.1	89.0
2014/15	100	70.6	97.0	89.2	90.2
2015/16	100	100	100	95.0	97.4
QPI 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).

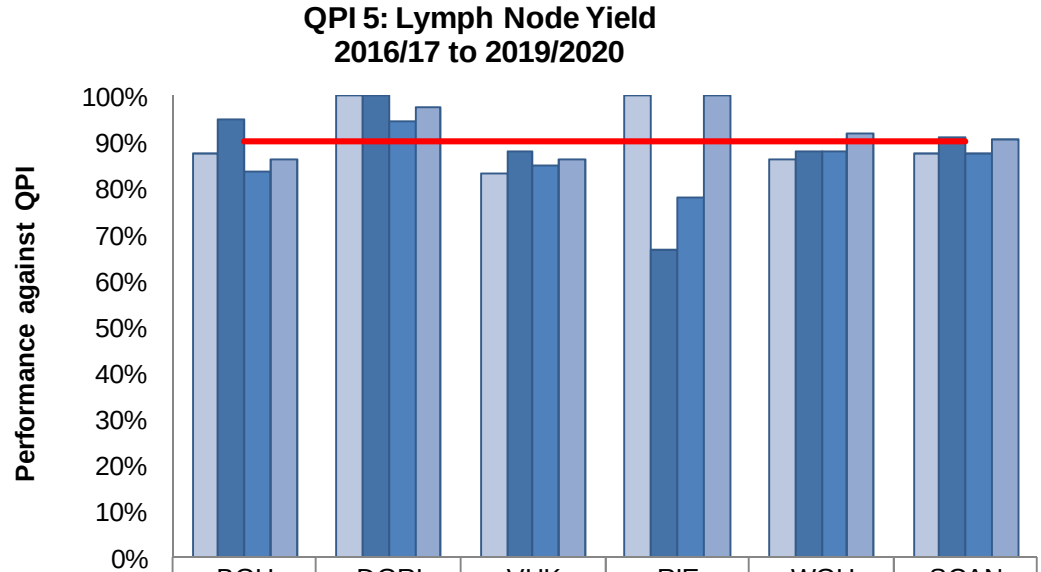
Exclusions = Patients with rectal cancer who undergo long course neo-adjuvant chemoradiotherapy or radiotherapy. Patients who undergo transanal endoscopic microsurgery (TEM) or transanal resection of tumour (TART).

Target 90%	Borders	D&G	Fife	Lothian	SCAN
Numerator	49	78	141	282	**550**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	57	80	164	308	**608**
Not Recorded for Exclusions	0	0	0	0	0
Not Recorded for Denominator	0	0	0	0	0
% Percentage	86.0%	97.5%	86.0%	91.6%	90.5%

Comments where this QPI was not met:

Borders: This QPI was not met showing a shortfall of 4% (8 cases) in 4 there was no comment from the pathologist and 4 had small lymph nodes, difficult to identify.

Fife: This QPI was not met showing a shortfall of 4% (22 cases) 1 had neoadjuvant SCRT. 5 had small nodes; all of these specimens were examined twice for nodes. 16 had no comment. All the cases have been reviewed in Fife, there are no concerns and will continue to be monitored.



	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	87.2	100	83.1	100	86.2	87.3
2017/18	94.8	100	87.9	66.7	87.9	91.0
2018/19	83.3	94.5	84.7	77.8	87.9	87.3
2019/20	86.0	97.5	86.0	100	91.5	90.5
QPI Target 90%	90	90	90	90	90	90

Following discussion at the Colorectal QPI National Meeting in February 2015, it was agreed it would be useful to consider looking at lymph node yield from node negative patients.

This table shows the number of nodes examined for patients with Node negative (N0) disease.

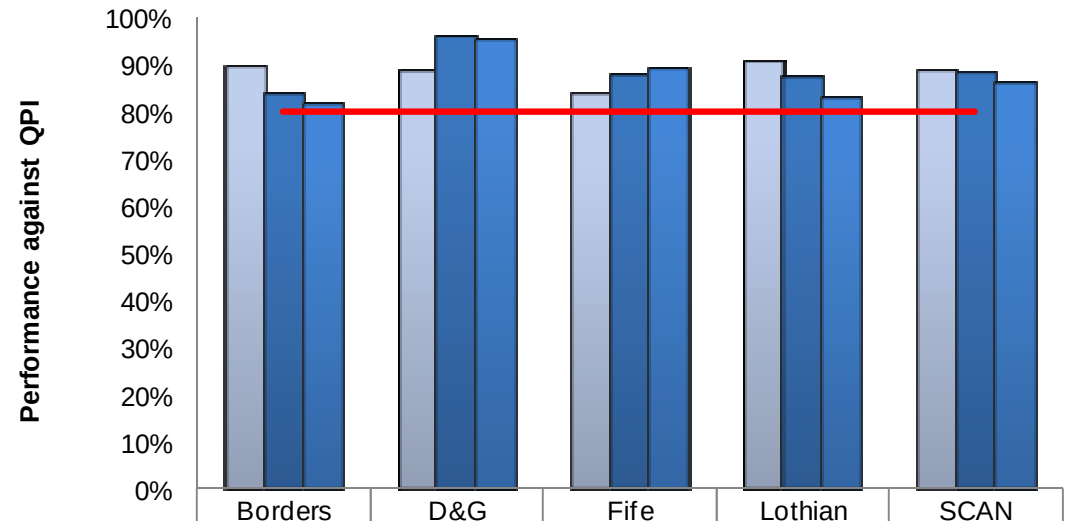
Lymph Node Yield in Node Negative Patients

LN	BGH	D&G	Fife	Lothian	SCAN
<12	6	2	30	15	**53**
12 to 19	18	9	82	86	**195**
20 to 29	10	20	54	62	**146**
≥30	4	23	17	25	**69**
Total	38	54	183	188	**463**

It is noted that the QPI target has increased from 80% to 90% following the 3-year formal review. The 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 therefore this may need redefined in the future, to take account of new evidence or as further data becomes available.

Below are QPI 5 figures from the first 3 years of QPI collection.

QPI 5: Lymph Node Yield 2013/14 to 2015/16



	Borders	D&G	Fife	Lothian	SCAN
2013/14	89.4	88.6	83.9	90.6	88.6
2014/15	84.0	96.2	87.7	87.4	88.4
2015/16	81.8	95.3	89.1	82.9	85.9
QPI Target 80%	80	80	80	80	80

QPI 6: Neo-adjuvant Therapy

Target 90%

Numerator = Number of patients with **rectal cancer** with a threatened or involved CRM on preoperative MRI undergoing surgery who receive long course neo-adjuvant therapy.

Denominator = All patients with rectal cancer with a threatened or involved CRM on preoperative MRI undergoing surgery.

Exclusions = Patients who decline neo-adjuvant therapy. Patients in whom neo-adjuvant therapy is contraindicated. Patients who presented as an emergency for surgery

Target 90%	Borders	D&G	Fife	Lothian	SCAN
2019-20 Cohort	80	128	267	519	**994**
Ineligible for the QPI	80	126	254	486	**946**
Numerator	0	1	11	24	**36**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	0	2	13	33	**48**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	2	0	**2**
% Percentage	N/A	50.0%	84.6%	72.7%	**75.0%**

Comments where the QPI was not met:

D&G: This QPI was not met with a shortfall of 40% (1 case) The CRM was threatened but MDM decision was to go straight to surgery, R0 resection.

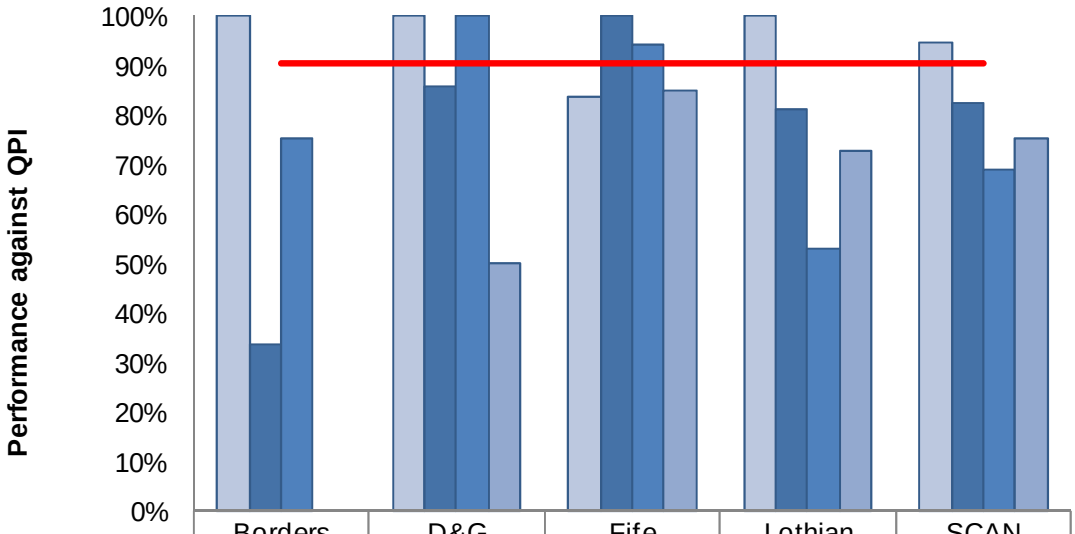
Fife: This QPI was not met with a shortfall of 5.4% (2 cases) Both had CRM threatened by nodes, both seen by Oncologist who decided on SCRT with no delay to operation and surgery performed a week later.

Lothian: This QPI was not met with a shortfall of 17.3% (9 cases) One had R1 resection due to nodes. One primary was close to the CRM; MDM decision was SCRT and planned wide surgical clearance (R0). The remaining seven were included due to nodes close to the MRF/CRM, all were R0 and 6/7 N0.

Not Recorded for Denominator: Fife **-** (2 cases) one originally thought to be sigmoid but at op found to be upper rectum (CRM not recorded on MRI or MDM), one CRM pre-treatment not recorded.

Comment: All cases in Lothian that did not meet this QPI have been reviewed by the Oncology Lead Clinician. Above highlights both the great difficulty in accurately staging mesorectal nodes and secondly the need for clear standardised QPI definition of involved/threatened margin (This has been fed into the QPI review process)

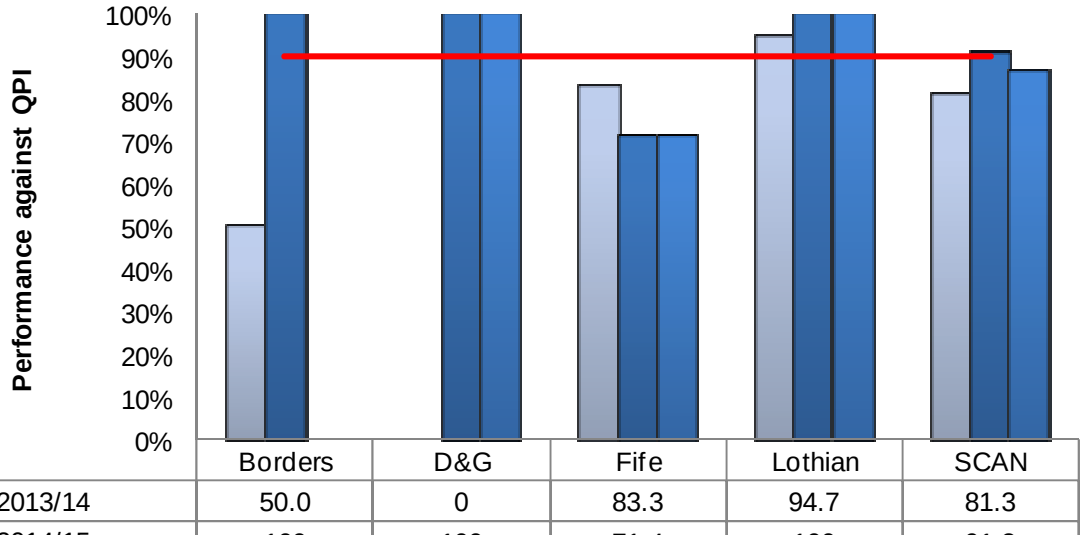
QPI 6: Rectal Cancer - Neoadjuvant Radiotherapy 2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	100	100	83.3	100	94.6
2017/18	33.3	85.7	100	80.8	82.2
2018/19	75.0	100	94.1	52.8	68.9
2019/20	0.0	50.0	84.6	72.7	75.0
QPI Target 90%	90	90	90	90	90

Following formal review after year 3, QPI 6 was updated. The inclusion of appendiceal cancers was removed from the dataset. Below are QPI 6 figures comparing the three years of data collected.

QPI 6: Rectal Cancer - Neoadjuvant Radiotherapy 2013/14 to 2015/16



	Borders	D&G	Fife	Lothian	SCAN
2013/14	50.0	0	83.3	94.7	81.3
2014/15	100	100	71.4	100	91.3
2015/16	0	100	71.4	100	86.7
QPI Target 90%	90	90	90	90	90

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 neoadjuvant 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.

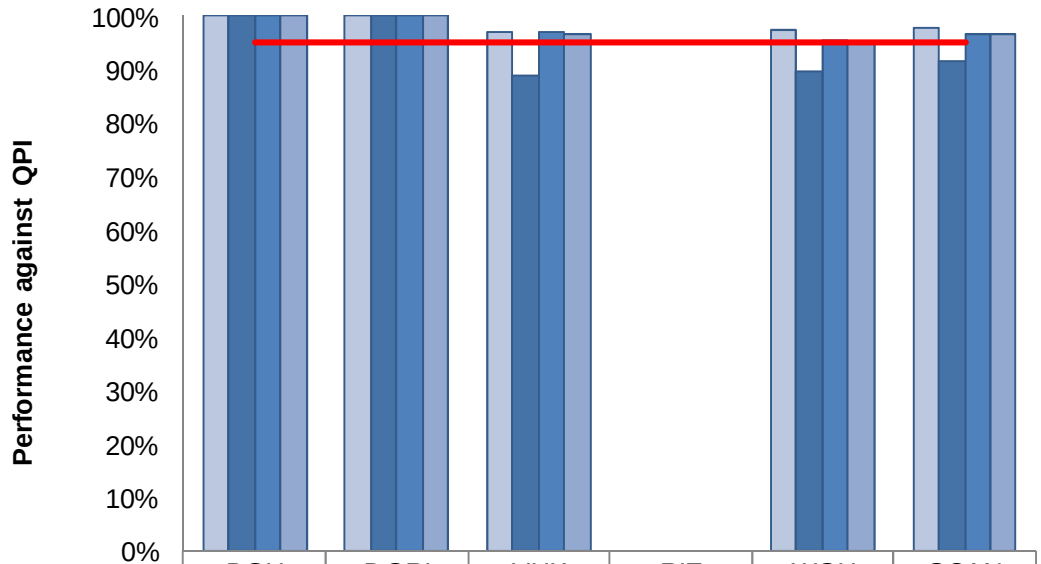
Exclusions = Patients who undergo transanal endoscopic microsurgery (TEM) or transanal resection of tumour (TART).

Target 95%	Borders	D&G	Fife	Lothian	SCAN
Numerator	13	15	28	57	113
Not Recorded for the Numerator	0	0	0	0	0
Denominator	13	15	29	60	117
Not Recorded for Exclusions	0	0	0	0	0
Not Recorded for Denominator	0	0	0	0	0
% Percentage	100%	100.0%	96.6%	95.0%	96.6%

All Boards met this QPI

Comment: On the basis of QPI 6 result, the result in this QPI is strongly reassuring.

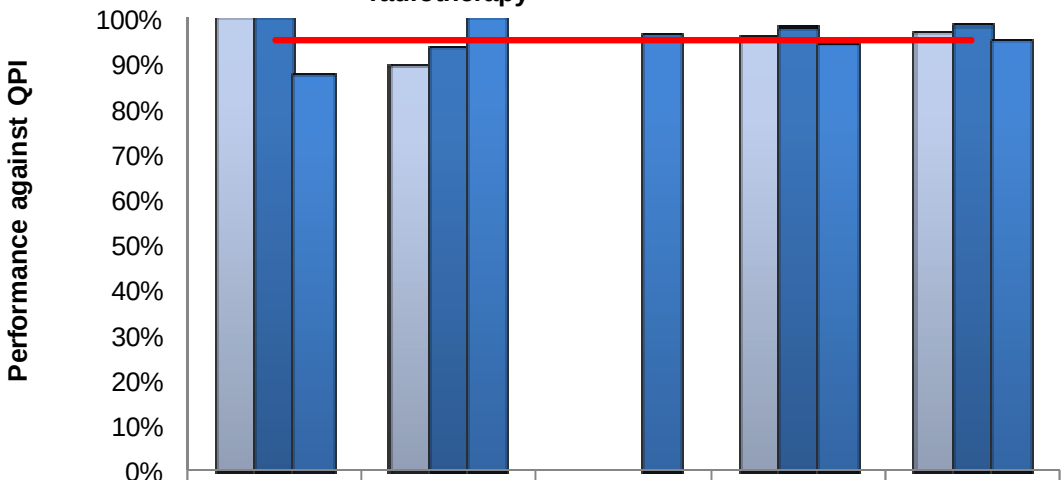
QPI 7: Surgical Margins 2016/17 to 2019/20
(i) Primary surgery, or surgery following neo-adjuvant short course radiotherapy



	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	100	100	96.9	0	97.1	97.6
2017/18	100	100	88.9	0	89.6	91.4
2018/19	100	100	97.0	0	95.3	96.7
2019/20	100	100	96.6	0	95.0	96.6
QPI Target 95%	95	95	95	95	95	95

Following formal review after year 3, QPI 7 (i) was not updated.
Below are the QPI 7 (i) figures comparing the first three years of data collected.

QPI 7: Surgical Margins 2013/14 to 2015/16
(i) Primary surgery, or surgery following neo-adjuvant short course radiotherapy



	Borders	D&G	Fife	Lothian	SCAN
2013/14	100	89.9	0	96.2	96.9
2014/15	100	93.3	0	97.9	98.3
2015/16	87.5	100	96.3	94.1	95.0
QPI Target 95%	95	95	95	95	95

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

Target 85%

Numerator = Number of patients with **rectal cancer** who undergo elective surgical resection following neoadjuvant 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) or transanal resection of tumour (TART).

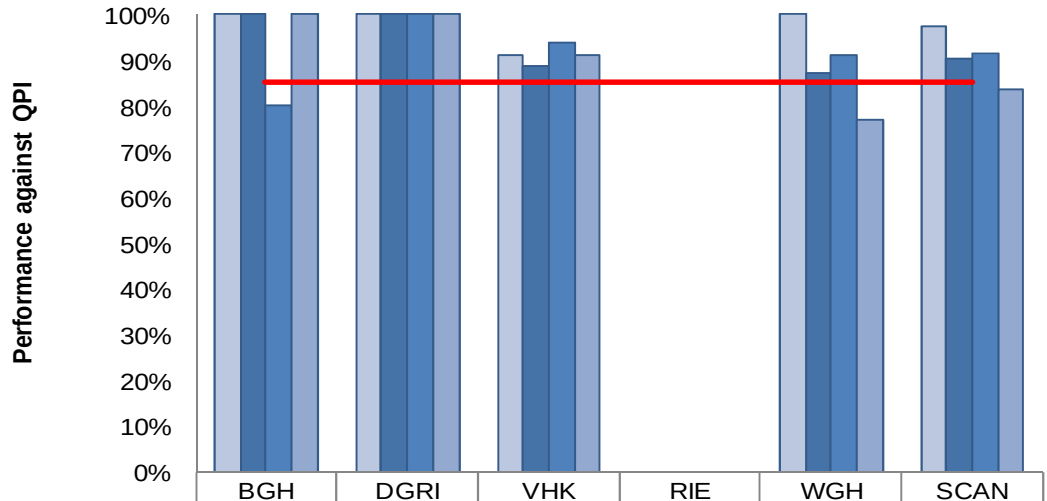
Target 85%	Borders	D&G	Fife	Lothian	SCAN
Numerator	2	4	10	20	**36**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	2	4	11	26	**43**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	100%	100%	90.9%	76.9%	**83.7%**

Comments where this QPI was not met:

Lothian: This QPI was not met with a shortfall of 8.1% (6 cases) The 6 cases were R1 following downstaging treatment.

Comment: It is important to note that the more selectively downstaging treatment is used the higher the R1 rate will be. CRM negative (R0) rate was 84% in Aristotle trial.

QPI 7: Surgical Margins 2016/17 to 2019/20
(ii) Surgery following neo-adjuvant long course radiotherapy or chemoradiotherapy or short course radiotherapy with long course intent (delay to surgery)

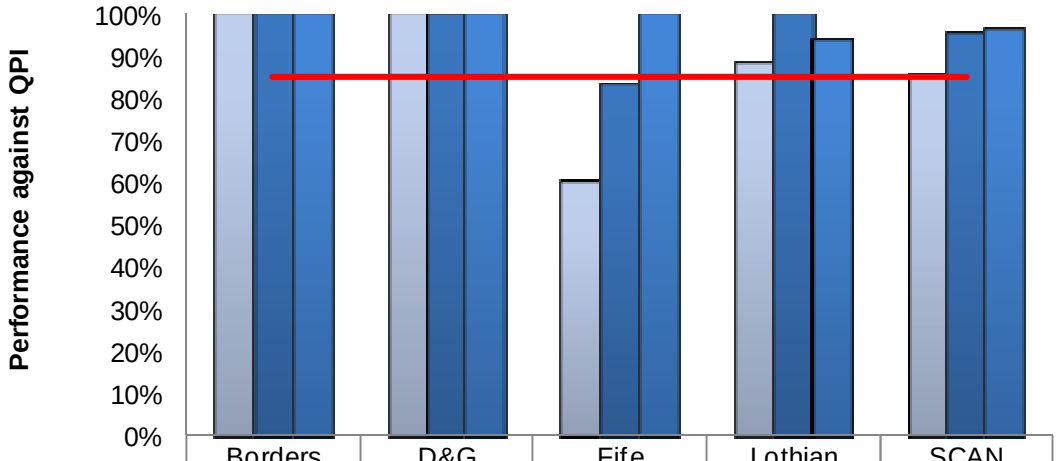


	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	100	100	90.9	0	100	97.5
2017/18	100	100	88.9	0	87.0	90.2
2018/19	80.0	100	93.8	0	90.9	91.3
2019/20	100	100	90.9	0	76.9	83.7
QPI Target 85%	85	85	85	85	85	85

Following formal review after year 3, QPI 7 (ii) was not updated; the inclusion of appendiceal cancers was removed from the dataset. Below are QPI 7 (ii) figures comparing the four years of data collected.

QPI 7: Surgical Margins 2013/14 to 2015/16

(ii) Surgery following neo-adjuvant long course radiotherapy or chemoradiotherapy or short course radiotherapy with long course intent (delay to surgery)



	Borders	D&G	Fife	Lothian	SCAN
2013/14	100	100	60.0	88.2	85.7
2014/15	100	100	83.3	100	95.5
2015/16	100	100	100	93.8	96.6
QPI 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.

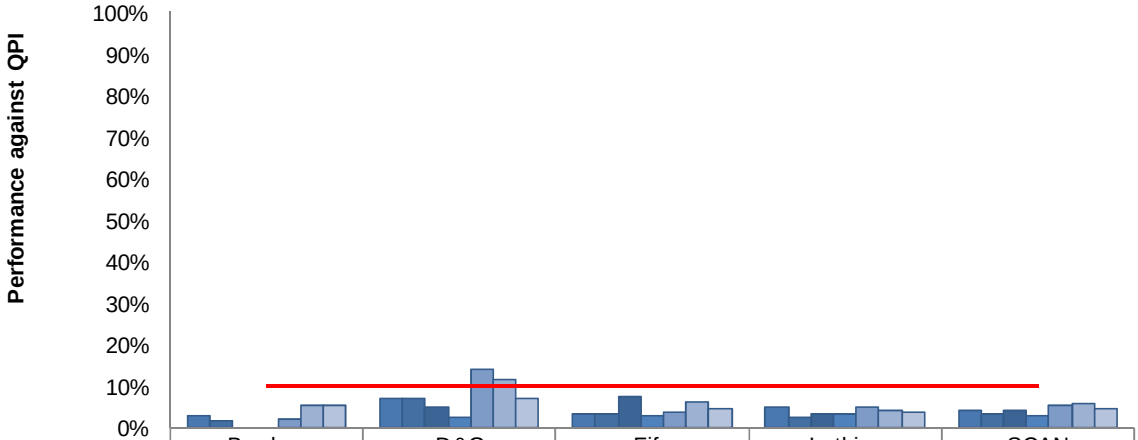
Denominator = All patients with colorectal cancer who undergo surgical resection.

Exclusions = No exclusions.

Re-operation Rates Target <10%	BGH	DGRI	VHK	Lothian *RIE*	*WGH*	SCAN
Numerator	3	6	8	0	12	**29**
Not Recorded for the Numerator	0	0	0	0	0	**0**
Denominator	59	86	184	3	357	**689**
Not Recorded for Exclusions	0	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	0	**0**
% Percentage	5.1%	7.0%	4.3%	0.0%	3.4%	**4.2%**

All Boards met this QPI

QPI 8: Re-operation Rates
2013/14 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2013/14	2.6	6.8	3.0	4.6	4.1
2014/15	1.6	6.8	3.2	2.5	3.0
2015/16	0.0	4.6	7.2	3.3	4.1
2016/17	0.0	2.5	2.6	3.2	2.8
2017/18	1.7	13.9	3.4	4.7	5.2
2018/19	5.3	11.4	6.0	4.0	5.6
2019/20	5.1	7.0	4.3	3.4	4.2
QPI Target <10%	10	10	10	10	10

Following formal review after year 3 (2015/2016) it was agreed not to use SMR01 returns for this QPI due to data inconsistencies. This information is therefore collected locally by audit staff in each Board from 2016/2017 onwards. It should be noted however, that in Borders, Fife and Lothian we have been collecting and reporting on this QPI from information collected locally since 2013.

QPI 9: Anastomotic Dehiscence (i) – 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 (radiological or surgical).

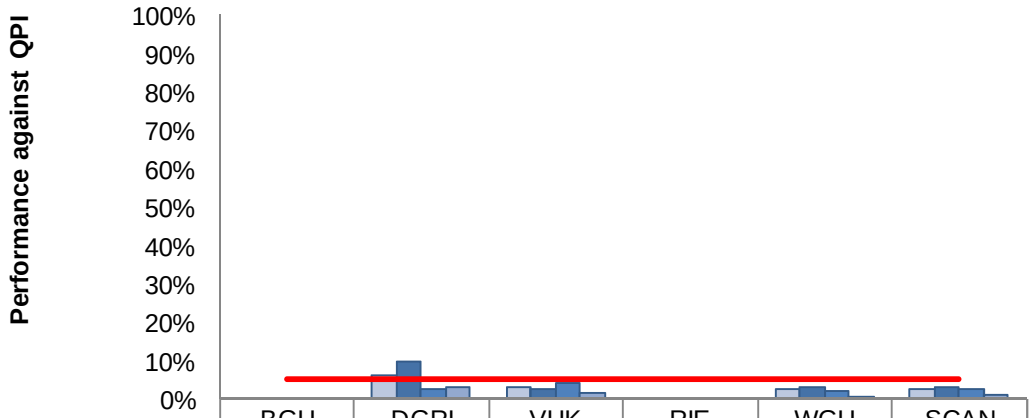
Denominator = All patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the colon.

Exclusions = No exclusions.

Target <5%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	1	1	1	**3**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	32	34	83	160	**312**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	2.9%	1.2%	0.6%	**1.0%**

All Boards met this QPI

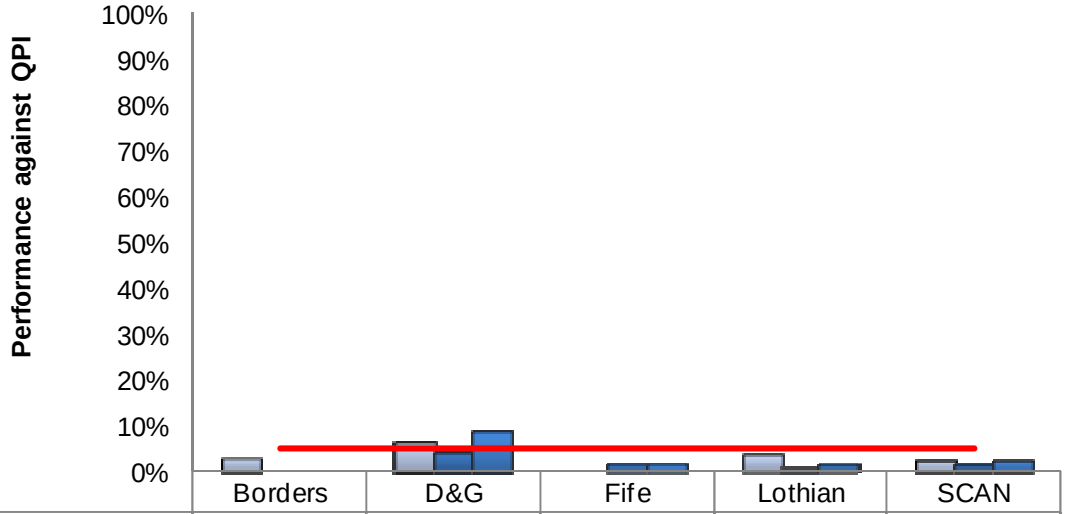
QPI 9: Anastomotic Dehiscence 2016/17 - 2019/20
(i) Colonic Anastomosis



	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	0	6.1	3.0	0	2.3	2.7
2017/18	0	9.4	2.7	0	2.8	3.2
2018/19	0	2.7	3.9	0	2.2	2.5
2019/20	0	2.9	1.2	0	0.6	1.0
QPI Target <5%	5	5	5	5	5	5

Following formal review after year 3, QPI 9 (i) was updated. The inclusion of appendiceal cancers was removed from the dataset. Below are the QPI 9 (i) figures from the first 3 years of QPI collection.

QPI 9: Anastomotic Dehiscence 2013/14 to 2015/16
(i) Colonic Anastomosis



	Borders	D&G	Fife	Lothian	SCAN
2013/14	2.6	6.1	0.0	3.4	2.2
2014/15	0.0	4.2	1.4	0.6	1.3
2015/16	0.0	8.3	1.4	1.2	2.1
QPI Target <5%	5	5	5	5	5

QPI 9: Anastomotic Dehiscence (ii) – 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 (radiological or surgical).

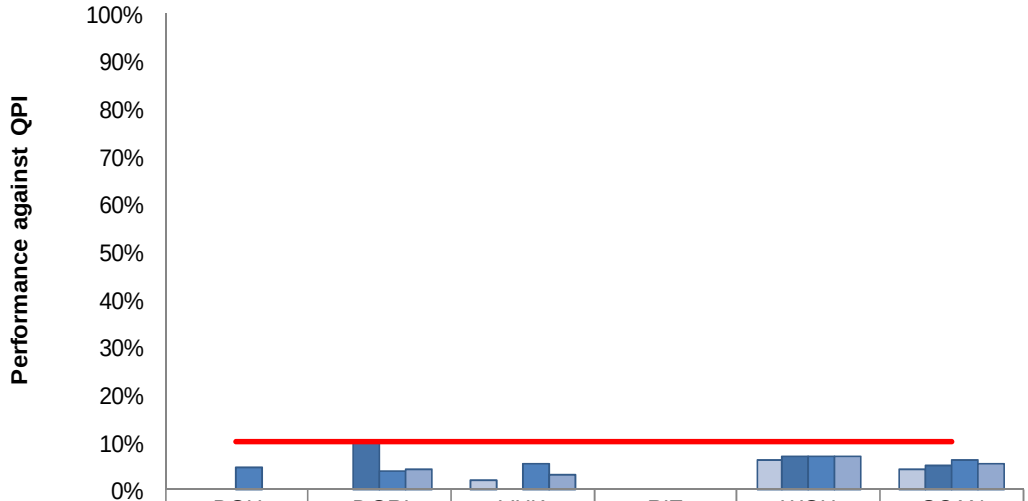
Denominator = All patients with colorectal cancer who undergo a surgical procedure involving anastomosis of the rectum (including anterior resection with TME)

Exclusions = None.

Target <10%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	1	2	9	**12**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	16	24	62	130	**232**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	4.2%	3.2%	6.9%	**5.2%**

All Boards met this QPI

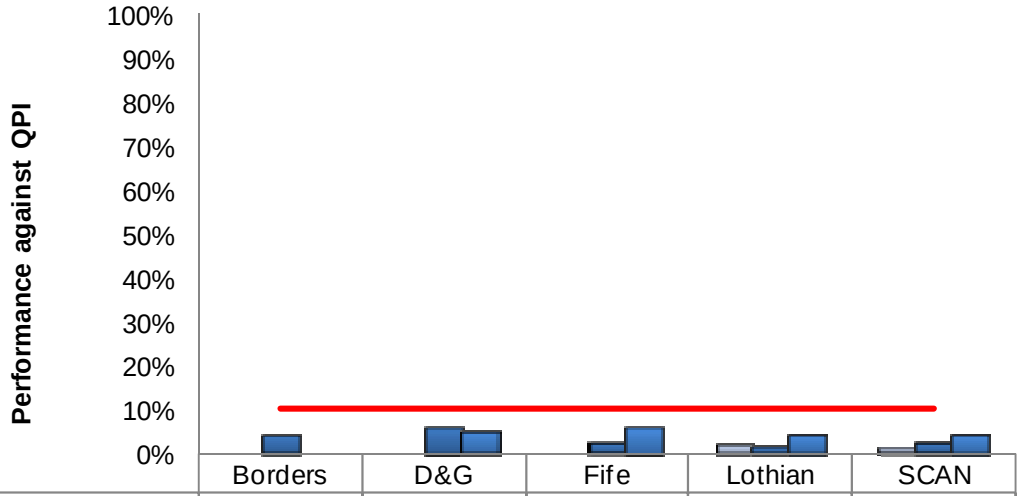
QPI 9: Anastomotic Dehiscence 2016/17 - 2019/20
(ii) Rectal Anastomosis (including anterior resection with TME)



	BGH	DGRI	VHK	RIE	WGH	SCAN
2016/17	0.0	0.0	2.0	0.0	6.3	4.2
2017/18	0.0	10.0	0.0	0.0	6.9	5.0
2018/19	4.5	4.0	5.2	0.0	7.0	6.0
2019/20	0.0	4.2	3.2	0.0	6.9	5.2
QPI Target <10%	10	10	10	10	10	10

Following formal review after year 3, QPI 9 (ii) was updated. The inclusion of appendiceal cancers was removed from the dataset. Below are the QPI 9 (ii) figures from the first 3 years of QPI collection.

QPI 9: Anastomotic Dehiscence 2013/14 to 2015/16
(ii) Rectal Anastomosis (including anterior resection with TME)



	Borders	D&G	Fife	Lothian	SCAN
2013/14 - TME alone	0.0	0.0	0.0	1.9	1.1
2014/15	4.0	5.9	2.0	1.4	2.2
2015/16	0.0	4.8	6.0	4.3	4.3
QPI Target <10%	10	10	10	10	10

ONCOLOGICAL TREATMENT OUTCOMES

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	2	0	1	**3**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	48	77	160	278	**563**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	2.6%	0.0%	0.4%	**0.5%**

Emergency Surgery 30 day mortality

Target <15%	Borders	D&G	Fife	Lothian	SCAN
Numerator (emergency surgery)	0	2	0	1	**3**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	11	9	24	79	**123**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	22.2%	0.0%	1.3%	**2.4%**

Comments where this QPI was not met:

D&G: Emergency Surgery 30 day mortality **-** This QPI was not met showing a shortfall of 7.2% (2 cases) 1 was frail 80yrs+, had Hartmann's for suspected perforated diverticular disease, developed sepsis related MSOF and died in CCU. Final pathology showed T4aN1b adenocarcinoma. One emergency right hemicolectomy for obstructing tumour, patient returned to theatre day 3 post-op- anastomotic leak. Died of sepsis related MSOF on CCU.

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)	0	2	0	1	**3**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	48	77	160	272	**557**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	2.6%	0.0%	0.4%	**0.5%**

Emergency Surgery 90 day mortality

Target <20%	**Borders**	**D&G**	**Fife**	**Lothian**	**SCAN**
Numerator (emergency surgery)	1	3	0	3	**7**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	11	9	24	79	**123**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	9.1%	33.3%	0.0%	3.8%	**5.7%**

Comments where this QPI was not met:

D&G: Emergency surgery 90 day mortality; This QPI was not met showing a shortfall of 12.3% (3 cases); 1 was frail 80yrs+, had Hartmanns for suspected perforated diverticular disease, developed sepsis related MSOF and died in CCU. Final pathology shows T4aN1b adenocarcinoma. One emergency right hemicolectomy for obstructing tumour, patient returned to theatre day 3 post-op- anastomotic leak. Died of sepsis related MSOF on CCU. One frail patient - had Hartmann's for suspected diverticular perforation/abscess, discharged from hospital, pathology showed T4aN2b perforated adenocarcinoma, early peritoneal recurrence, not fit for palliative chemo - for best supportive care, died in community.

QPI 11 (i): Adjuvant chemotherapy in Patients with High Risk Dukes B

Target 50%

Numerator = Number of patients between 50 and 74 years of age at diagnosis with high risk Dukes B colorectal cancer who undergo surgical resection who receive adjuvant chemotherapy.

Denominator = All patients between 50 and 74 years of age at diagnosis with high risk Dukes B colorectal cancer who undergo surgical resection.

Exclusions = Patients who decline chemotherapy. Patients who undergo neo-adjuvant treatment.

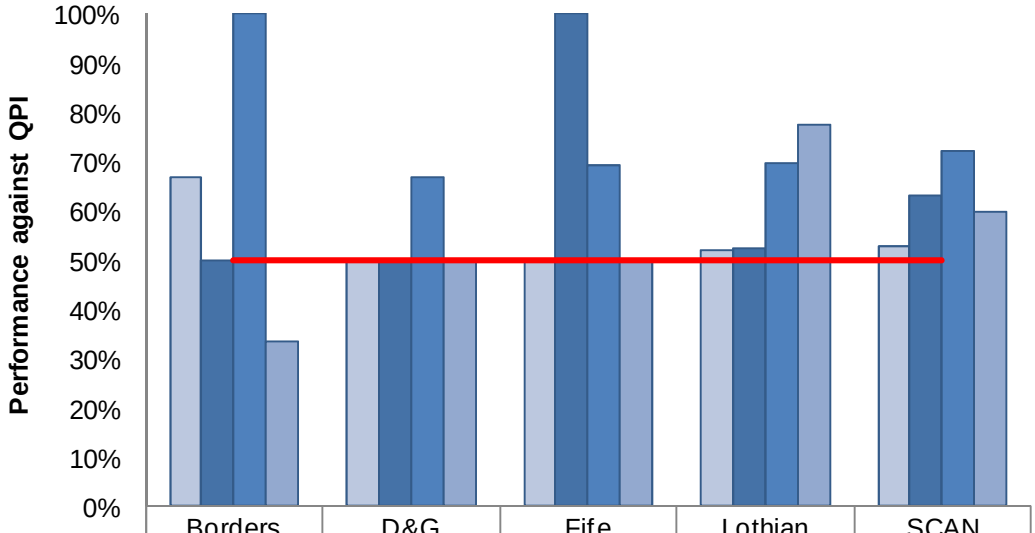
Target 50%	Borders	D&G	Fife	Lothian	SCAN
2019-20 Cohort	80	128	267	519	**994**
Ineligible for the QPI	74	124	247	497	**942**
Numerator - High Risk Dukes B	2	2	10	17	**31**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	6	4	20	22	**52**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	33.3%	50.0%	50.0%	77.3%	**59.6%**

High risk Dukes B colorectal cancer is defined as patients with pT4a or pT4b disease with or without extramural venous invasion, or Patients with pT3 pN0 M0 with extramural venous invasion

Comments where this QPI was not met:

Borders: This QPI was not met with a shortfall of 17.7% (4 cases). One had wound healing issues. For 3, adjuvant treatment was deemed not necessary after MDM discussion.

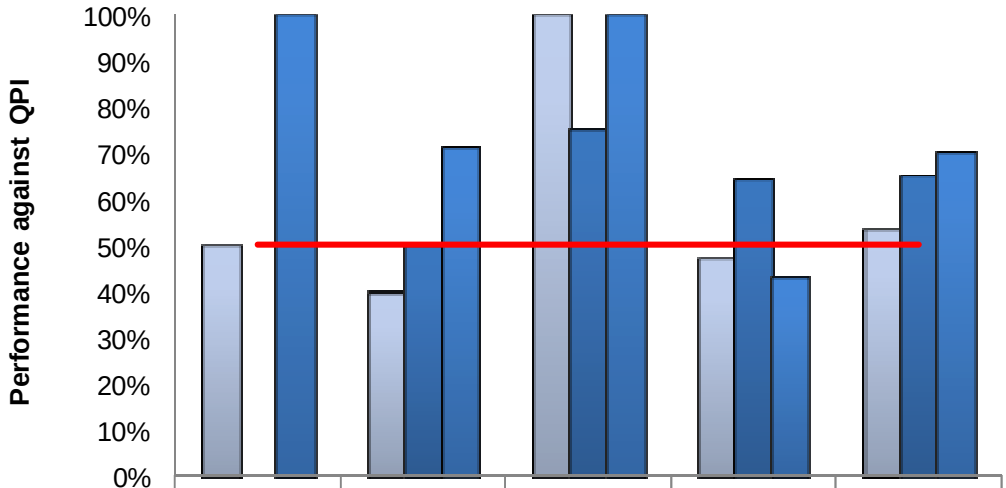
QPI 11: Adjuvant Chemotherapy High Risk Dukes B
2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	66.7	50.0	50.0	51.9	52.6
2017/18	50.0	50.0	100	52.4	63.2
2018/19	100	66.7	69.2	69.6	72.1
2019/20	33.3	50.0	50.0	77.3	59.6
QPI Target <50%	50	50	50	50	50

Following formal review after year 3, QPI 11 was updated. The inclusion of appendiceal cancers was removed from the dataset. In addition the definition of high risk Dukes B was changed to all patients with (pT4a or pT4b disease) with/without extramural vascular invasion or pT3 N0 M0 with extramural vascular invasion. Below are the QPI 11 figures from the first 3 years of QPI collection.

QPI 11 (i): Adjuvant Chemotherapy High Risk Dukes B 2013/14 to 2015/16



	Borders	D&G	Fife	Lothian	SCAN
2013/14	50.0	40.0	100	47.1	53.1
2014/15	0.0	50.0	75.0	64.3	65.0
2015/16	100	71.4	100	42.9	70.0
QPI Target <50%	50	50	50	50	50

QPI 11 (ii): Adjuvant chemotherapy in Patients with Dukes C colorectal cancer

Target 70%

Numerator = Number of patients between 50 and 74 years of age at diagnosis with Dukes C, colorectal cancer who undergo surgical resection who receive adjuvant chemotherapy.

Denominator = All patients between 50 and 74 years of age at diagnosis with Dukes C, colorectal cancer who undergo surgical resection.

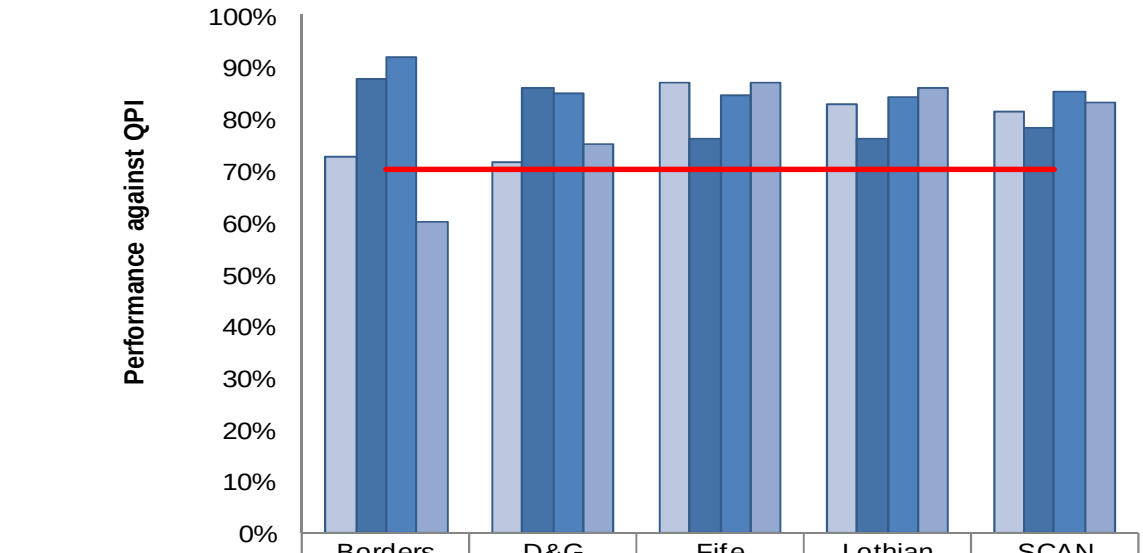
Exclusions = Patients who decline chemotherapy. Patients who undergo neo-adjuvant treatment.

Target: 70%	**Borders**	**D&G**	**Fife**	**Lothian**	**SCAN**
2019-20 Cohort	80	128	267	519	**994**
Ineligible for the QPI	70	120	237	455	**882**
Numerator - Dukes C	6	6	26	55	**93**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	10	8	30	64	**112**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	2	0	0	**0**
% Percentage	60.0%	75.0%	86.7%	85.9%	**83.0%**

Comments where this QPI was not met:

Borders: This QPI was not met by a shortfall of 10% (4 cases) 1 did undertake adjuvant chemotherapy but it commenced outwith the 12 week limit defined by the QPI measurability. 3 were deemed unfit by the Oncologist to undertake chemotherapy.

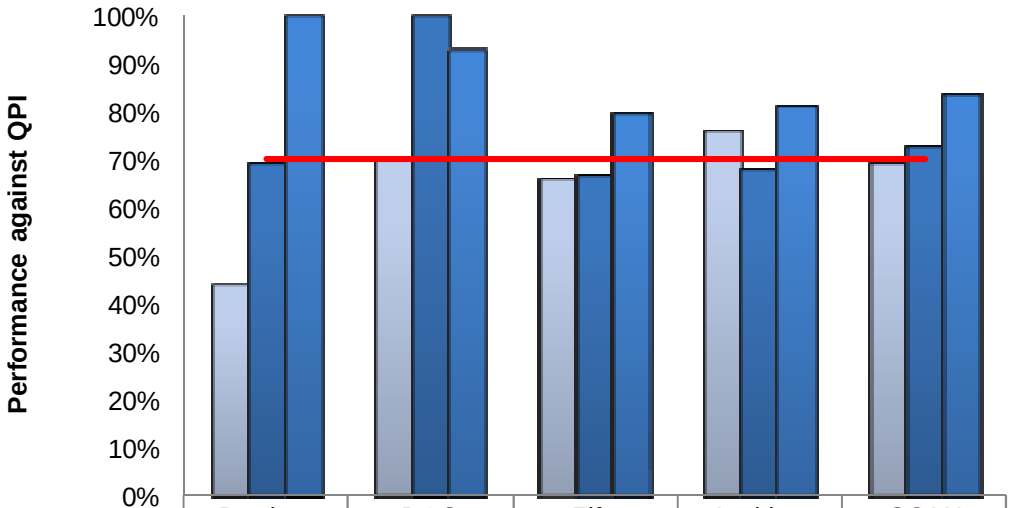
QPI 11: Adjuvant Chemotherapy Dukes C
2016/17 to 2019/20



	Borders	D&G	Fife	Lothian	SCAN
2016/17	72.7	71.4	86.7	82.8	81.4
2017/18	87.5	85.7	75.9	76.0	78.2
2018/19	91.7	84.6	84.4	84.1	85.1
2019/20	60.0	75.0	86.7	85.9	83.0
QPI Target <70%	70	70	70	70	70

Following formal review after year 3, QPI 11 was updated. The inclusion of appendiceal cancers was removed from the dataset. Below are the QPI 11 figures from the first 3 years of QPI collection.

QPI 11 (ii): Adjuvant Chemotherapy Dukes C
2013/14 to 2015/16



	Borders	D&G	Fife	Lothian	SCAN
2013/14	43.8	70.0	65.6	76.0	69.2
2014/15	69.2	100.0	66.7	68.1	72.6
2015/16	100.0	92.9	79.2	81.0	83.6
QPI Target <70%	70	70	70	70	70

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

Target <1%

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

Denominator = All patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy, radiotherapy or adjuvant chemotherapy 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	1	1	9	22	**33**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	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	0	**0**
Denominator	5	2	12	21	**40**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	0.0%	0.0%	**0.0%**

30 day mortality after adjuvant chemotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	1	**1**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	17	15	50	108	**190**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	0.0%	0.9%	**0.5%**

All Boards met this QPI

QPI 12 (i): 90 Day Mortality Following Radical Chemotherapy or Radiotherapy
Target <1%

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

Denominator = All patients with colorectal cancer who undergo neo-adjuvant chemoradiotherapy, radiotherapy or adjuvant chemotherapy 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	1	1	9	22	**33**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	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	0	**0**
Denominator	5	2	12	21	**40**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	0.0%	0.0%	**0.0%**

90 day mortality after adjuvant chemotherapy with curative intent

Target <1%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	1	1	**2**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	13	13	50	101	**177**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	2.0%	1.0%	**1.1%**

Comments where the QPI was not met:

Fife: The target was not met showing a shortfall of 1.0% (1 case).

Lothian: The target was not met showing a shortfall of 0.1% (1 case).

QPI 12 (ii): 30 Day Mortality Following Palliative Chemotherapy

Target <10%

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

Denominator = All patients with colorectal cancer who undergo palliative chemotherapy.

Exclusions = No exclusions.

Target <10%	Borders	D&G	Fife	Lothian	SCAN
Numerator	0	0	0	3	**3**
Not Recorded for the Numerator	0	0	0	0	**0**
Denominator	4	4	20	29	**57**
Not Recorded for Exclusions	0	0	0	0	**0**
Not Recorded for Denominator	0	0	0	0	**0**
% Percentage	0.0%	0.0%	0.0%	10.3%	**5.3%**

Comments where this QPI was not met:

Lothian: This QPI was not met with a shortfall of 0.3% (3 cases) one had 1 cycle of palliative Capox and died of disease progression. One deteriorated post ERCP for ascending cholangitis. One developed a pulmonary embolus.

CLINICAL TRIALS QPI

Target 15%

All patients should be considered for participation in available clinical trials/research studies, wherever eligible.

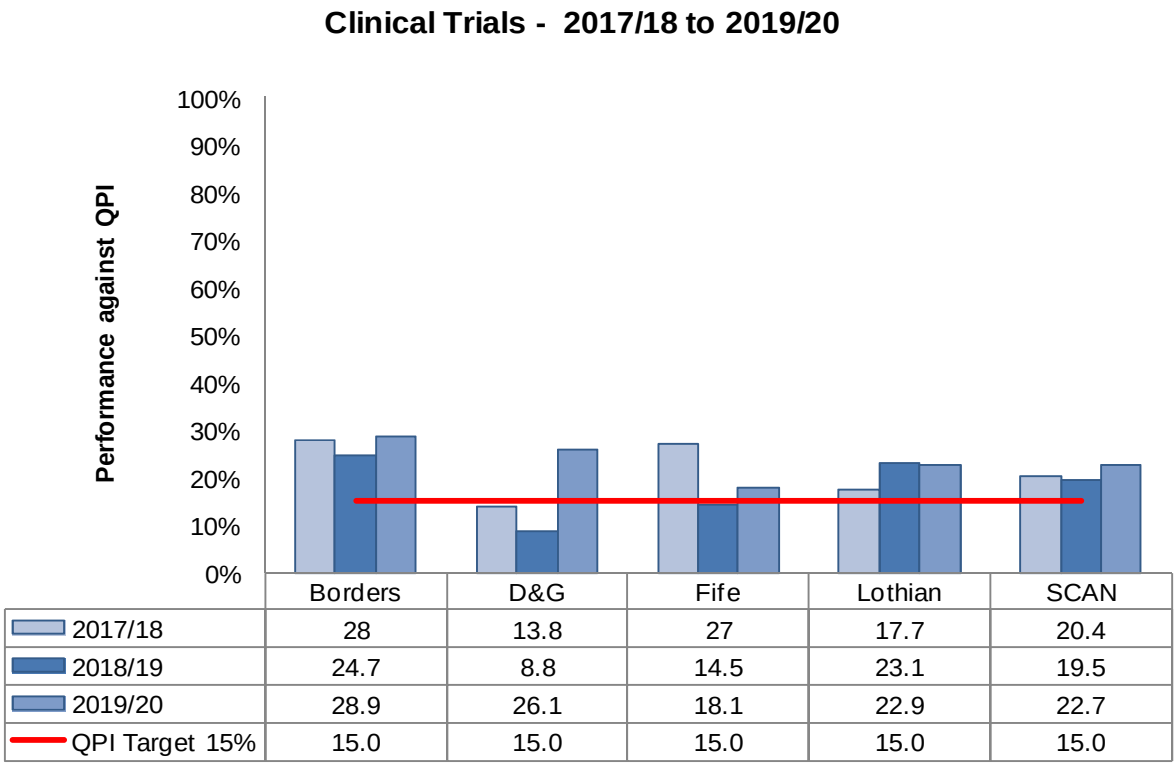
Numerator = Number of patients with colorectal cancer consented for a clinical trial/research study. Data provided by SCRN.

Denominator = Cancer Registry colorectal cancer 5 year average (2014-2018)

Exclusions = No exclusions

Target 15%	Borders	D&G	Fife	Lothian	SCAN
Numerator	28	31	42	119	220
Denominator	97	119	232	520	968
% Performance	**28.9%**	**26.1%**	**18.1%**	**22.9%**	**22.7%**

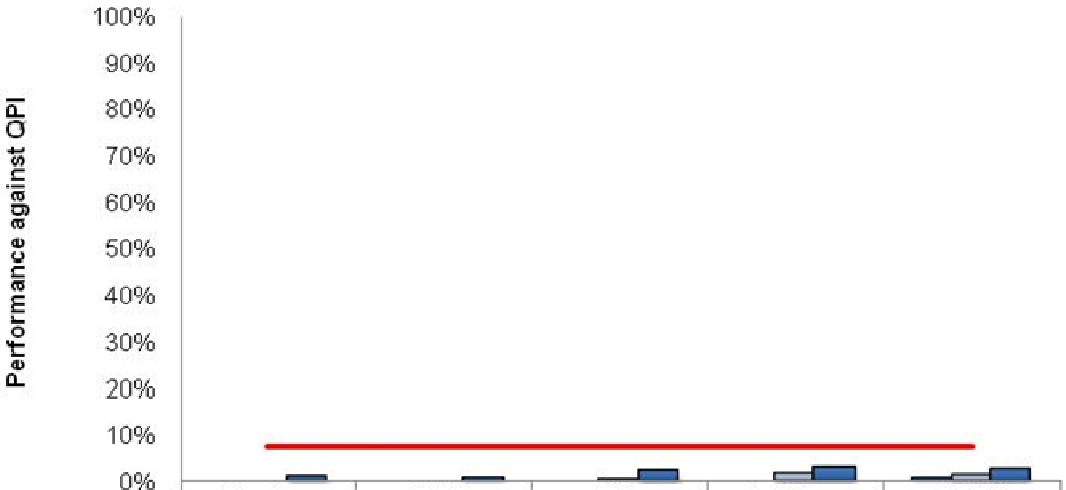
This QPI was met by all Boards



	Borders	D&G	Fife	Lothian	SCAN
2017/18	28	13.8	27	17.7	20.4
2018/19	24.7	8.8	14.5	23.1	19.5
2019/20	28.9	26.1	18.1	22.9	22.7
QPI Target 15%	15.0	15.0	15.0	15.0	15.0

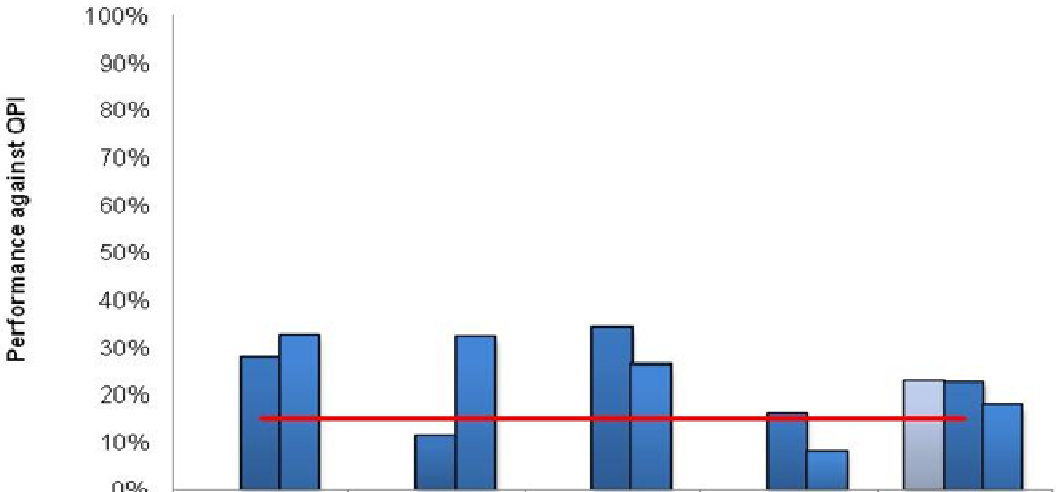
Clinical Trial data was not collected until 2014/15 when only the SCAN total could be reported. From 2015/16 Board level data has been reported. The Clinical Trial QPI was updated following formal review and was amalgamated into one target for both interventional and translational research. Results from previous years are shown below.

Clinical Trials - Interventional 2014/15 to 2016/17



	Borders	D&G	Fife	Lothian	SCAN
2014/15					0.6
2015/16	0.0	0.0	0.4	1.6	1.2
2016/17	1.1	0.8	2.3	3.0	2.6
QPI Target 7.5%	7.5	7.5	7.5	7.5	7.5

Clinical Trials - Translational 2014/15 to 2016/17



	Borders	D&G	Fife	Lothian	SCAN
2014/15					22.8
2015/16	27.6	11.3	33.9	15.9	22.6
2016/17	32.6	32.3	26.3	8.0	17.9
QPI Target 15%	15.0	15.0	15.0	15.0	15.0

.

KEY CATEGORIES

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

	No 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	80	61	76.3%	23	28.8%	16	69.6%
D&G	128	94	73.4%	29	22.7%	22	75.9%
Fife	267	205	76.8%	72	27.0%	56	77.8%
Lothian	519	406	78.2%	144	27.7%	111	77.1%
SCAN	**994**	**766**	**77.1%**	268	**27.0%**	**205**	**76.5%**

Table 2: Rectal v Other Colorectal Patients

	No 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	80	60	75.0%	23	28.8%	16	69.6%
D&G	128	89	69.5%	29	22.7%	21	72.4%
Fife	267	186	69.7%	72	27.0%	47	65.3%
Lothian	519	355	68.4%	144	27.7%	95	66.0%
SCAN	**994**	**690**	**69.4%**	**268**	**27.0%**	**179**	**66.8%**

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	60	49	81.7%	11	18.3%	0	0.0%	0	0.0%
D&G	89	77	86.5%	12	13.5%	0	0.0%	0	0.0%
Fife	186	162	87.1%	24	12.9%	0	0.0%	0	0.0%
Lothian	355	276	77.7%	79	22.3%	0	0.0%	0	0.0%
SCAN	**690**	**564**	**81.7%**	**126**	**18.3%**	**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	16	16	100.0%	0	0.0%	0	0.0%	0	0.0%
D&G	21	21	100.0%	0	0.0%	0	0.0%	0	0.0%
Fife	47	47	100.0%	0	0.0%	0	0.0%	0	0.0%
Lothian	95	93	97.9%	2	2.1%	0	0.0%	0	0.0%
SCAN	**179**	**177**	**98.9%**	**2**	**1.1%**	**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	60	59	98.3%	1	1.7%	0	0.0%	0	0.0%
D&G	89	82	92.1%	7	7.9%	0	0.0%	0	0.0%
Fife	186	178	95.7%	8	4.3%	0	0.0%	0	0.0%
Lothian	355	332	93.5%	23	6.5%	0	0.0%	0	0.0%
SCAN	**690**	**651**	**94.3%**	**39**	**5.7%**	**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	16	16	100.0%	0	0.0%	0	0.0%	0	0.0%
D&G	21	21	100.0%	0	0.0%	0	0.0%	0	0.0%
Fife	47	46	97.9%	1	2.1%	0	0.0%	0	0.0%
Lothian	95	93	97.9%	2	2.1%	0	0.0%	0	0.0%
SCAN	**179**	**176**	**98.3%**	**3**	**1.7%**	**0**	**0.0%**	**0**	**0.0%**

Table 7: Gender

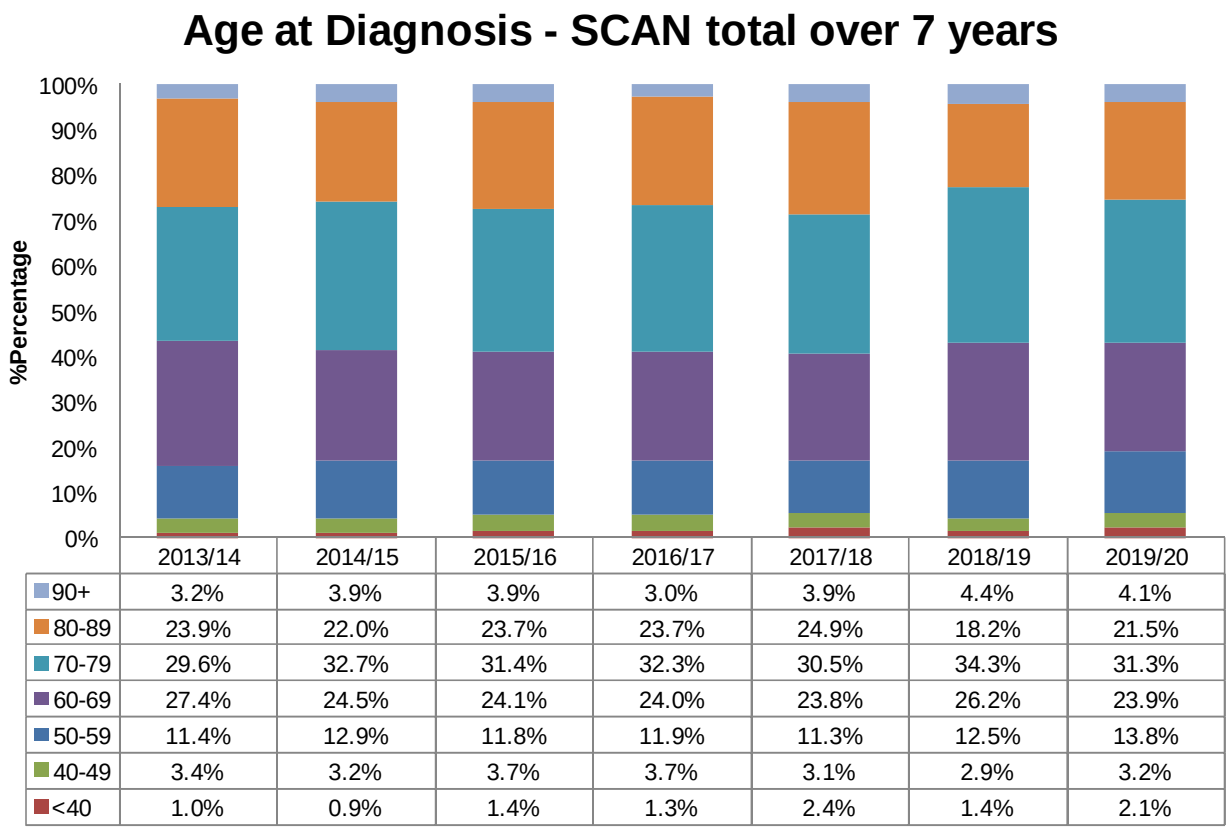
N= All patients diagnosed

	Total Patients Diagnosed		Male		Female	
Borders	80	43	53.8%	37	46.3%	
D&G	128	74	57.8%	54	42.2%	
Fife	267	141	52.8%	126	47.2%	
Lothian	519	292	56.3%	227	43.7%	
SCAN	**994**	**550**	**55.3%**	**444**	**44.7%**	

Table 8: Age at Diagnosis

N=All patients diagnosed

Age	Borders		D&G		Fife		Lothian		SCAN	
<40	2	2.5%	0	0.0%	3	1.1%	16	3.1%	21	2.1%
40-49	1	1.3%	4	3.1%	7	2.6%	20	3.9%	32	3.2%
50-59	12	15.0%	15	11.7%	40	15.0%	70	13.5%	137	13.8%
60-69	22	27.5%	34	26.6%	57	21.3%	125	24.1%	238	23.9%
70-79	27	33.8%	39	30.5%	90	33.7%	155	29.9%	311	31.3%
80-89	13	16.3%	36	28.1%	59	22.1%	106	20.4%	214	21.5%
90+	3	3.8%	0	0.0%	11	4.1%	27	5.2%	41	4.1%
Total	**80**	**100.0%**	**128**	**100.0%**	**267**	**100.0%**	**519**	**100.0%**	**994**	**100.0%**



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

Table 9: Tumour Site
N=All patients diagnosed

Site of Tumour	Borders		D&G		Fife		Lothian		SCAN	
Ascending Colon	15	18.8%	17	13.3%	27	10.1%	72	13.9%	**131**	**13.2%**
Caecum	14	17.5%	14	10.9%	53	19.9%	82	15.8%	**163**	**16.4%**
Colon, unspecified	1	1.3%	0	0.0%	2	0.7%	6	1.2%	**9**	**0.9%**
Descending Colon	5	6.3%	1	0.8%	13	4.9%	10	1.9%	**29**	**2.9%**
Hepatic Flexure	5	6.3%	1	0.8%	15	5.6%	24	4.6%	**45**	**4.5%**
Rectum	23	28.8%	29	22.7%	72	27.0%	144	27.7%	**268**	**27.0%**
Sigmoid Colon	11	13.8%	46	35.9%	58	21.7%	110	21.2%	**225**	**22.6%**
Splenic Flexure	1	1.3%	3	2.3%	7	2.6%	9	1.7%	**20**	**2.0%**
Transverse Colon	3	3.8%	13	10.2%	20	7.5%	41	7.9%	**77**	**7.7%**
Overlapping Lesion	2	2.5%	4	3.1%	0	0.0%	21	4.0%	**27**	**2.7%**
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	80	100%	128	100%	267	100%	519	100%	**994**	**100%**

Table 10: Dukes Stage
N=All patients diagnosed

	Borders		D&G		Fife		Lothian		SCAN	
Dukes A	13	16.3%	21	16.4%	49	18.4%	62	11.9%	**145**	**14.6%**
Dukes B	28	35.0%	19	14.8%	78	29.2%	126	24.3%	**251**	**25.3%**
Dukes C1	13	16.3%	16	12.5%	46	17.2%	124	23.9%	**199**	**20.0%**
Dukes C2	3	3.8%	2	1.6%	7	2.6%	6	1.2%	**18**	**1.8%**
Dukes D (M1)	3	3.8%	2	1.6%	23	8.6%	34	6.6%	**62**	**6.2%**
Inapplicable*	20	25.0%	36	28.1%	64	24.0%	164	31.6%	**284**	**28.6%**
Not Recorded	0	0.0%	32	25.0%	0	0.0%	3	0.6%	**35**	**3.5%**
Missing Data	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	80	100%	128	100%	267	100%	519	100%	**994**	**100%**

***Numbers showing an inapplicable Dukes staging include patients who had no surgery or patients who had polypectomies, stents or defunctiong stomas for whom Duke's Stage would not be assessable.*

Table 11: Inapplicable Dukes Stage
N= Numbers showing inapplicable Dukes staging include patients who had no surgery or patients who had polypectomies, stents or defunctioning stomas for whom Dukes staging would not be assessable.

	Borders		D&G		Fife		Lothian		SCAN	
Endoscopic Mucosal Resections	0	0.0%	1	2.8%	0	0.0%	17	10.4%	**18**	**6.3%**
Non Definitive Surgery	0	0.0%	0	0.0%	5	7.8%	28	17.1%	**33**	**11.6%**
No Residual Tumour	0	0.0%	0	0.0%	2	3.1%	0	0.0%	**2**	**0.7%**
No Surgery Performed	19	95.0%	34	94.4%	57	89.1%	112	68.3%	**222**	**78.2%**
Trans Endoscopic Micro Surgery	1	5.0%	1	2.8%	0	0.0%	7	4.3%	**9**	**3.2%**
Other	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	20	100%	36	100%	64	100%	164	100%	**284**	**100%**

Table 12: Clinical Stage IV

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

Patients presenting with Clinical Stage IV disease	Borders		D&G		Fife		Lothian		SCAN	
Metastatic Disease	4	5.0%	23	18.0%	41	15.4%	95	18.3%	**163**	**16.4%**
No Metastatic Disease	56	70.0%	97	75.8%	225	84.3%	397	76.5%	**775**	**78.0%**
Cannot Determine	0	0.0%	1	0.8%	1	0.4%	26	5.0%	**28**	**2.8%**
Not Recorded	0	0.0%	7	5.5%	0	0.0%	1	0.2%	**8**	**0.8%**
Missing Data	20	25.0%	0	0.0%	0	0.0%	0	0.0%	**20**	**2.0%**
Total	80	100%	128	100%	267	100%	519	100%	**994**	**100%**

Table 13: Radiotherapy

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

	Borders		D&G		Fife		Lothian		SCAN	
Neoadjuvant single therapy	3	33.3%	2	66.7%	14	51.9%	22	35.5%	**41**	**40.5%**
Neoadjuvant combined therapy	1	11.1%	1	33.3%	8	29.6%	22	35.5%	**32**	**31.7%**
Neoadjuvant Long Course RT only	0	0.0%	0	0.0%	1	3.7%	1	1.6%	**2**	**2.0%**
Primary radical	2	22.2%	0	0.0%	1	3.7%	1	1.6%	**4**	**4.0%**
Adjuvant only	2	22.2%	0	0.0%	0	0.0%	0	0.0%	**2**	**2.0%**
Palliative	1	11.1%	0	0.0%	3	11.1%	16	25.8%	**20**	**19.8%**
Total	9	100%	3	100%	27	100%	62	100%	**101**	**100%**

Table 14: Chemotherapy

N=All patients who receive Chemotherapy or Chemoradiotherapy

	Borders		D&G		Fife		Lothian		SCAN	
Neoadjuvant Combined therapy	1	4.5%	1	4.3%	8	10.3%	22	12.9%	**32**	**10.9%**
Palliative Combined therapy	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Primary Chemotherapy	0	0.0%	2	8.7%	0	0.0%	1	0.6%	**3**	**1.0%**
Palliative Chemotherapy	4	18.2%	5	21.7%	20	25.6%	31	18.1%	**60**	**20.4%**
Adjuvant Chemotherapy	17	77.3%	15	65.2%	50	64.1%	117	68.4%	**199**	**67.7%**
Total	22	100%	31	100%	100%	100%	165	100%	**333**	**100%**

Table 15: Surgical Approach

N=All colorectal cancer patients undergoing definitive surgery

	Borders		D&G		Fife		Lothian		SCAN	
Laparoscopic	36	60.0%	23	25.8%	105	56.5%	133	37.5%	**297**	**43.0%**
Lap converted to Open	4	6.7%	6	6.7%	23	12.4%	33	9.3%	**66**	**9.6%**
Open	20	33.3%	60	67.4%	53	28.5%	149	42.0%	**282**	**40.9%**
Robotic	0	0.0%	0	0.0%	0	0.0%	31	8.7%	**31**	**4.5%**
Transanal Endoscopic Microsurgery	0	0.0%	0	0.0%	0	0.0%	7	2.0%	**7**	**1.0%**
Transanal Resection of Tumour	0	0.0%	0	0.0%	5	2.7%	0	0.0%	**5**	**0.7%**
Inapplicable	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Not Recorded	0	0.0%	0	0.0%	0	0.0%	2	0.6%	**2**	**0.3%**
Missing Data	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total	60	100%	89	100%	186	100%	355	100%	**690**	**100%**

Table 16: Dukes Staging - Screened Patients v Non-Screened Patients

N=All colorectal patients

	Borders		D&G		Fife		Lothian		SCAN	
SCREENED PATIENTS										
Dukes A	4	5.0%	11	8.6%	21	7.9%	34	8.3%	**70**	**7.0%**
Dukes B	7	8.8%	8	6.3%	11	4.1%	31	7.5%	**57**	**5.7%**
Dukes C1	3	3.8%	5	3.9%	14	5.2%	33	8.0%	**55**	**5.5%**
Dukes C2	0	0.0%	0	0.0%	3	1.1%	2	0.5%	**5**	**0.5%**
Dukes D (M1)	2	2.5%	1	0.8%	1	0.4%	6	1.5%	**10**	**1.0%**
Inapplicable	4	5.0%	5	3.9%	3	1.1%	0	0.0%	**12**	**1.2%**
Not Recorded	0	0.0%	5	3.9%	0	0.0%	1	0.2%	**6**	**0.6%**
Missing	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total - Screened	20		35		53		107		**215**	
NON-SCREENED PATIENTS										
Dukes A	10	12.5%	10	7.8%	28	10.5%	55	13.3%	**103**	**10.4%**
Dukes B	21	26.3%	11	8.6%	64	24.0%	98	23.8%	**194**	**19.5%**
Dukes C1	10	12.5%	11	8.6%	35	13.1%	99	24.0%	**155**	**15.6%**
Dukes C2	3	3.8%	2	1.6%	4	1.5%	4	1.0%	**13**	**1.3%**
Dukes D (M1)	1	1.3%	1	0.8%	21	7.9%	97	23.5%	**120**	**12.1%**
Inapplicable	15	18.8%	31	24.2%	62	23.2%	13	3.2%	**121**	**12.2%**
Not Recorded	0	0.0%	27	21.1%	0	0.0%	46	11.2%	**73**	**7.3%**
Missing	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Total - Non-screened	60		93		214		412		**779**	
TOTAL PATIENTS	80	100.0%	128	100.0%	267	100.0%	519	100.0%	**994**	**100.0%**

Table 17: EMR and TEMS Resection

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

	Borders		D&G		Fife		Lothian		SCAN	
Endoscopic Mucosal Resections	3		4		10		23		**40**	
EMR followed by definitive Surgery	1	33.3%	0	0.0%	3	30.0%	7	30.4%	**11**	**27.5%**
TEMS resection	1		1		0		7		**9**	
TEMS followed by definitive surgery	0	0.0%	0	0.0%	1	0.0%	0	0.0%	**1**	**11.1%**
TAMIS resection	0		0		5		0		**5**	
TAMIS followed by definitive surgery	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**

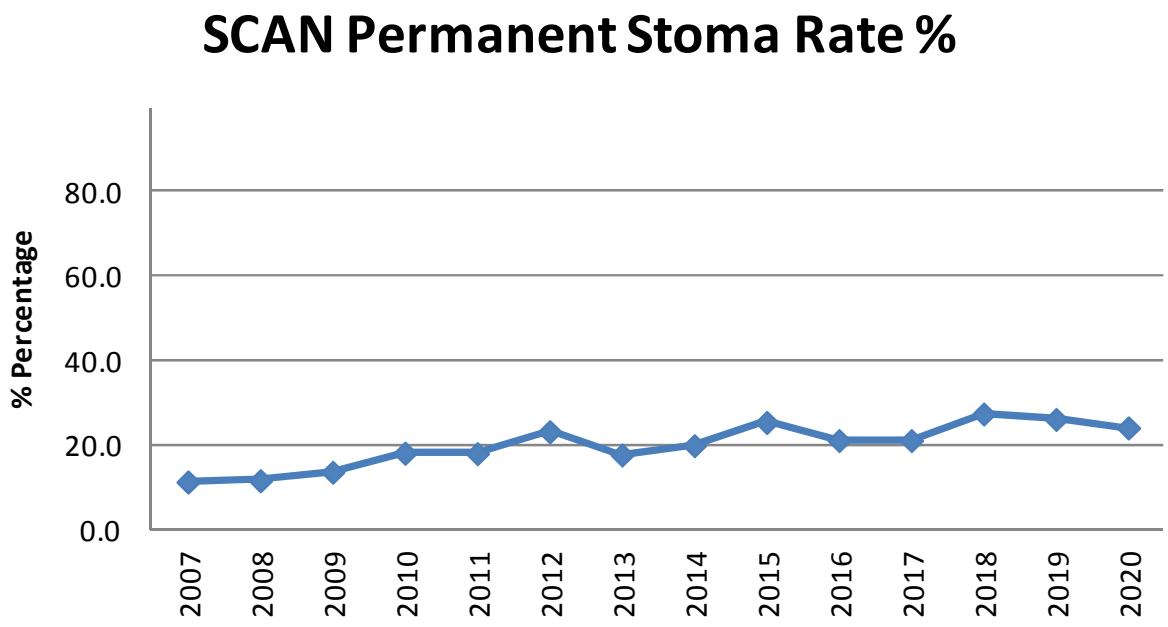
Table 18: Permanent Stoma rate is not more than 40% in patients with rectal tumours (QIS Standard 8b1)

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	16		21		47		94		**179**	
Patients undergoing APER with Colostomy OR Panproctocolectomy with ileostomy left with a permanent stoma	2	12.5%	5	23.8%	12	25.5%	24	25.5%	**43**	**24.2%**

	2007	2008	2009	2010	2011	212	2013	2014	2015	2016	2017	2018	2019	2020
SCAN	11.4	11.7	13.7	18.2	18.1	23.3	17.8	20	25.5	21.2	21.2	27.5	26.2	24.2



CRC QPI Attainment Summary 2018-19			Target%	Borders		D&G		Fife		Lothian		SCAN	
1. Radiological Staging & Diagnosis		Colon	95	N 39 D 39	100%	N 54 D 56	96.4%	N 107 D 107	100%	N 206 D 211	97.6%	N 406 D 413	98.3%
		Rectum	95	N 23 D 23	100%	N 15 D 15	100%	N 44 D 45	97.8%	N 77 D 79	97.5%	N 159 D 162	98.1%
2. Pre-operative imaging of the Colon			95	N 51 D 52	98.1%	N 58 D 61	95.1%	N 134 D 137	97.8%	N 248 D 256	96.9%	N 491 D 506	97.0%
3. MDT before definitive treatment			95	N 72 D 76	94.7%	N 86 D 88	97.7%	N 205 D 211	97.2%	N 405 D 419	96.7%	N 768 D 794	96.7%
4. Stoma Care: stoma site marked pre-operatively			95	N 8 D 8	100%	N 16 D 19	84.2%	N 26 D 27	96.3%	N 96 D 96	100%	N 146 D 150	97.3%
5. Lymph Node Yield: surgical resection where ≥12 lymph nodes			90	N 40 D 48	83.3%	N 69 D 73	94.5%	N 127 D 150	84.7%	N 247 D 282	87.6%	N 483 D 553	87.3%
6. Neo-adjuvant Radiotherapy (rectal)			90	N 3 D 4	75.0%	N 4 D 4	100%	N 16 D 17	94.1%	N 19 D 36	52.8%	N 42 D 61	68.9%
7. Surgical Margins	Primary surgery or surgery after short course XRT		95	N 16 D 16	100%	N 10 D 10	100%	N 32 D 33	97.0%	N 61 D 64	95.3%	N 119 D 123	96.7%
	After NACT, or long course XRT ± chemo, or short course XRT with long course intent		85	N 4 D 5	80.0%	N 3 D 3	100%	N 15 D 16	93.8%	N 20 D 22	90.9%	N 42 D 46	91.3%
8. Re-operation Rates		Elective	<10	N 3 D 53	5.7%	N 8 D 67	11.9%	N 8 D 150	5.3%	N 11 D 266	4.1%	N 30 D 536	5.6%
		Emergency	<15	N 0 D 4	0.0%	N 1 D 12	8.3%	N 3 D 34	8.8%	N 2 D 59	3.4%	N 6 D 109	5.5%
9. Anastomotic Dehiscence	Colon		<5	N 0 D 23	0.0%	N 1 D 37	2.7%	N 3 D 76	3.9%	N 3 D 143	2.1%	N 7 D 279	2.5%
	Rectum incl. TME		<10	N 1 D 22	4.5%	N 1 D 25	4.0%	N 4 D 77	5.2%	N 9 D 128	7.0%	N 15 D 252	6.0%
	TME		<20	N D	-	N D	-	N D	-	N D	-	N D	-
10i). 30 day mortality following surgical resection		Elective	<3	N 1 D 53	1.9%	N 0 D 67	0.0%	N 1 D 150	0.7%	N 3 D 286	1.0%	N 5 D 556	0.9%
		Emergency	<15	N 0 D 4	0.0%	N 2 D 11	18.2%	N 0 D 36	0.0%	N 1 D 61	1.6%	N 3 D 112	2.7%

CRC QPI Attainment Summary 2018-19		Target%	Borders		D&G		Fife		Lothian		SCAN	
10ii) 90 day mortality following surgical resection	Elective	<4	N 1 D 53	1.9%	N 0 D 66	0.0%	N 1 D 150	0.7%	N 4 D 285	1.4%	N 6 D 554	1.1%
	Emergency	<20	N 0 D 4	0.0%	N 2 D 11	18.2%	N 1 D 36	2.8%	N 4 D 61	6.6%	N 7 D 112	6.3%
11. Adjuvant Chemotherapy	HR Dukes B	50	N 4 D 4	100%	N 2 D 3	66.7%	N 9 D 13	69.2%	N 16 D 23	69.6%	N 31 D 43	72.1%
	Dukes C	70	N 11 D 12	91.7%	N 11 D 13	84.6%	N 27 D 32	84.4%	N 37 D 44	84.1%	N 86 D 101	85.1%
12i) 30 day Mortality after Curative Oncological Treatment	All oncology treatment	<1	N - D -	-	N - D -	-	N - D -	-	N - D -	-	N - D -	-
	Neo-adjuvant	<1	N 0 D 6	0.0%	N 0 D 4	0.0%	N 0 D 12	0.0%	N 0 D 25	0.0%	N 0 D 47	0.0%
	Radiotherapy	<1	N 0 D 4	0.0%	N 0 D 3	0.0%	N 0 D 16	0.0%	N 0 D 22	0.0%	N 0 D 45	0.0%
	Adjuvant Chemotherapy	<1	N 0 D 24	0.0%	N 0 D 22	0.0%	N 0 D 55	0.0%	N 0 D 80	0.0%	N 0 D 181	0.0%
12i) 90 day Mortality after Curative Oncological Treatment	All oncology treatment	<1	N - D -	-	N - D -	-	N - D -	-	N - D -	-	N - D -	-
	Neo-adjuvant	<1	N 0 D 6	0.0%	N 0 D 4	0.0%	N 0 D 12	0.0%	N 0 D 25	0.0%	N 0 D 47	0.0%
	Radiotherapy	<1	N 0 D 4	0.0%	N 0 D 3	0.0%	N 0 D 16	0.0%	N 0 D 22	0.0%	N 0 D 45	0.0%
	Adjuvant Chemotherapy	<1	N 1 D 22	4.5%	N 0 D 20	0.0%	N 1 D 46	2.2%	N 0 D 72	0.0%	N 2 D 160	1.3%
12ii). 30 day Mortality after Palliative Chemotherapy		<10	N 0 D 6	0.0%	N 0 D 4	0.0%	N 3 D 26	11.5%	N 2 D 41	4.9%	N 5 D 77	6.5%
13. Clinical Trials		15	N 24 D 97	24.7%	N 10 D 114	8.8%	N 32 D 221	14.5%	N 119 D 516	23.1%	N 185 D 948	19.5%

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.
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.