NOSCAN
North of Scotland
Cancer Network

Colorectal Cancer
Managed Clinical Network

Audit Report

Colorectal Cancer
Quality Performance Indicators

Patients diagnosed April 2016 – March 2017

Published: March 2018

Mr Michael Walker
NOSCAN MCN Clinical Lead

Christine Urquhart
NOSCAN Cancer Audit & Information Manager

Neil McLachlan
MCN Manager

The North of Scotland Cancer Network (or NOSCAN), is one of the 3 regional Scottish Cancer Networks, which report to their respective regional NHS Board Planning Groups and for specific workstreams, to the Scottish Cancer Taskforce Group.

The principle role of NOSCAN is to support the organization, planning and delivery of regional and national cancer services, and thereby to ensure consistent and high quality cancer care is being provided equitably across the North of Scotland.

www.noscan.scot.nhs.uk

EXECUTIVE SUMMARY

This publication reports the performance of colorectal cancer services in the six NHS Boards in the North of Scotland (NOS) against the Colorectal Cancer Quality Performance Indicators (QPI's) for patients diagnosed between 1st April 2016 and 31st March 2017. This is the fourth year in which Colorectal Cancer QPIs have been reported in Scotland and results for 2016-2017 are compared with those from previous years where appropriate.

Key points

- 896 patients diagnosed with colorectal cancer were audited in the North of Scotland, during 2016-2017. These numbers are similar to 2015-2016 (911 patients).
- Overall case ascertainment was 95%, very similar to the 2015-2016 figure of 97%, and results were considered to be representative of colorectal cancer services in the region.
- As in previous years, the main sources of referral were via a Primary Care Clinician, Screening Services and GP referral directly to hospital (49%, 18% and 14% of referrals respectively).

Summary of QPI Results

QPI	QPI Target	Performance[b]						
		NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	NHS W Isles
QPI 1: Radiological Diagnosis and Staging - Proportion of patients with colorectal cancer who undergo CT chest, abdomen and pelvis (colorectal cancer) plus MRI pelvis (rectal cancer only) before definitive treatment.								
i. Patients with colon cancer who undergo CT chest, abdomen and pelvis.	95%	**96%** n=350	94% n=119	93% n=67	100% n=5	100% n=11	98% n=142	100% n=6
ii. Patients with rectal cancer who undergo CT chest, abdomen and pelvis and MRI.	95%	**94%** n=144	89% n=46	95% n=37	-	-	98% n=54	-
QPI 2: Pre-Operative Imaging of the Colon - Proportion of patients with colorectal cancer who undergo surgical resection who have the whole colon visualised by colonoscopy or CT colonography pre-operatively, unless the non-visualised segment of colon is to be removed.	95%	**94%** n=458	88% n=157	97% n=100	100% n=8	100% n=9	96% n=177	100% n=7
QPI 3: MDT Meeting - Proportion of patients with colorectal cancer who are discussed at MDT meeting before definitive treatment.	95%	**94%** n=710	92% n=252	95% n=140	100% n=12	100% n=13	96% n=277	75% n=16

QPI	QPI Target	Performance[b] NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	NHS W Isles
QPI 4: Stoma Care - Proportion of patients with colorectal cancer who undergo elective surgical resection which involves stoma creation who are seen and have their stoma site marked pre-operatively by a nurse with expertise in stoma care.	95%	**94%** n=150	97% n=68	91% n=32	-	-	93% n=46	-
QPI 5: Lymph Node Yield - Proportion of patients with colorectal cancer who undergo surgical resection where ≥12 lymph nodes are pathologically examined.	90%	**94%** n=380	96% n=85	98% n=95	-	100% n=6	92% n=190	-
QPI 6: Neoadjuvant Therapy - Proportion of patients with locally advanced rectal cancer with threatened or involved circumferential resection margin (CRM) on preoperative MRI who receive neo-adjuvant therapy designed to facilitate a margin-negative resection.	90%	**80%** n=46	94% n=16	92% n=13	-	-	50% n=14	-
QPI 7: Surgical Margins - Proportion of patients with rectal cancer who undergo surgical resection in which the circumferential margin is clear of tumour.								
i. Primary surgery, or immediate / early surgery following neo-adjuvant short course radiotherapy.	95%	**99%** n=82	100% n=21	100% n=17	-	-	98% n=44	-
ii. Surgery following neo-adjuvant chemotherapy, long course chemo radiotherapy long course radiotherapy or short course radiotherapy with long course intent.	85%	**93%** n=44	90% n=21	93% n=14	-	-	100% n=9	-
QPI 8: Re-operation Rates - Proportion of patients who undergo surgical resection for colorectal cancer who return to theatre to deal with complications related to the index procedure (within 30 days of surgery).	Data to report this QPI is not available for patients diagnosed 2016-17. Results will be reported for patients diagnosed in 2017-18							
QPI 9: Anastomotic Dehiscence - Proportion of patients who undergo surgical resection for colorectal cancer with anastomotic leak as a post operative complication.								
i. Colonic anastomosis.	<5%	**4%** n=252	3% n=86	6% n=49	0% n=8	-	5% n=104	-
ii.Rectal anastomosis (including: anterior resection with total mesorectal excision (TME)).	<10%	**4%** n=179	5% n=60	4% n=48	-	-	4% n=69	-

QPI	QPI Target	Performance[b]						
		NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	NHS W Isles
QPI 10: 30 and 90 Day Mortality Following Surgical Resection – Proportion of patients with colorectal cancer who die within 30 or 90 days of emergency or elective surgical resection.								
i. Elective surgical resection - 30 Day Mortality	<3%	**1%** n=467	3% n=162	0% n=101	-	0% n=6	1% n=193	-
i. Elective surgical resection - 90 Day Mortality	<4%	**2%** n=462	4% n=159	1% n=101	-	0% n=6	1% n=191	-
ii. Emergency surgical resection - 30 Day Mortality	<15%	**6%** n=94	9% n=43	7% n=14	-	-	3% n=33	-
ii. Emergency surgical resection - 90 Day Mortality	<20%	**10%** n=93	12% n=43	7% n=14	-	-	9% n=32	-
QPI 11: Adjuvant Chemotherapy - Proportion of patients between 50 and 74 years of age at diagnosis with Dukes C, or high risk Dukes B, colorectal cancer who receive adjuvant chemotherapy.								
i. Patients with Dukes C colorectal cancer	70%	**75%** n=85	77% n=30	76% n=17	-	-	69% n=32	-
ii. Patients with high risk Dukes B colorectal cancer	50%	**76%** n=38	92% n=12	100% n=8	-	-	53% n=17	-
QPI 12: 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy - Proportion of patients with colorectal cancer who die within 30 or 90 days of chemotherapy or radiotherapy treatment.								
Neo-adjuvant chemoradiotherapy – 30 Day Mortality	<1%	**2%** n=60	0% n=28	0% n=16	-	-	0% n=12	-
Neo-adjuvant chemoradiotherapy – 90 Day Mortality	<1%	**2%** n=59	0% n=27	0% n=16	-	-	0% n=12	-
Adjuvant chemotherapy – 30 Day Mortality	<1%	**0%** n=138	0% n=55	0% n=33	-	0% n=5	0% n=37	-
Adjuvant chemotherapy – 90 Day Mortality	<1%	**0%** n=121	0% n=49	0% n=29	-	-	0% n=34	-
Radiotherapy – 30 Day Mortality	<1%	**0%** n=39	0% n=20	0% n=8	-	-	0% n=8	-

QPI	QPI Target	Performance[b]						
		NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	NHS W Isles
Radiotherapy – 90 Day Mortality	<1%	**0%** n=39	0% n=20	0% n=8	-	-	0% n=8	-
Palliative Chemotherapy – 30 Day Mortality	<10%	**9%** n=58	9% n=22	13% n=15	-	-	5% n=19	-

Clinical Trials Access - Proportion of patients with colorectal cancer who are enrolled in an interventional clinical trial or translational research.	Target	NOSCAN
Interventional clinical trials	7.5%	**2%** n=932
Translational research	15%	**48%** n=932

Performance shaded pink where QPI target has not been met.
[b] Excluding results based on less than 5 patients.

2016-2017 is the fourth year of QPI reporting, during which time the performance of NOSCAN boards has once again been mixed: NOSCAN met 5 of the 12 measured QPIs, an increase from 2015-2016 when only 3 of the 12 measures were met. For the QPI's that have not been met, they have, with one exception, been narrowly missed, mostly by a single percentage point. This is indicative of an improvement in performance against target across the range of QPI's. There remains room for improvement in individual NHS Boards for certain QPI, for these, action plans will be put in place to ensure further improvement. NHS Boards will also need to ensure that, where performance has improved, that this performance is maintained.

The one QPI that was missed by a significant margin relates to the management of rectal cancer and the use of neo-adjuvant therapy for locally advanced tumours threatening the resection margin on MRI scan. This was due to low radiotherapy usage in NHS Tayside. NHS Tayside report alternative surgical strategies in these patients which have resulted in clear surgical resection margins and this is reflected in QPI 7 where this QPI is met. Therefore, the aim of patients with threatened surgical margins having clear resection margins has been met without using radiotherapy. There is large national variation reported in the use of radiotherapy for rectal cancer. The MCN propose that a wider national review of the role of radiotherapy in rectal cancer is undertaken to ensure that radiotherapy is given where appropriate and that all strategies for treatment of rectal cancer are equivalent.

The following actions have been identified for future years to help monitor and maintain excellent patient care and compliance with the QPI standards:

- NHS Highland to ensure patient diagnosed with colorectal cancer by CT colonogram also have a CT of their chest done pre-operatively.

- Clinicians in all NHS Boards to have a low threshold for performing MRI in patients where the tumour is on the border of sigmoid and rectum where pre-operative radiotherapy might be considered.

- All NHS Boards to note the new definition for QPI 2 and ensure that this is met as there are now few reasons for a patient not to comply.

- All NHS Boards not meeting the target for QPI 4 to identify reasons and address the identified issues. For the smaller hospitals, training opportunities should be offered and staff recognised who can fill the role of the "nurse with expertise in stoma care". It is noted that the small numbers of patients requiring stoma formation in these hospitals mean that person is unlikely to have an identical role to those in larger hospitals.

- NHS Grampian to ensure that intent of surgery is recorded in the treatment plan for each patient.

- NOSCAN MCN to engage in discussion with other networks to discuss the use of radiotherapy and consider areas where variation in usage could be reduced.

- All clinicians should consider opening relevant clinical trials in their tumour areas. When this is not possible patient referrals to other sites for access to clinical trials should be considered.

Contents

Executive Summary 3
Contents 8
1. **Introduction** 9
2. **Background** 9
2.1 National Context 10
2.2 North of Scotland Context 10
3. **Methodology** 11
4. **Results** 11
4.1 Case ascertainment 11
4.2 Age and Sex Distribution 13
4.3 Source of Referral 13
4.4 Performance against Qualify Performance Indicators (QPIs) 14
5. **Conclusions** 55
6. **References** 59
7. **Appendices** 60

1. Introduction

In 2010, the Scottish Cancer Taskforce established the National Cancer Quality Steering Group (NCQSG) to take forward the development of national Quality Improvement Indicators (QPIs) for all cancer types to enable national comparative reporting and drive continuous improvement for patients. In collaboration with the three Regional Cancer Networks (NoSCAN, SCAN & WoSCAN) and Information Services Division (ISD), the first QPIs were published by Healthcare Improvement Scotland (HIS) in January 2012. CEL 06 (2012) mandates all NHS Boards in Scotland to report on specified QPIs on an annual basis. Data definitions and measurability criteria to accompany the Colorectal Cancer QPIs are available from the ISD website[1].

Regular reporting of activity and performance is a fundamental requirement of a Managed Clinical Network (MCN) to assure the quality of care delivered across the region. The need for regular reporting of activity and performance (to assure the quality of care delivered) was first set out nationally as a fundamental requirement of a Managed Clinical Network (MCN) in NHS MEL(1999)10[2]. This has since been further restated and reinforced in HDL(2002)69[3], HDL (2007) 21[4], and most recently in CEL 29 (2012)[5].

This report assesses the performance of the North of Scotland (NoS) colorectal cancer services, as measured against the Colorectal Cancer Quality Performance Indicators (QPIs)[6] which were implemented for patients diagnosed on or after 1st April 2014, using clinical audit for patients diagnosed with colorectal cancer in the twelve months from 1st April 2016 to 31st March 2017. Comparison with the results from previous years is also provided where appropriate.

2. Background

Six NHS Boards across the North of Scotland serve the 1.40 million population[8]. There were 896 patients diagnosed with colorectal cancer in the North of Scotland between 1st April 2016 and 31st March 2017.

Best practice recommends that patients diagnosed with cancer should have all aspects of their clinical management multidisciplinary considered thereby ensuring enhanced consistency and quality of patient care and clinical outcomes. The configuration of the three Multidisciplinary Teams (MDTs) pertaining to the management of colorectal cancer in the region is set out below.

MDT	Constituent Boards
Grampian	NHS Grampian, NHS Orkney and NHS Shetland
Highland	NHS Highland and NHS Western Isles
Tayside	NHS Tayside

2.1 National Context

Colorectal cancer is the third most common cancer in Scotland[9] with over 3,600 cases diagnosed in Scotland each year since 2010[10]. Over the last decade the incidence rate has decreased by 6% in women and 12% for men. Modifiable risk factors for colorectal cancer are thought to include diet, lack of physical activity and long-term smoking[9].

Relative survival for colorectal cancer is increasing[11]. The table below shows the percentage change in one-year and five-year age-standardised survival rates for patients diagnosed in 1987-1981 compared to those diagnosed in 2007-2011.

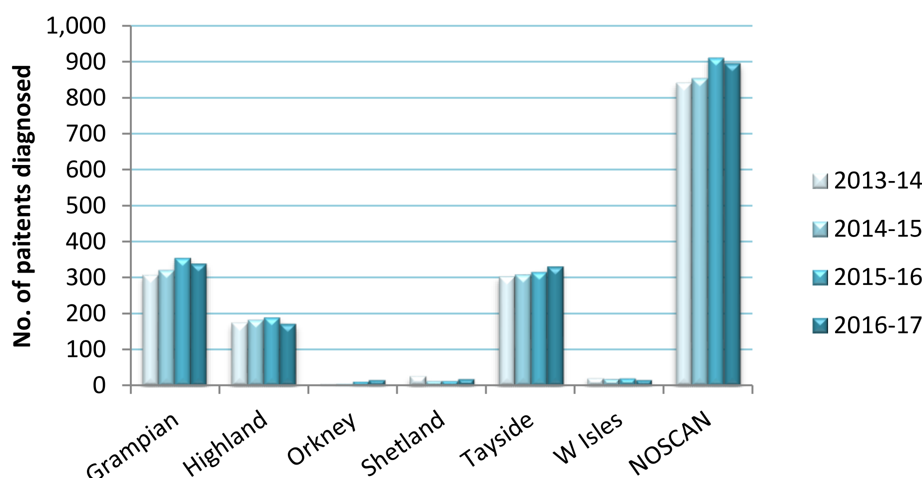
Relative age-standardised survival for colorectal cancer in Scotland at 1 year and 5 years showing percentage change from 1987-1981 to 2007-2011[11].

	Relative survival at 1 year (%)		Relative survival at 5 years (%)	
	2007-2011	% change	2007-2011	% change
Colorectal Cancer	78.0%	+ 13.1%	60.4%	+ 18.0%

2.2 North of Scotland Context

A total of 896 cases of colorectal cancer were recorded through audit as diagnosed in the North of Scotland between 1st April 2016 and 31st March 2017, which is very similar to 2015-2016 when 911 patients were recorded. The number of patients diagnosed within each Board is presented below.

	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
Number of Patients	**340**	**173**	**16**	**19**	**332**	**16**	**896**
% of NoS total	**37.9%**	**19.3%**	**1.8%**	**2.1%**	**37.1%**	**1.8%**	**100%**



3. Methodology

The audit data presented in this report were collected by clinical audit staff in each NHS Board in accordance with an agreed dataset and definitions[1]. The data was entered locally into the electronic Cancer Audit Support Environment (eCASE): a secure centralised web-based database.

Data for patients diagnosed between 1st April 2016 and 31st March 2017 and any comments on QPI results were then signed-off at NHS Board level to ensure that the data was an accurate representation of service in each area prior to submission to NOSCAN for collation at a regional level. The reporting timetable was developed to take into account the patient pathway and ensure that a complete treatment record was available for the vast majority of cases.

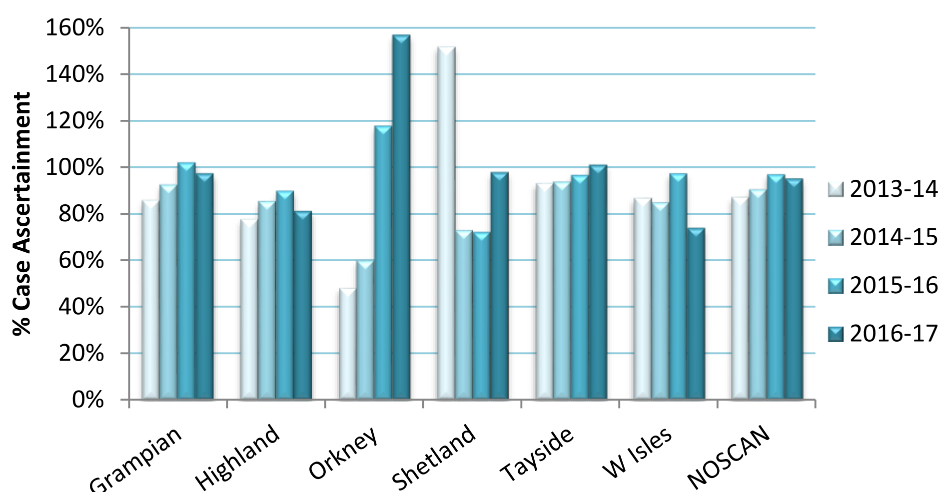
Where the number of patients meeting the denominator criteria for any indicator is between one and four, the results have not been shown in any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any tables impacted by this are denoted with an asterisk (*). However, any commentary provided by NHS Boards relating to the impacted indicators will be included as a record of continuous improvement.

4. Results

4.1 Case Ascertainment

Audit data completeness can be assessed from case ascertainment, which is the proportion of expected patients that have been identified through audit. Case ascertainment is calculated by comparing the number of new cases identified by the cancer audit with the number recorded by the National Cancer Registry, with analysis being undertaken by NHS Board of diagnosis. Cancer Registry figures were extracted from ACaDMe (Acute Cancer Deaths and Mental Health), a system provided by ISD. Due to timescale of data collection and verification processes, National Cancer Registry data are not available for 2016. Consequently an average of the previous five years' figures is used to take account of annual fluctuations in incidence within NHS Boards.

Overall case ascertainment for the North of Scotland was high at 95.2%, similar to the 2015-16 figure of 96.8%. Case ascertainment figures are provided for guidance and are not an exact measurement of audit completeness as it is not possible to compare the same cohort of patients. Figures for each Board across the North of Scotland are illustrated below. The wider variation in the Western Isles, Orkney and Shetland is due to the small numbers of patients diagnosed within these Boards.



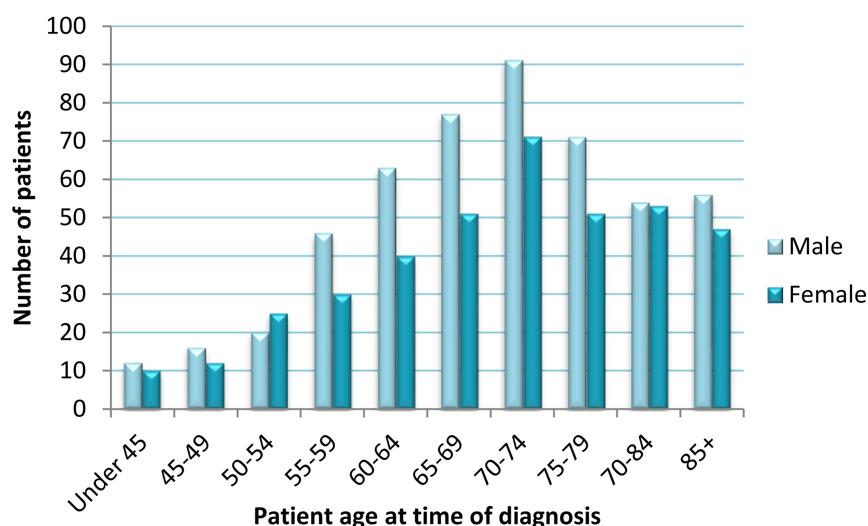
Case ascertainment by NHS Board for patients diagnosed with colorectal cancer 2013-14 to 2016-17.

	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
Cases from audit 2016-2017	**340**	**173**	**16**	**19**	**332**	**16**	**896**
ISD Cases annual average (2011-2015)	349	213	10	19	328	22	**941**
% Case ascertainment 2016-2017	**97.4%**	**81.3%**	**156.9%**	**97.9 %**	**101.2%**	**74.1%**	**95.2%**

Audit data were considered to be sufficiently complete to allow QPI calculations: the number of instances of data not being recorded was generally very low, however there were a few notable gaps across the region, which will affect the accuracy of QPI results. The most considerable gap was the absence of data on 'Intent of Surgery' for 110 patients across the North of Scotland, most notably in NHS Grampian. This omission will have affected the results of QPI 5 considerably, although is an improvement on previous years. Other data items that were not recorded for some patients include information on Surgical Approach and predicted Circumferential Resection Margins.

4.2 Age and Sex Distribution

The figure below shows the age distribution of patients diagnosed with colorectal cancer in the North of Scotland during 2016-2017 for both men and women. More men were diagnosed than women, with diagnoses peaking in the 70-74 age group for both men and women.



4.3 Source of referral

The majority of patient referrals in Scotland were from a Primary Care Clinician (49.2%), Screening Service (17.9%) and GP referral directly to hospital (13.6%). The proportions of patients being referred to the various services were similar across NHS Boards, although more patients were referred from the review clinic in NHS Tayside than for other Boards, as in previous years.

Source of referral (%)	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
Primary Care Clinician	47.9%	57.2%	31.3%	42.1%	47.6%	50.0%	**49.2%**
Screening Service	22.1%	18.5%	12.5%	52.6%	12.0%	6.3%	**17.9%**
GP Referral directly to hospital	15.9%	2.3%	37.5%	0%	17.5%	0%	**13.6%**
Review Clinic	6.5%	2.3%	6.3%	0%	13.6%	18.8%	**8.4%**
Incidental Finding	3.5%	6.4%	0%	5.3%	7.5%	0%	**5.5%**
Self-referral to A&E	1.5%	13.3%	12.5%	0%	0%	25.0%	**3.8%**
Previous GP Referral but subsequently admitted to hospital	1.2%	0%	0%	0%	1.8%	0%	**1.1%**
Referral from private healthcare	1.5%	0%	0%	0%	0%	0%	**0.6%**

4.4 Performance against Quality Performance Indicators (QPIs)

Results of the analysis of Colorectal Cancer Quality Performance Indicators are set out in the following sections. Graphs and charts have been provided where this aids interpretation and, where appropriate, numbers have also been included to provide context. Data are presented in the main by Board of diagnosis. However, the surgical focussed QPIs (ie QPIs 4, 5, 7, 9 and 10) are reported by hospital of surgery.

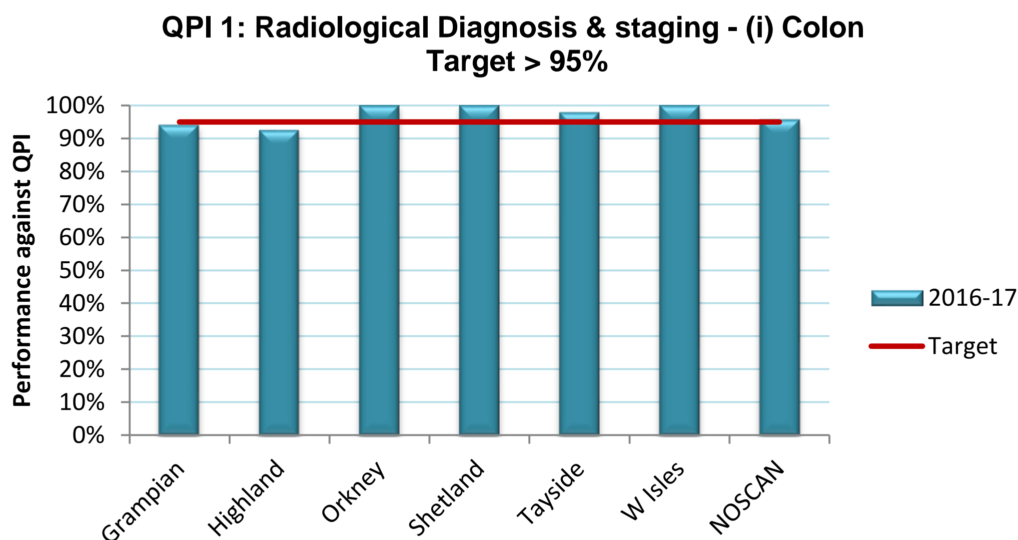
Data are presented by individual Board of audit and collectively for the whole of the North of Scotland. Where performance is shown to fall below the target, commentary is often included to provide context to the variation. Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis.

QPI 1: Radiological Diagnosis and Staging

> ***QPI 1(i): Radiological Diagnosis and Staging (Colon): Patients with colorectal cancer should be evaluated with appropriate imaging to detect extent of disease and guide treatment decision making.***
>
> Accurate staging is necessary to detect metastatic disease, guide treatment and avoid inappropriate surgery.
>
> 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 refuse investigation.
> - Patients who undergo emergency surgery.
> - Patients undergoing supportive care only.
> - Patients undergoing palliative treatment. (chemotherapy, radiotherapy or surgery).
> - Patients who died before first treatment.
>
> Target: 95%

QPI 1(i) Performance against target

Of the 350 patients diagnosed with cancer of the colon in the North of Scotland in 2016-2017, 335 had CT of the chest, abdomen and pelvis before definitive treatment. This equates to a rate of 95.7%, meeting the target rate of 95%. Results cannot be compared with those from previous years due to changes in the definition of this indicator. This QPI was met by four NHS Boards in the North of Scotland, the two NHS Boards not meeting the target were NHS Grampian and NHS Highland.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**94.1%**	112	119	0	0%	56	47.1%	0
Highland	**92.5%**	62	67	0	0%	1	1.5%	0
Orkney	**100%**	5	5	0	0%	2	40.0%	0
Shetland	**100%**	11	11	0	0%	0	0%	1
Tayside	**97.9%**	139	142	0	0%	2	1.4%	0
W Isles	**100%**	6	6	0	0%	0	0%	0
NoS	**95.7%**	**335**	**350**	**0**	**0%**	**61**	**17.4%**	**1**

It is pleasing to see that this target was met in the North of Scotland, improving on the last regional report. Comments from the two NHS Boards where the QPI was narrowly missed indicate that the most common reason was that the pre-operative diagnosis was not of cancer and therefore a CT scan of the chest had not been done. The other group of patients are those patients in whom colorectal cancer is diagnosed by CT colonogram only rather than endoscopically. A CT chest should be done pre-operatively in these cases.

Actions Required:

- **NHS Highland to ensure patient diagnosed with colorectal cancer by CT colonogram also have a CT of their chest done pre-operatively.**

QPI 1(ii): Radiological Diagnosis and Staging (Rectal): Patients with colorectal cancer should be evaluated with appropriate imaging to detect extent of disease and guide treatment decision making.

Numerator: Number of patients with rectal cancer 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).

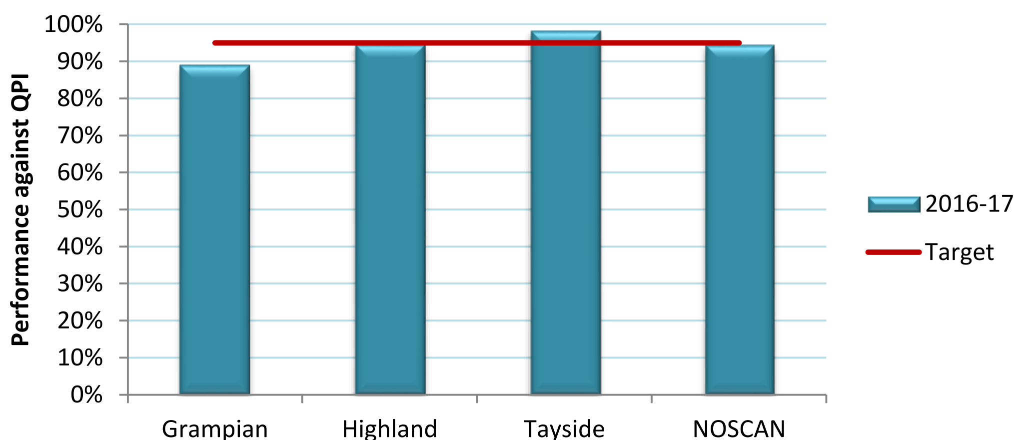
Exclusions:

- Patients who refuse investigation.
- Patients who undergo emergency surgery.
- 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%

QPI 1(ii) Performance against target

Of the 144 patients diagnosed with rectal cancer in the North of Scotland in 2016-2017, 136 had CT chest, abdomen and pelvis and MRI pelvis before definitive treatment. This equates to a rate of 94.4% and is just below the target rate of 95%. Results cannot be compared with those from previous years due to changes in the definition of this indicator. This QPI was met by four NHS Boards in the North of Scotland, the two NHS Boards not meeting the target were NHS Grampian and NHS Highland.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**89.1%**	41	46	0	0%	2	4.3%	0
Highland	**94.6%**	35	37	0	0%	0	0%	0
Orkney*	**-**	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-
Tayside	**98.1%**	53	54	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-
NoS	**94.4%**	**136**	**144**	**0**	**0%**	**3**	**2.10%**	**0**

This QPI was narrowly missed. In the two NHS Boards where this QPI was not met the main reason appeared to be that pre-operatively on endoscopy and CT scan the tumour was thought to be in the sigmoid rather than the rectum. Post operatively the pathologist reported the tumours to be in the rectum. It is not always easy to tell anatomically where a tumour is, as the sigmoid colon and rectum are continuous.

Actions Required:

- **Clinicians in all NHS Boards to have a low threshold for performing MRI in patients where the tumour is on the border of sigmoid and rectum where pre-operative radiotherapy might be considered.**

QPI 2: Pre-Operative Imaging of the Colon

QPI 2: Pre-Operative Imaging of the Colon - Patients with colorectal cancer undergoing surgical resection should have the whole colon visualised pre-operatively.

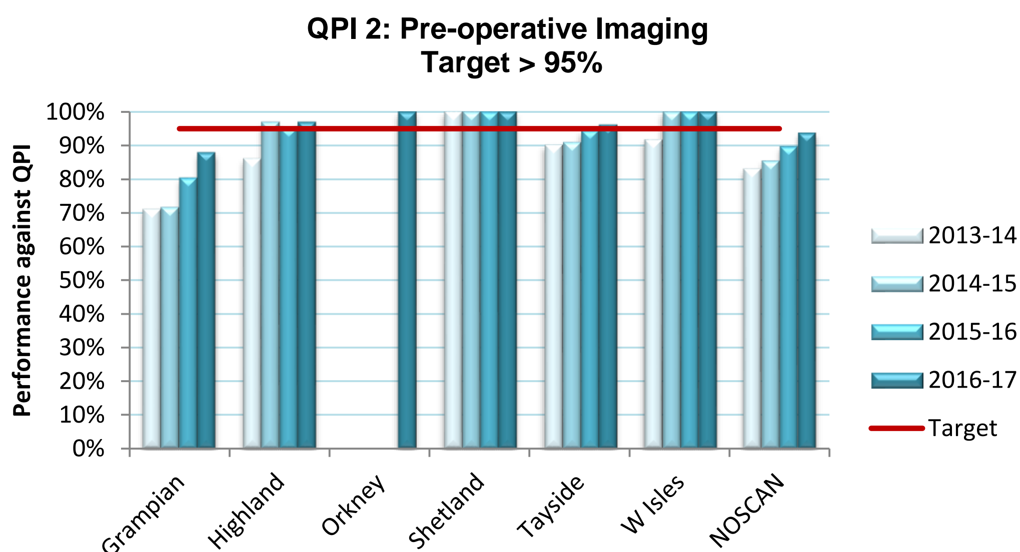
The whole colon is visualised preoperatively to avoid missing synchronous tumours and to remove synchronous adenomas.

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 the colon has been removed.
Denominator:	All patients who undergo elective surgical resection for colorectal cancer.
Exclusions:	No exclusions
Target:	95%

QPI 2 Performance against target

Of the 458 patients undergoing elective surgical resection for colorectal cancer, 429 had their whole colon visualised by colonoscopy or CT colonography before surgery. This equates to a rate of 93.7% which is just below the target rate of 95%, but an improvement on the 2015-16 figure of 89.7%.

This QPI was met by five NHS Boards in the North of Scotland but was not met by NHS Grampian, although performance against this QPI has improved year on year in Grampian.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**87.9%**	138	157	0	0%	0	0%	0	**+7.5%**
Highland	**97.0%**	97	100	0	0%	2	2.0%	2	**+1.8%**
Orkney	**100%**	8	8	0	0%	0	0%	0	**-**
Shetland	**100%**	9	9	0	0%	0	0%	0	**0%**
Tayside	**96.0%**	170	177	0	0%	2	1.1%	0	**+1.6%**
W Isles	**100%**	7	7	0	0%	0	0%	0	**0%**
NoS	**93.7%**	**429**	**458**	**0**	**0%**	**4**	**0.9%**	**2**	**+4.0%**

There was good compliance with this QPI in NOSCAN and was only not met by NHS Grampian. This was predominantly because patients with obstructing or stricturing tumours were not subjected to bowel preparation by the responsible clinician. The QPI definition will change next year to exclude patients having palliative surgery and those having incomplete bowel imaging due to an obstructing tumour; this QPI would have been met by NHS Grampian with the new definition.

Actions Required:

- **All NHS Boards to note the new definition for QPI 2 and ensure that this is met as there are now few reasons for a patient not to comply.**

QPI 3: Multi-Disciplinary Team (MDT) Meeting

QPI3: Multi-Disciplinary Team (MDT) Meeting: Patients should be discussed by a multidisciplinary team prior to definitive treatment.

Evidence suggests that patients with cancer managed by a multi-disciplinary team have a better outcome. There is also evidence that the multidisciplinary management of patients increases their overall satisfaction with their care.

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

Denominator: All patients with colorectal cancer.

Exclusions:

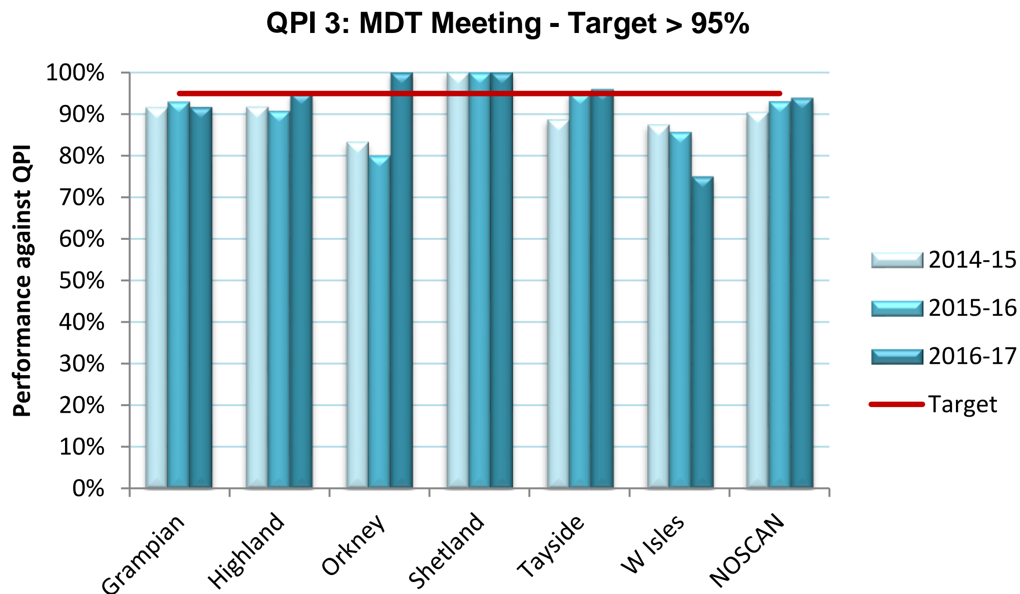
- Patients who died before first treatment.
- Patients undergoing emergency surgery.
- Patients undergoing treatment with endoscopic polypectomy only.

Target: 95%

QPI 3 Performance against target

667 out of the 710 patients included with this QPI were discussed at the MDT before definitive treatment. At 93.9% this is just below the target rate of 95% and a slight increase compared with the 2015-16 figure of 93.1%.

Four NHS Boards met this QPI, with the target not met in NHS Grampian and NHS W Isles.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**91.7%**	231	252	1	0.4%	0	0%	0	**-1.3%**
Highland	**95.0%**	133	140	4	2.9%	2	1.4%	0	**+4.2%**
Orkney	**100%**	12	12	0	0%	0	0%	0	**+20.0%**
Shetland	**100%**	13	13	0	0%	0	0%	0	**0%**
Tayside	**96.0%**	266	277	0	0%	0	0%	0	**+1.0%**
W Isles	**75.0%**	12	16	0	0%	0	0%	0	**-10.7%**
NoS	**93.9%**	**667**	**710**	**5**	**0.7%**	**2**	**0.3%**	**0**	**+0.8%**

Discussion of a patient in a multi-disciplinary team meeting is an important part of ensuring a patient is correctly treated. In NHS W Isles the four patients not meeting the QPI were identified as being for supportive care only at presentation and all were discussed at MDT subsequently; this is considered to be clinically appropriate. Data definitions have been changed so that in future years such patients will meet the QPI if they are discussed at MDT following the decision for supportive care. In NHS Grampian this QPI was not met, however the reasons for this are considered clinically appropriate and largely fall into one of the following two groups.

1. Patients having surgical resection for a “benign” condition where an unexpected cancer was found in the resection specimen.

2. Patients in which the diagnosis was based on a CT scan as an emergency admission and often incidental finding with significant co-morbidity where only supportive care was planned.

Actions Required:

No actions were identified.

QPI 4: Stoma Care

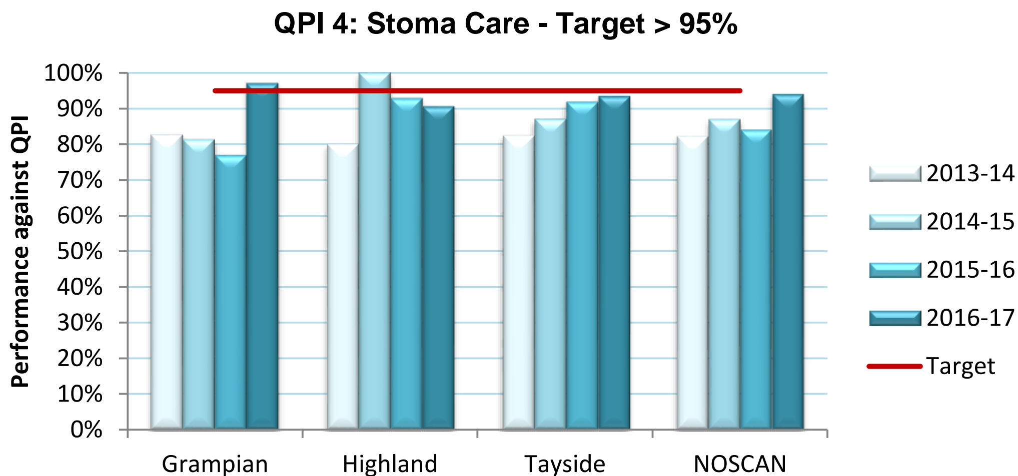
QPI 4: Stoma Care - Patients with colorectal cancer who require a stoma are assessed and have their stoma site marked pre-operatively by a nurse with expertise in stoma care.

Access to a nurse with expertise in stoma care increases patient satisfaction and optimal independent functioning. Furthermore, there is significant evidence to suggest that patients not marked preoperatively can have significant problems with their stoma post operatively and this can affect their recovery and rehabilitation.

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 refuse to be seen by a nurse with expertise in stoma care.
Target:	95%

QPI 4 Performance against target

A total of 150 colorectal cancer patients in the North of Scotland underwent elective surgical resection which involved stoma creation in 2016-2017. Of these, 141 (94.0%) were seen by a nurse with expertise in stoma care preoperatively and had their stoma site marked, therefore the target of 95% was narrowly missed. However, results have improved since 2015-16 when 84.1% of patients met this indicator. This QPI was met by two Boards in the North of Scotland, NHS Grampian and NHS Shetland.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**97.1%**	66	68	0	0%	0	0%	0	+20.1%
Highland	**90.6%**	29	32	0	0%	0	0%	0	-2.3%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**93.5%**	43	46	0	0%	1	2.2%	0	+1.6%
W Isles	**-**	0	0	0	-	0	-	0	-
NoS	**94.0%**	**141**	**150**	0	0%	1	0.7%	0	**+9.9%**

Results for individual hospitals are shown below. At a hospital level this QPI was met in Raigmore Hospital (NHS Highland), Gilbert Bain Hospital (NHS Shetland) and Aberdeen Royal Infirmary and Dr Grays Hospital in NHS Grampian. The QPI was not met in Lorn & Island Hospital (NHS Highland), Balfour Hospital (NHS Orkney) and in Ninewells Hospital and Perth Royal Infirmary (NHS Tayside).

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**96.4%**	54	56	0	0%	0	0%	0
Dr Grays	**100%**	12	12	0	0%	0	0%	0
Raigmore	**96.7%**	29	30	0	0%	0	0%	0
Lorn & Islands*	**-**	-	-	-	-	-	-	-
Balfour*	**-**	-	-	-	-	-	-	-
Gilbert Bain*	**-**	-	-	-	-	-	-	-
Ninewells	**92.9%**	26	28	0	0%	1	3.6%	0
PRI	**94.4%**	17	18	0	0%	0	0%	0

In previous years this QPI has been a challenge for NOSCAN to meet but there has been significant improvement this year. NHS Tayside has continued to improve its performance and nearly met the QPI while NHS Grampian has put in considerable work and made changes to

enable it to meet the indicator. For other NHS Boards the challenge is around smaller hospitals that do not have a trained stoma nurse and have a low volume of stoma formation.

Actions Required:

- **All NHS Boards not meeting the target for QPI 4 to identify reasons and address the identified issues. For the smaller hospitals, training opportunities should be offered and staff recognised who can fill the role of the “nurse with expertise in stoma care”. It is noted that the small numbers of patients requiring stoma formation in these hospitals mean that person is unlikely to have an identical role to those in larger hospitals.**

QPI 5: Lymph Node Yield

QPI 5: Lymph Node Yield - For patients undergoing resection for colorectal cancer the number of lymph nodes examined should be maximised.

Maximising the number of lymph nodes resected and analysed enables reliable staging which influences treatment decision making.

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:

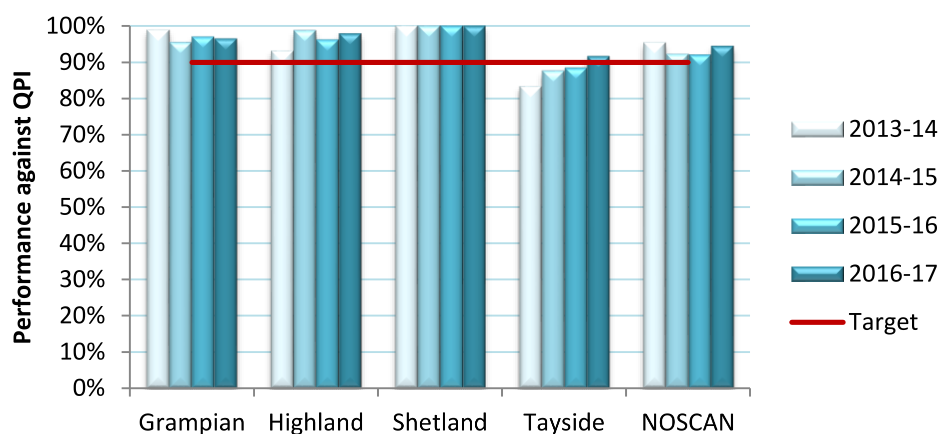
- Patients with rectal cancer who undergo long course neo-adjuvant chemo radiotherapy or radiotherapy.
- Patients who undergo Transanal Endoscopic Microsurgery (TEM) or Transanal Resection of Tumour (TART).

Target: 90%

QPI 5 Performance against target

94.5% of patients in the North of Scotland undergoing curative surgical resection had 12 or more of their lymph nodes pathologically examined. This meets the QPI target and is an increase compared with the 2015-16 result of 92.1%. However it should be noted that 115 patients undergoing surgical resection could not be included within the calculations for this QPI as the 'Intent of Surgery' was not recorded, including 108 patients in NHS Grampian. While the lack of recording of this information will not affect patient care it does mean that the QPI results may not be an accurate reflection of the service provided to patients, particularly in NHS Grampian where the lack of recording was most acute.

From the data available, QPI results suggest that all Boards in the North of Scotland met this QPI. There has been a notable improvement in performance against this QPI in NHS Tayside over the last 4 years.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**96.5%**	82	85	0	0%	0	0%	108	-0.5%
Highland	**97.9%**	93	95	0	0%	6	6.3%	1	+1.7%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland	**100%**	6	6	0	0%	0	0%	0	0%
Tayside	**91.6%**	174	190	0	0%	1	0.5%	3	+3.1%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**94.5%**	**359**	**380**	**0**	**0%**	**7**	**1.8%**	**116**	**+2.4%**

Results for individual hospitals are shown below. All hospitals in the North of Scotland where surgical resection was undertaken for colorectal cancer met this QPI.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**96.9%**	63	65	0	0%	0	0%	90
Dr Grays	**95.0%**	19	20	0	0%	0	0%	18
Balfour*	**-**	-	-	-	-	-	-	-
Gilbert Bain	**100%**	6	6	0	0%	0	0%	0
Raigmore	**97.7%**	84	86	0	0%	4	4.7%	1

Lorne & Islands	**100%**	7	7	0	0%	0	0%	0
Belford*	**-**	-	-	-	-	-	-	-
Ninewells	**91.1%**	113	124	0	0%	1	0.8%	3
PRI	**92.4%**	61	66	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-

Despite the recent increase in the target for from 80% to 90%, this QPI was universally met again across NOSCAN.

Actions Required:

- **NHS Grampian to ensure that intent of surgery is recorded in the treatment plan for each patient.**

QPI 6: Neo-adjuvant Therapy

QPI 6: Neo-adjuvant Therapy - Patients with locally advanced rectal cancer should receive neo-adjuvant therapy designed to facilitate a margin-negative resection.

Patients with rectal tumours that involve or threaten the mesorectal fascia on preoperative imaging may benefit from preoperative radiotherapy.

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

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

Exclusions:

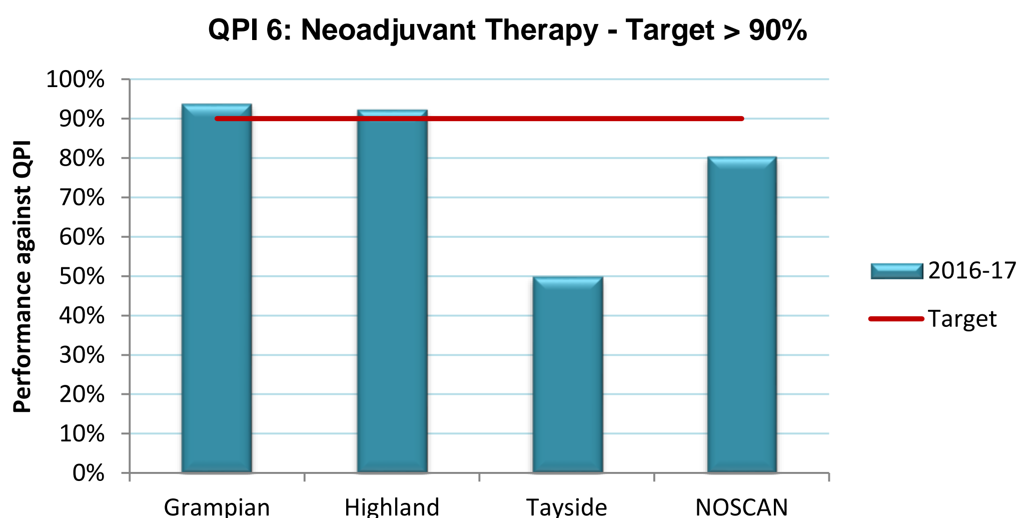
- Patients who refused neo-adjuvant therapy.
- Patients in whom neo-adjuvant therapy is contraindicated.
- Patients who presented as an emergency for surgery.

Target: 90%

QPI 6 Performance against target

Overall in 2016-17, 37 out of 46 patients with locally advances rectal cancer received neo-adjuvant therapy. At a rate of 80.4%, this does not meet the target of 90% of patients. Results are not comparable with those from previous years due to changes in the definition of this indicator.

There was some variation in performance against this QPI at an NHS Board level. The QPI was met in all NHS Boards apart from NHS Tayside, where performance was considerably lower, although numbers of patients on which calculations were based were fairly small.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**93.8%**	15	16	0	0%	0	0%	3
Highland	**92.3%**	12	13	0	0%	0	0%	1
Orkney	**-**	0	0	0	-	0	-	0
Shetland*	**-**	-	-	-	-	-	-	-
Tayside	**50.0%**	7	14	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-
NoS	**80.4%**	**37**	**46**	**0**	**0%**	**0**	**0%**	**5**

This QPI was not met across NOSCAN due to low usage of neoadjuvant radiotherapy in Tayside, with both Highland and Grampian meeting the target. This has been a recurring theme in previous reports. NHS Tayside provided reports that the patients with threatened margins not having adjuvant therapy had more radical surgery (Extra-levator APER) and all had margin negative resections (R0). There is well reported variation in the use of radiotherapy in rectal cancer between different centres in the UK with a wide range. In the presence of negative margins, it is difficult to criticise the treatment strategy. This is an area of national interest with variation in radiotherapy usage found in other regions and should be considered at a national level.

Actions Required:

- **NOSCAN MCN to engage in discussion with other networks to discuss the use of radiotherapy and consider areas where variation in usage could be reduced.**

QPI 7: Surgical Margins

QPI 7(i): Surgical Margins - Rectal cancers undergoing surgical resection should be adequately excised. For patients who receive primary surgery, or immediate / early surgery following neo-adjuvant short course radiotherapy.

The circumferential margin is an independent risk factor for the development of distant metastases and mortality. It is recognised that local recurrence of rectal cancer can be accurately predicted by pathological assessment of circumferential margin involvement in these tumours.

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

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

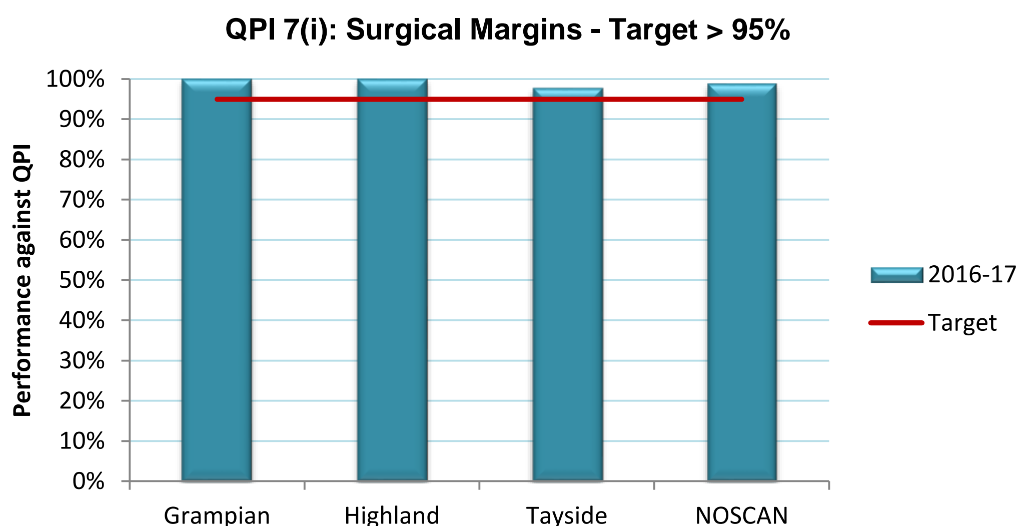
Exclusions:

- Patients who undergo Transanal Endoscopic Microsurgery (TEM) or Transanal Resection of Tumour (TART).

Target: 95%

QPI 7(i) Performance against target

In 2016-2017, in 81 out of the 82 patients included within this QPI the circumferential margin was clear of tumour, which is a rate of 98.8%. This meets the target rate of 95% but is not comparable with previous years data due to changes in the patient included within this measure. This QPI was met in all Boards in the North of Scotland.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**100%**	21	21	0	0%	1	4.8%	0
Highland	**100%**	17	17	0	0%	0	0%	0
Orkney	**-**	0	0	0	-	0	-	0
Shetland	**-**	0	0	0	-	0	-	0
Tayside	**97.7%**	43	44	0	0%	0	0%	0
W Isles	**-**	0	0	0	-	0	-	0
NoS	**98.8%**	**81**	**82**	**0**	**0%**	**1**	**1.2%**	**0**

Results for individual hospitals are shown below. The QPI was met in all hospitals across the North of Scotland.

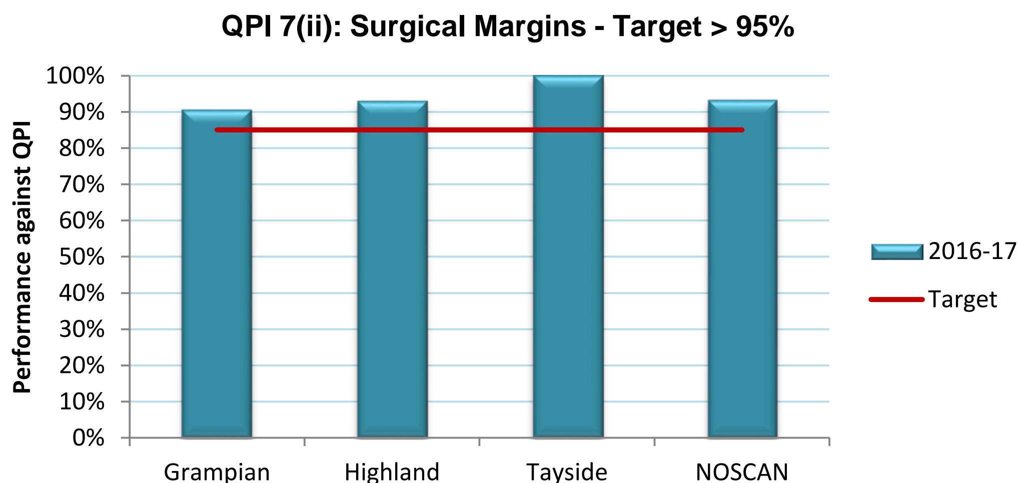
Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**100%**	15	15	0	0%	0	0%	0
Dr Grays	**100%**	6	6	0	0%	1	16.7%	0
Raigmore	**100%**	17	17	0	0%	0	0%	0
Ninewells	**96.2%**	25	26	0	0%	0	0%	0
PRI	**100%**	18	18	0	0%	0	0%	0

QPI 7(ii): Surgical Margins - Rectal cancers undergoing surgical resection should be adequately excised. For patients who receive surgery following neo-adjuvant chemotherapy, long course chemoradiotherapy, long course radiotherapy or short course radiotherapy with long course intent (delay to surgery).

Numerator:	Number of patients with rectal cancer who undergo elective surgical resection following neo-adjuvant chemotherapy, long course chemoradiotherapy, long course radiotherapy or short course radiotherapy with long course intent (delay to surgery) in which the circumferential margin is clear of tumour.
Denominator:	All patients with rectal cancer who undergo elective surgical resection following neo-adjuvant chemotherapy, long course chemoradiotherapy, long course radiotherapy or short course radiotherapy with long course intent (delay to surgery).
Exclusions:	• Patients who undergo Transanal Endoscopic Microsurgery (TEM) or Transanal Resection of Tumour (TART).
Target:	85%

QPI 7(ii) Performance against target

In 2016-2017, in 41 out of the 44 patients included within this QPI the circumferential margin was clear of tumour, which is a rate of 93.2%, meeting the target rate of 85%. This QPI was met in all Boards in the North of Scotland. Performance is not comparable with previous years data due to changes in the patient included within this measure.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**90.5%**	19	21	0	0%	0	0%	0
Highland	**92.9%**	13	14	0	0%	0	0%	0
Orkney	**-**	0	0	0	-	0	-	0
Shetland	**-**	0	0	0	-	0	-	0
Tayside	**100%**	9	9	0	0%	1	11.1%	1
W Isles	**-**	0	0	0	-	0	-	0
NoS	**93.2%**	**41**	**44**	**0**	**0%**	**1**	**2.3%**	**1**

Results for individual hospitals are shown below, all hospitals across the North of Scotland met this indicator in 2016-17.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**89.5%**	17	19	0	0%	0	0%	0
Dr Grays*	**-**	-	-	-	-	-	-	-
Raigmore	**92.9%**	13	14	0	0%	0	0%	0
Ninewells	**100%**	7	7	0	0%	1	14.3%	1
PRI*	**-**	-	-	-	-	-	-	-

It is encouraging that this QPI was met by all NHS Boards.

Actions Required:

No actions were identified.

QPI 8: Reoperation Rates

QPI 8: Re-operation Rates - For patients undergoing surgery for colorectal cancer, re-operation should be minimised.

It is important to minimise morbidity and mortality related to the treatment of colorectal cancer. Re-operation rates may offer a sensitive and relevant marker of surgical quality.

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
Targets:	<10%

This QPI was previously reported using SMR01 data, however these data was unable to provide an accurate measure of the proportion of patients returning to theatre following surgery due to surgical complications. Consequently the QPI definition has been changed to use cancer audit data in future, which will provide a more accurate measure of post-surgical complications. Data required to report this were not collected for patients diagnosed in 2016-17 and it is therefore not possible to report this QPI, although it will be reported for patients diagnosed after April 2017.

QPI 9: Anastomotic Dehiscence

QPI 9(i): Anastomotic Dehiscence - For patients who undergo surgical resection for colorectal cancer anastomotic dehiscence should be minimised. For patients receiving colonic anastomosis.

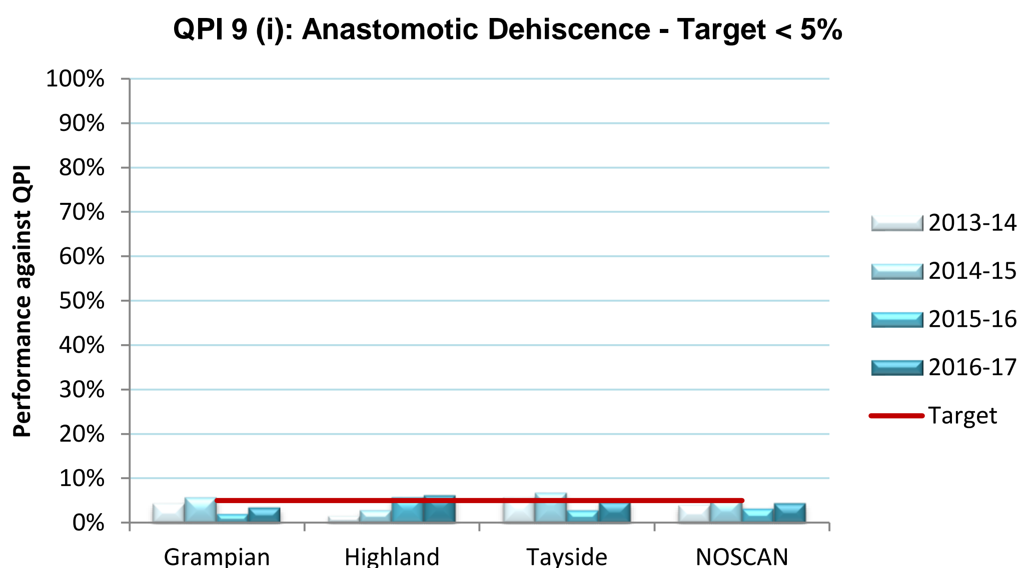
Anastomotic dehiscence is a major cause of morbidity and a measure of the quality of surgical care. Anastomotic leakage is an important and potentially fatal complication of colorectal cancer surgery, and measures to minimise it should be taken.

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%

QPI 9(i) Performance against target

The overall anastomotic dehiscence rate for patients undergoing a surgical procedure involving anastomosis of the colon for North of Scotland for 2016-2017 was 4.4%, meeting the target of less than 5%. This is slightly higher than for 2015-16 when the North of Scotland rate was 3.2%.

This QPI was met by all NHS Boards in the North of Scotland except for NHS Highland, however looking at the performance across NHS Boards over the four years of QPI reporting, overall performance is very similar across the region.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**3.5%**	3	86	0	0%	0	0%	0	+1.5%
Highland	**6.1%**	3	49	0	0%	0	0%	0	+0.5%
Orkney	**0%**	0	8	0	0%	0	0%	0	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**4.8%**	5	104	0	0%	0	0%	1	+2.0%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**4.4%**	**11**	**252**	**0**	**0%**	**0**	**0%**	**1**	**+1.2%**

Results for individual hospitals are shown below.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**2.9%**	2	69	0	0%	0	0%	0
Dr Grays	**5.9%**	1	17	0	0%	0	0%	0
Balfour	**0%**	0	8	0	0%	0	0%	-
Gilbert Bain*	**-**	-	-	-	-	-	-	-
Raigmore	**7.1%**	3	42	0	0%	0	0%	0
Lorne & Islands	**0%**	0	6	0	0%	0	0%	0
Belford*	**-**	-	-	-	-	-	-	-
Ninewells	**5.4%**	4	74	0	0%	0	0%	1
PRI	**3.3%**	1	30	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-

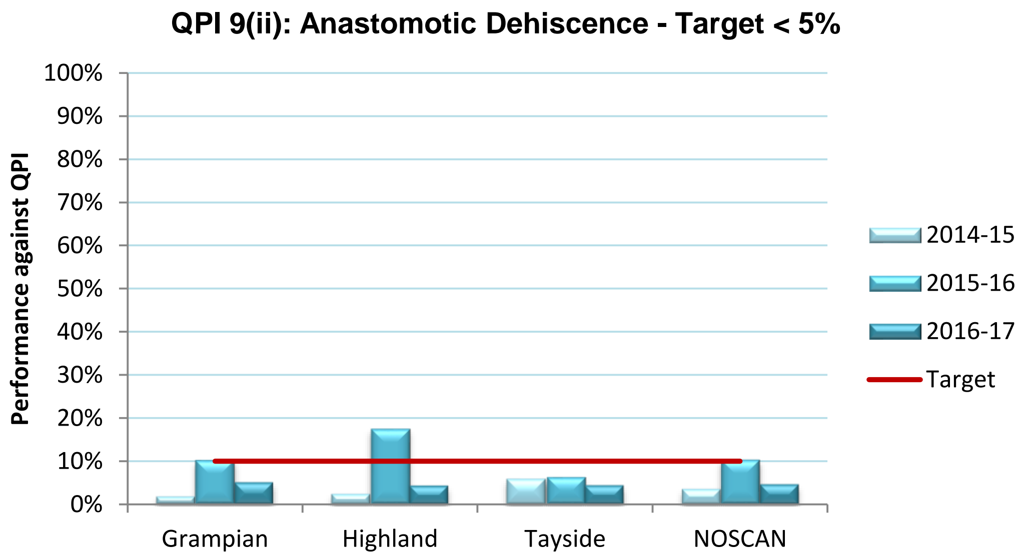
QPI 9(ii): Anastomotic Dehiscence - For patients who undergo surgical resection for colorectal cancer anastomotic dehiscence should be minimised. For patients receiving rectal anastomosis.

Anastomotic dehiscence is a major cause of morbidity and a measure of the quality of surgical care. Anastomotic leakage is an important and potentially fatal complication of colorectal cancer surgery, and measures to minimise it should be taken.

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 rectal cancer who undergo a surgical procedure involving anastomosis of the rectum (including: anterior resection with TME).
Exclusions:	No exclusions.
Target:	<10%

QPI 9(ii) Performance against target

The overall anastomotic dehiscence rate for patients undergoing a surgical procedure involving anastomosis of the rectum for 2016-2017 was 4.5%, comfortably within the target of less than 10% and less than the 2015-16 figure of 10.3%. This QPI was met by all NHS Boards in the North of Scotland.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**5.0%**	3	60	0	0%	0	0%	0	-5.2%
Highland	**4.2%**	2	48	0	0%	0	0%	0	-13.2%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**4.3%**	3	69	0	0%	0	0%	1	-2.0%
W Isles	**-**	0	0	0	-	0	-	0	-
NoS	**4.5%**	**8**	**179**	**0**	**0%**	**0**	**0%**	**1**	**-5.8%**

Results for individual hospitals are shown below.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**2.2%**	1	45	0	0%	0	0%	0
Dr Grays	**13.3%**	2	15	0	0%	0	0%	0
Raigmore	**4.3%**	2	46	0	0%	0	0%	0
Belford*	**-**	-	-	-	-	-	-	-
Gilbert Bain*	**-**	-	-	-	-	-	-	-
Ninewells	**0%**	0	40	0	0%	0	0%	1
PRI	**10.3%**	3	29	0	0%	0	0%	0

An improvement in performance can be seen since last year, particularly for NHS Highland for rectal anastomoses. Where individual NHS Boards have narrowly missed the target a review of all cases with anastomotic dehiscence has been undertaken and no recurring or worrying features were identified.

Actions Required:

No actions were identified.

QPI 10: 30 and 90 Day Mortality Following Surgical Resection

QPI 10: 30 Day and 90 Day Mortality Following Surgical Resection - Mortality after surgical resection for colorectal cancer.

Treatment related mortality is a marker of the quality and safety of the whole service provided by the Multi Disciplinary Team (MDT). Outcomes of treatment, including treatment-related morbidity and mortality should be regularly assessed.

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

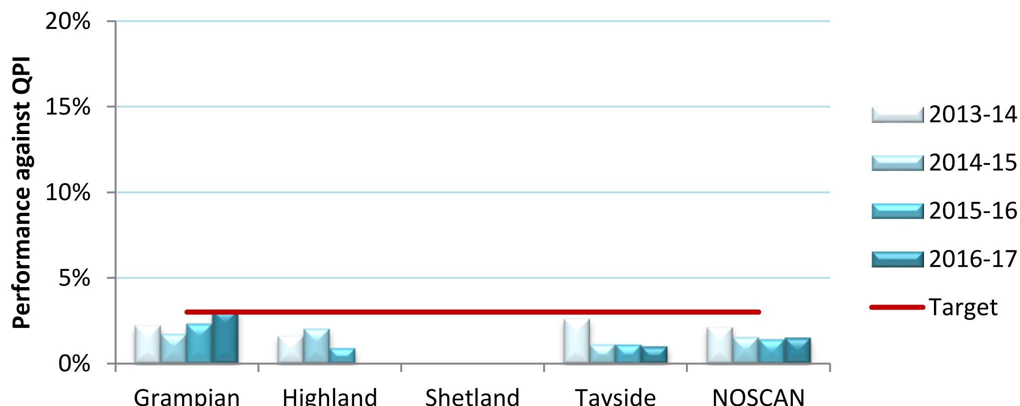
Targets: Elective surgical resection
- 30 day mortality <3%
- 90 day mortality <4%

Emergency surgical resection
- 30 day mortality <15%
- 90 day mortality <20%

QPI 10 Performance against target – Elective surgical resection – 30 day mortality

From a total of 467 patients diagnosed with colorectal cancer in the North of Scotland during 2016-2017 who underwent elective surgical resection, 7 patients dies within 30 days of surgery. This equates to 1.5% which is below the target of less than 3% and very similar to the 2015-16 result of 1.4%. All NHS Boards within the North of Scotland met this QPI except NHS Grampian, which narrowly missed the 3% target.

QPI 10: 30 Day Mortality Following Surgical Resection - elective surgery - Target < 3%



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**3.1%**	5	162	0	0%	0	0%	0	+0.8%
Highland	**0%**	0	101	0	0%	0	0%	0	-0.9%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland	**0%**	0	6	0	0%	0	0%	0	0.0%
Tayside	**1.0%**	2	193	0	0%	0	0%	0	-0.1%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**1.5%**	**7**	**467**	**0**	**0%**	**0**	**0%**	**0**	**+0.1%**

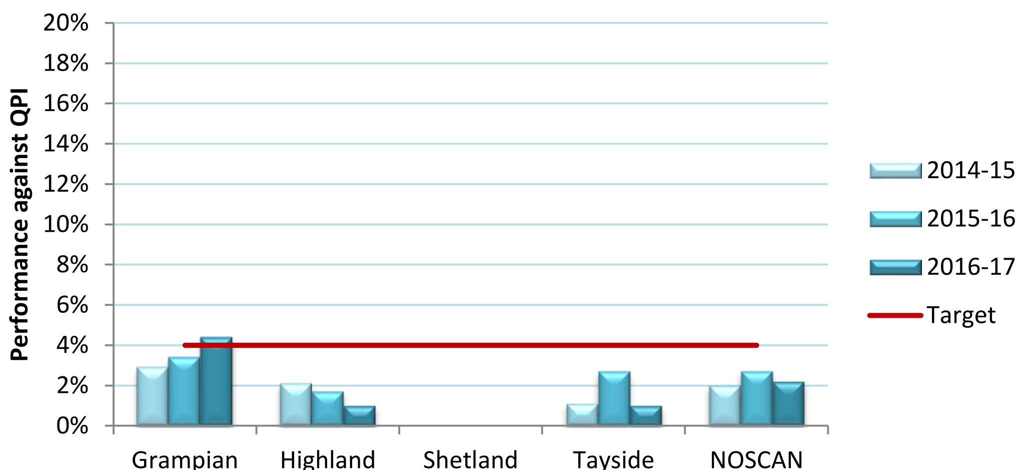
Results for individual hospitals are shown below; all hospitals within the North of Scotland met this QPI target except Dr Grays Hospital in NHS Grampian.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**2.3%**	3	130	0	0%	0	0%	0
Dr Grays	**6.3%**	2	32	0	0%	0	0%	0
Raigmore	**0%**	0	92	0	0%	0	0%	0
Lorne & Islands	**0%**	0	7	0	0%	0	0%	0
Belford*	**-**	-	-	-	-	-	-	-
Balfour*	**-**	-	-	-	-	-	-	-
Gilbert Bain	**0%**	0	6	0	0%	0	0%	0
Ninewells	**0.8%**	1	124	0	0%	0	0%	0
PRI	**1.4%**	1	69	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-

QPI 10 Performance against target – Elective surgical resection – 90 day mortality

From a total of 462 patients diagnosed with colorectal cancer in the North of Scotland during 2016-2017 who underwent elective surgical resection, 10 patients died within 90 days of surgery.

This equates to 2.2% which meets the target of less than 4% and similar to the 2015-16 figure of 2.7%. All NHS Boards within the North of Scotland met this QPI in 2016-17 except NHS Grampian.



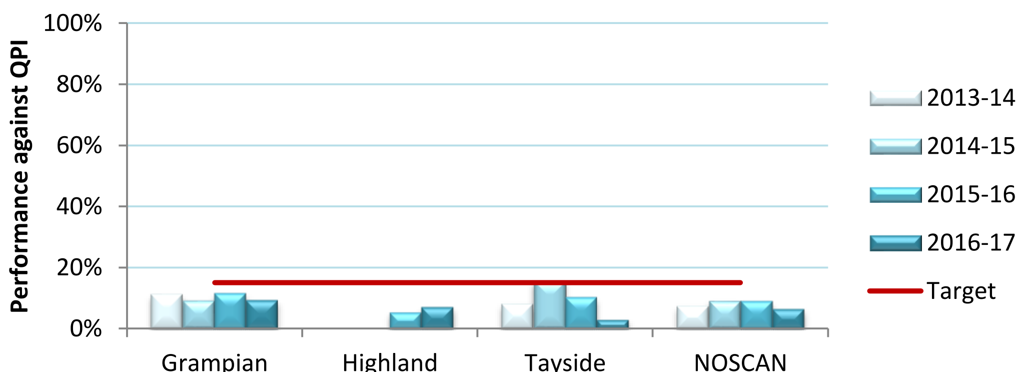
	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**4.4%**	7	159	0	0%	0	0%	0	+1.0%
Highland	**1.0%**	1	101	0	0%	0	0%	0	-0.7%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland	**0%**	0	6	0	0%	0	0%	0	0.0%
Tayside	**1.0%**	2	191	0	0%	0	0%	0	-1.7%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**2.2%**	**10**	**462**	**0**	**0%**	**0**	**0%**	**0**	**-0.5%**

Results for individual hospitals are shown below; all hospitals within the North of Scotland met this QPI target except Dr Grays Hospital in NHS Grampian.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**3.1%**	4	127	0	0%	0	0%	0
Dr Grays	**9.4%**	3	32	0	0%	0	0%	0
Raigmore	**1.1%**	1	92	0	0%	0	0%	0
Lorne & Islands	**0%**	0	7	0	0%	0	0%	0
Belford*	**-**	-	-	-	-	-	-	-
Balfour*	**-**	-	-	-	-	-	-	-
Gilbert Bain	**0%**	0	6	0	0%	0	0%	0
Ninewells	**0.8%**	1	123	0	0%	0	0%	0
PRI	**1.5%**	1	68	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-
NoS	**2.2%**	**10**	**462**	**0**	**0%**	**0**	**0%**	**0**

QPI 10 Performance against target – Emergency surgical resection – 30 day mortality

From a total of 94 patients diagnosed with colorectal cancer in the North of Scotland during 2016-2017 who underwent emergency surgical resection, 6 patients died within 30 days of surgery. This equates to 6.4% which meets the target of less than 15% and is lower than the 2015-2016 result of 9.1%. All NHS Boards within the North of Scotland met this QPI.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**9.3%**	4	43	0	0%	0	0%	0	**-2.3%**
Highland	**7.1%**	1	14	0	0%	0	0%	0	**+1.7%**
Orkney*	**-**	-	-	-	-	-	-	-	**-**
Shetland	**-**	0	0	0	-	0	-	0	**-**
Tayside	**3.0%**	1	33	0	0%	0	0%	1	**-7.3%**
W Isles	**-**	0	0	0	-	0	-	0	**-**
NoS	**6.4%**	**6**	**94**	**0**	**0%**	**0**	**0%**	**1**	**-2.7%**

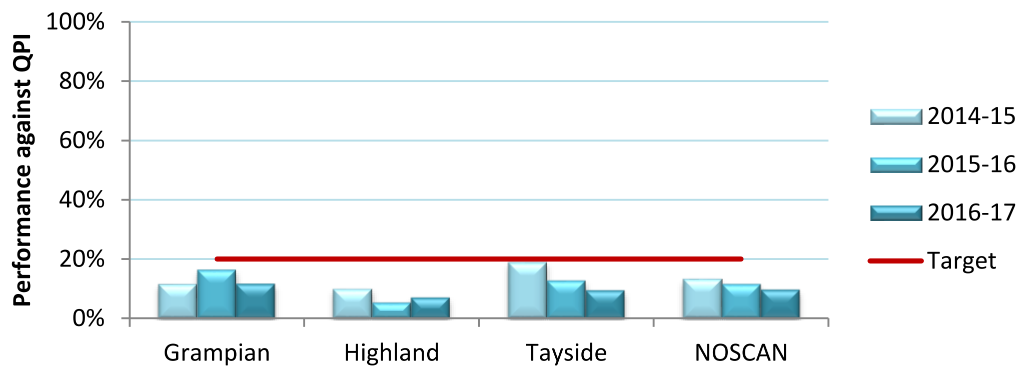
Results for individual hospitals are shown below; all hospitals within the North of Scotland met this QPI target in 2016-17.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**11.8%**	4	34	0	0%	0	0%	0
Dr Grays	**0%**	0	9	0	0%	0	0%	0
Raigmore	**7.7%**	1	13	0	0%	0	0%	0
Lorne & Islands*	**-**	-	-	-	-	-	-	-
Balfour*	**-**	-	-	-	-	-	-	-
Ninewells	**3.6%**	1	28	0	0%	0	0%	1
PRI	**0%**	0	5	0	0%	0	0%	0

QPI 10 Performance against target – Emergency surgical resection – 90 day mortality

From a total of 93 patients diagnosed with colorectal cancer in the North of Scotland during 2016-2017 who underwent emergency surgical resection, 9 patients died within 90 days of surgery. At a rate of 9.7%, results for the North of Scotland meet the target rate of less than 20%, with 90 day mortality slightly lower than the 2015-16 figure of 11.6%.

All NHS Boards within the North of Scotland met this QPI.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**11.6%**	5	43	0	0%	0	0%	0	**-4.7%**
Highland	**7.1%**	1	14	0	0%	0	0%	0	**+1.7%**
Orkney*	**-**	-	-	-	-	-	-	-	**-**
Shetland	**-**	0	0	0	-	0	-	0	**-**
Tayside	**9.4%**	3	32	0	0%	0	0%	1	**-3.4%**
W Isles	**-**	0	0	0	-	0	-	0	**-**
NoS	**9.7%**	**9**	**93**	**0**	**0%**	**0**	**0%**	**1**	**-1.9%**

Results for individual hospitals are shown below; all hospitals within the North of Scotland met this QPI target in 2016-17.

Hospital	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
ARI	**14.7%**	5	34	0	0%	0	0%	0
Dr Grays	**0%**	0	9	0	0%	0	0%	0
Raigmore	**7.7%**	1	13	0	0%	0	0%	0
Lorne & Islands*	**-**	-	-	-	-	-	-	-
Balfour*	**-**	-	-	-	-	-	-	-
Ninewells	**11.1%**	3	27	0	0%	0	0%	1
PRI	**0%**	0	5	0	0%	0	0%	0

Performance in this QPI was good across the whole of NOSCAN with mortality results comparable to other national audits. In NHS Boards where the QPI was missed, all deaths have been clinically reviewed and no worrying trends identified.

Actions Required:

No actions were identified.

QPI 11: Adjuvant Chemotherapy

QPI 11: Adjuvant Chemotherapy - Patients with Dukes C and high risk Dukes B colorectal cancer should be considered for adjuvant chemotherapy.

All patients with Dukes C and high risk Dukes B colorectal cancer should be considered for adjuvant chemotherapy to reduce the risk of local and systemic recurrence.

Due to the difficulties associated with accurate measurement of co-morbidities and patient fitness these cannot be utilised as exclusions within this QPI. To ensure focussed measurement and a QPI examining expected outcomes the age range of 50-74 years has been selected. This represents the majority of patients and therefore provides a good proxy for access to adjuvant chemotherapy in the whole patient population.

Numerator: Number of patients between 50 and 74 years of age at diagnosis with Dukes C, or 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 Dukes C, or high risk Dukes B, colorectal cancer who undergo surgical resection.

Exclusions:

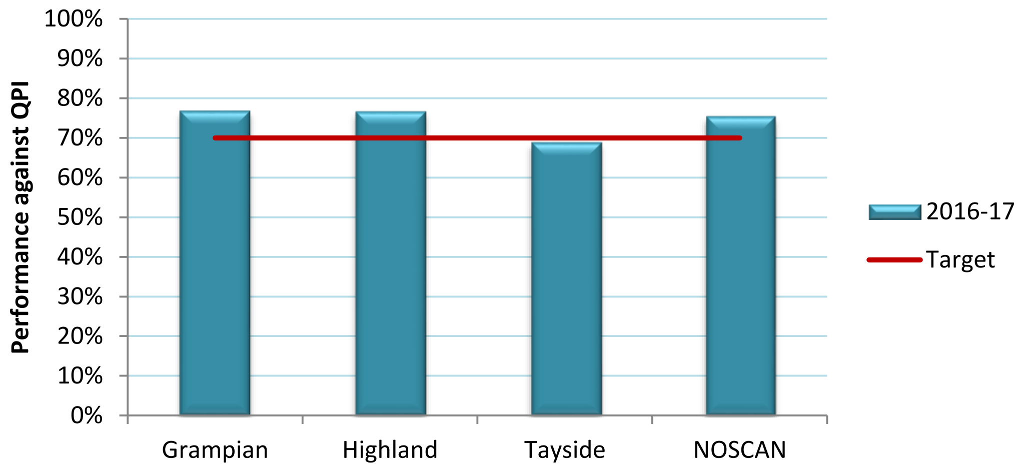
- Patients who refuse chemotherapy.
- Patients who undergo neo-adjuvant treatment.

Targets: Patients with Dukes C colorectal cancer 70%
Patients with Dukes B colorectal cancer 50%

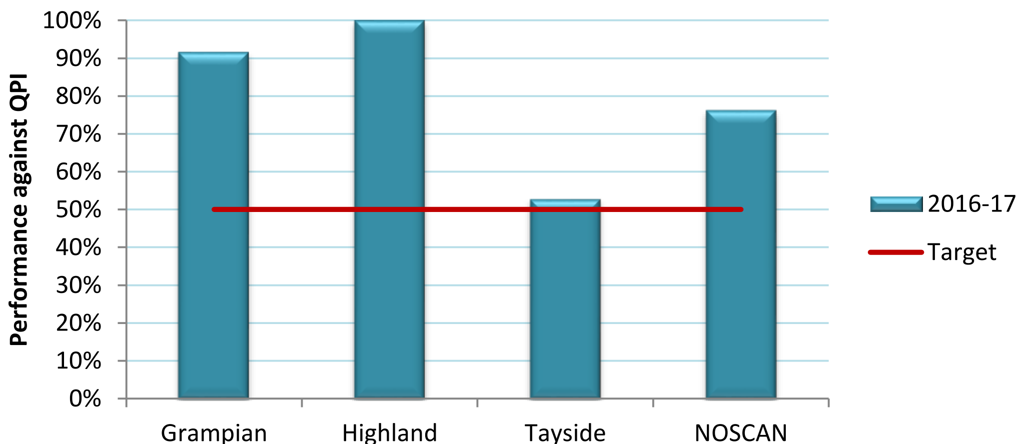
QPI 11 Performance against target

Overall, in 2016-2017, 64 out of 85 (75.3%) of patients with Dukes C colorectal cancer and included within this QPI received adjuvant chemotherapy, while 29 out of 38 (76.3%) of patients with High Risk Dukes B colorectal cancer received this treatment. This means that across the North of Scotland the target of 70% for patients with Dukes C colorectal cancer was met as was the 50% target for patients with high risk Dukes B. It is not possible to compare these figures with results from previous years due to changes in the way this QPI is calculated.

All NHS Boards met this QPI target for patients with high risk Dukes B colorectal cancer and nearly all met it for patients with Dukes C colorectal cancer, with only NHS Tayside narrowly missing the required level.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**76.7%**	23	30	0	0%	0	0%	0
Highland	**76.5%**	13	17	0	0%	0	0%	0
Orkney*	**-**	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-
Tayside	**68.8%**	22	32	0	0%	0	0%	1
W Isles*	**-**	-	-	-	-	-	-	-
NoS	**75.3%**	**64**	**85**	**0**	**0%**	**0**	**0.0%**	**1**



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**91.7%**	11	12	0	0%	0	0%	3
Highland	**100%**	8	8	0	0%	0	0%	0
Orkney	**-**	0	0	0	-	0	-	0
Shetland*	**-**	-	-	-	-	-	-	-
Tayside	**52.9%**	9	17	0	0%	0	0%	1
W Isles	**-**	0	0	0	-	0	-	0
NoS	**76.3%**	**29**	**38**	**0**	**0%**	**0**	**0%**	**4**

This QPI was met for the whole of NOSCAN and only narrowly missed in Tayside for patients diagnosed with Dukes C colorectal cancer. All the patients not meeting this QPI had been discussed in an MDT and reasons for not receiving chemotherapy were clinically valid.

Actions Required:

No actions were identified.

QPI 12: 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy

QPI 12(i): 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy - Mortality after chemotherapy or radiotherapy for colorectal cancer.

Treatment related mortality is a marker of the quality and safety of the whole service provided by the Multi Disciplinary Team (MDT).

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

Target: <1%

QPI 12 Performance against target - Neo-adjuvant Chemoradiotherapy

One of the 60 patients with colorectal cancer receiving neo-adjuvant chemoradiotherapy in the North of Scotland died within 30 days of treatment (1.7%), resulting in the region missing the target of less than 1%. One of the 59 patients with colorectal cancer receiving neo-adjuvant chemoradiotherapy that were monitored for 90 days after treatment died within this period (1.7%), again resulting in the region missing the target of less than 1%. This is a slight increase compared with the 2015-16 figure of 0%. Due to small numbers if patients involved, it is not meaningful to compare results between NHS Boards.

30 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**0%**	0	28	0	0%	0	0%	0	0%
Highland	**0%**	0	16	0	0%	0	0%	0	0%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**0%**	0	12	0	0%	0	0 %	0	0%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**1.7%**	**1**	**60**	**0**	**0%**	**0**	**0%**	**0**	**+1.7%**

90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**0%**	0	27	0	0%	0	0%	0	0%
Highland	**0%**	0	16	0	0%	0	0%	0	0%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**0%**	0	12	0	0%	0	0 %	0	0%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**1.7%**	**1**	**59**	**0**	**0%**	**0**	**0%**	**0**	**+1.7%**

Adjuvant Chemotherapy

Of the 138 patients with colorectal cancer receiving adjuvant chemotherapy in the North of Scotland none of these (0%) died within 30 days of treatment, clearly meeting the target of less than 1% and below the 2015-16 figure of 0.6%. Similarly none of the 121 patients recorded up to 90 days after treatment died within this period, at a rate of 0% this result also meets the QPI target of less than 1% and is an improvement on the 2015-16 figure of 1.3%.

With zero percent mortality, all NHS Boards across the North of Scotland met the QPI target for both 30 and 90 day mortality.

30 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**0%**	0	55	1	1.8%	0	0%	**0**	0%
Highland	**0%**	0	33	0	0%	0	0%	**0**	-2.0%
Orkney*	**-**	-	-	-	-	-	-	**-**	-
Shetland	**0%**	0	5	0	0%	0	0%	**0**	0%
Tayside	**0%**	0	37	0	0%	0	0 %	**0**	0%
W Isles	**0%**	0	5	0	0%	0	0%	**0**	0%
NoS	**0%**	**0**	**138**	**1**	**0.8%**	**0**	**0%**	**0**	**-0.6%**

90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015-16
Grampian	**0%**	0	49	1	2.0%	0	0%	**0**	0%
Highland	**0%**	0	29	0	0%	0	0%	**0**	-2.2%
Orkney*	**-**	-	-	-	-	-	-	**-**	-
Shetland	**0%**	0	2	0	0%	0	0%	**0**	0%
Tayside	**0%**	0	34	0	0%	0	0 %	**0**	0%
W Isles	**0%**	0	5	0	0%	0	0%	**0**	0%
NoS	**0%**	**0**	**121**	**1**	**0.8%**	**0**	**0%**	**0**	**-1.3%**

Radiotherapy

Of the 39 patients with colorectal cancer receiving radiotherapy in the North of Scotland none of these (0%) died within 30 or 90 days of treatment, clearly meeting the target of less than 1%. The 30 day mortality figure is the same as that for 2015-2016 while the 90 day mortality figure in 2016-17 was lower than the 2015-16 result of 3.2%.

As no patients died across the North of Scotland, all NHS Boards in the region met this QPI for both 30 day mortality and 90 day mortality.

30 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in 30 Day Mortality since 2015-16
Grampian	**0%**	0	20	0	0%	0	0%	0	0%
Highland	**0%**	0	8	0	0%	0	0%	0	-
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**0%**	0	8	0	0%	0	0%	0	0%
W Isles	**-**	0	0	0	-	0	-	0	-
NoS	**0%**	**0**	**39**	**0**	**0%**	**0**	**0%**	**0**	**0%**

90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in 30 Day Mortality since 2015-16
Grampian	0%	0	20	0	0%	0	0%	0	0%
Highland	0%	0	8	0	0%	0	0%	0	0%
Orkney*	-	-	-	-	-	-	-	-	-
Shetland*	-	-	-	-	-	-	-	-	-
Tayside	0%	0	8	0	0%	0	0%	0	-
W Isles	-	0	0	0	-	0	-	0	-
NoS	**0%**	**0**	**39**	**0**	**0%**	**0**	**0%**	**0**	**-3.2%**

QPI 11(ii): 30 and 90 Day Mortality Following Chemotherapy or Radiotherapy - Mortality after chemotherapy or radiotherapy for colorectal cancer.

Treatment related mortality is a marker of the quality and safety of the whole service provided by the Multi Disciplinary Team (MDT).

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%

Of the 58 patients with colorectal cancer receiving palliative chemotherapy in the North of Scotland five of these (8.6%) died within 30 days of treatment, meeting the target of less than 10%. This is a new specification so figures from previous years are not available for comparison.

All NHS Boards in the North of Scotland met this QPI in 2016-17 except for NHS Highland, where results were based on relatively small numbers of patients.

30 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**9.1%**	2	22	2	18.2%	0	0%	0
Highland	**13.3%**	2	15	0	0%	0	0%	0
Orkney*	**-**	-	-	-	-	-	-	-
Shetland	**-**	0	0	0	-	0	-	0
Tayside	**5.3%**	1	19	0	0%	0	0%	0
W Isles*	**-**	-	-	-	-	-	-	-
NoS	**8.6%**	**5**	**58**	**4**	**6.9%**	**0**	**0%**	**0**

Actions Required:

No actions identified.

QPI 13 - Clinical Trials Access QPI

QPI 13 - Clinical Trials Access QPI - All patients should be considered for participation in available clinical trials, wherever eligible.

Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Furthermore evidence suggests improved patient outcomes from participation in clinical trials.

Clinicians are therefore encouraged to enter patients into well designed trials and to collect longer-term follow-up data.

Numerator: Number of patients with colorectal cancer enrolled in an interventional clinical trial or translational research.

Denominator: All patients with colorectal cancer.

Exclusions: No exclusions

Target: Interventional clinical trials – 7.5%

Translational research - 15%

QPI 13 Performance against target

Key points during the period audited:

- Approximately 2.4% of patients with colorectal cancer in the North of Scotland were recruited into interventional clinical trials in one of the three cancer centres in the region in 2016: this is below the target of 7.5% and similar to the 2015 figure of 2.2%.
- Recruitment into translational research was higher at 48.3% in 2016, well above the target of 15% and an increase on the 2015 figure of 42.5%

	Number of patients recruited in 2016	ISD Cases annual average (2009-2013)	Percentage of patients recruited
Interventional Clinical Trials	22	932	**2.4%**
Translational Research	450	932	**48.3%**

The QPI targets for clinical trials are 7.5% for interventional trials and 15% for translational trials. It should be noted that these targets are particularly ambitious, particularly with the move towards more targeted trials.

All cancer patients that pass through each of the three cancer centres in NOSCAN are considered for potential participation in the open trials currently available. However, as with other cancer specific studies, consequent to the demise of larger general trials and the advent of genetically selective trials that only target small populations of patients, many of the colorectal cancer trials that are currently open to recruitment in the North of Scotland have very select eligibility criteria. Consequently they will only be available to a small percentage of the total number of people who were diagnosed with colorectal cancer.

During 2016 in NOSCAN, there were 5 interventional trials and 3 translational trials open and recruiting patients in the North of Scotland. All the colorectal cancer patients passing through the cancer centres in NOSCAN will have been assessed for eligibility for clinical trials: further enquiry indicates that of patients diagnosed colorectal cancer in the North of Scotland during 2016, 35 (3.8%) were screened for interventional trials and 461 (48.3%) were screened for translational trials during the reporting period. The number of patients screened for clinical trials is often higher than the number recruited as not all patients will pass the screening stage, however the screening phase can be a involve a considerable amount of time and resource.

Due to the increasing complexity of trials and time burden needed to run them effectively, and a lack of clinical and research support to run such further trials, it is not currently possible to open a greater number (and thereby to have a greater scope) of available trials in the North f Scotland. Constraints imposed by the commercial trial sponsors also limit the number of trials it is possible to open in smaller cancer centres such as those in the NOSCAN region. However a large number of feasibility requests for trials are continually being reviewed by all consultants and if an expression of interest is submitted, the chances that the site will be selected for running the trial are high.

Actions Required:

- **All clinicians should consider opening relevant clinical trials in their tumour areas. When this is not possible patient referrals to other sites for access to clinical trials should be considered.**

5. Conclusions

The Quality Performance Indicators programme was developed to drive continuous improvement and ensure equity of care for cancer patients across Scotland. As part of this the North of Scotland has initiated a programme of annual reporting of regional performance against QPIs. These will help to provide a clearer indication of performance and a more formal structure for enabling improvements to be made.

2016-2017 is the fourth year of QPI reporting, during which time the performance of NOSCAN boards has once again been mixed: NOSCAN met 5 of the 12 measured QPIs, an increase from 2015-2016 when only 3 of the 12 measures were met. For the QPI's that have not been met they have, with one exception, been narrowly missed mostly by a single percentage point. This is indicative of an improvement in performance against target across the range of QPI's. There remains room for improvement in individual NHS Boards for certain QPI, for these, action plans will be put in place to ensure further improvement. NHS Boards will also need to ensure that, where performance has improved, that this performance is maintained.

The one QPI that was missed by a significant margin relates to the management of rectal cancer and the use of neo-adjuvant therapy for locally advanced tumours threatening the resection margin on MRI scan. This was due to low radiotherapy usage in NHS Tayside. NHS Tayside report alternative surgical strategies in these patients which have resulted in clear surgical resection margins and this is reflected in QPI 7 where this QPI is met. Therefore, the aim of patients with threatened surgical margins having clear resection margins has been met without using radiotherapy. There is large national variation reported in the use of radiotherapy for rectal cancer. The MCN propose that a wider national review of the role of radiotherapy in rectal cancer is undertaken to ensure that radiotherapy is given where appropriate and that all strategies for treatment of rectal cancer are equivalent.

The following actions have been identified for future years to help monitor and maintain excellent patient care and compliance with the QPI standards:

- NHS Highland to ensure patient diagnosed with colorectal cancer by CT colonogram also have a CT of their chest done pre-operatively.

- Clinicians in all NHS Boards to have a low threshold for performing MRI in patients where the tumour is on the border of sigmoid and rectum where pre-operative radiotherapy might be considered.

- All NHS Boards to note the new definition for QPI 2 and ensure that this is met as there are now few reasons for a patient not to comply.

- All NHS Boards not meeting the target for QPI 4 to identify reasons and address the identified issues. For the smaller hospitals, training opportunities should be offered and staff recognised who can fill the role of the "nurse with expertise in stoma care". It is noted that the small numbers of patients requiring stoma formation in these hospitals mean that person is unlikely to have an identical role to those in larger hospitals.

- NHS Grampian to ensure that intent of surgery is recorded in the treatment plan for each patient.

- NOSCAN MCN to engage in discussion with other networks to discuss the use of radiotherapy and consider areas where variation in usage could be reduced.

- All clinicians should consider opening relevant clinical trials in their tumour areas. When this is not possible patient referrals to other sites for access to clinical trials should be considered.

The MCN will actively take forward regional actions identified and NHS Boards are asked to develop local Action / Improvement Plans in response to the findings presented in the report. A blank Action Plan template can be found in the Appendix.

Completed Action Plans should be returned to NOSCAN within one month of publication of this report.

Progress against these plans will be monitored by the MCN and any service or clinical issue which the Advisory Board considers not to have been adequately addressed will be escalated to the NHS Board Lead Cancer Clinician and Regional Lead Cancer Clinician.

Additionally, progress will be reported to the Regional Cancer Advisory Forum (RCAF) annually by the NOSCAN Colorectal Cancer Clinical Lead as part of the regional audit governance process to enable RCAF to review and monitor regional improvement.

6. References

1. http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/

2. NHS MEL (1999)10. Introduction of Manager Clinical Networks within the NHS in Scotland http://www.show.scot.nhs.uk/sehd/mels/1999_10.htm

3. HDL(2002)69. Promoting the development of Managed Clinical Networks in NHS Scotland. http://www.show.scot.nhs.uk/sehd/mels/HDL2002_69.pdf

4. HDL (2007)21. Strengthening the role of Manager Clinical Networks. http://www.show.scot.nhs.uk/sehd/mels/HDL2007_21.pdf

5. CEL 29 (2012). Managed Clinical Networks: Supporting and Delivering the Healthcare Quality Strategy. http://www.sehd.scot.nhs.uk/mels/CEL2012_29.pdf

6. Scottish Cancer Taskforce, 2015. Colorectal Cancer Clinical Performance Indicators, Version 2.1. Health Improvement Scotland. Available at http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/cancer_qpis/quality_performance_indicators.aspx

7. NHS Information Services Division. 2015. Colorectal Cancer Quality Performance Indicators: Patients diagnosed during April 2013 to March 2014. http://www.isdscotland.org/Health-Topics/Quality-Indicators/Publications/2015-06-23/2015-06-23-Colorectal-QPI-Report.pdf

8. ScotPHO, Public Health Information for Scotland. Population: estimates by NHS Board [Accessed on: 23rd January 2017]. http://www.scotpho.org.uk/population-dynamics/population-estimates-and-projections/data/population-estimates

9. Information Services Division. Cancer Incidence in Scotland (2015). Available at: https://www.isdscotland.org/Health-Topics/Cancer/Publications/2017-04-25/2017-04-25-Cancer-Incidence-Summary.pdf?15243166686

10. Information Services Division. Cancer Statistics: Colorectal Cancer. [Accessed on: 19th December 2017]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Colorectal/

11. ISD, NHS National Services Scotland. Cancer Survival in Scotland, 1987-2011. March 2015. Available at: https://isdscotland.scot.nhs.uk/Health-Topics/Cancer/Publications/2015-03-03/2015-03-03-CancerSurvival-Report.pdf

Appendix 1: Open clinical trials for colorectal cancer into which patients were recruited in the North of Scotland in 2016.

Trial	Principle Investigator	Trial Type
Add-Asprin	Russell Mullen(Highland)	Interventional
FOCUS 4	Leslie Samuel (Grampian) Sharon Armstrong (Tayside)	Interventional
IMPALA	Leslie Samuel (Grampian)	Interventional
InterAACT - A Multicentre Randomised Phase II Advanced Anal Cancer Trial	Leslie Samuel (Grampian)	Interventional
MODUL (MO29112)	Leslie Samuel (Grampian)	Interventional
Bio-repository (colorectal)	(Grampian)	Translational
Scottish Colorectal Cancer Genetic Susceptibility study 3 (SOCCS3)	Sharon Armstrong (Tayside)	Translational
Stratifying risk of colorectal disease in symptomatic patients	Robert Steele (Tayside)	Translational

Appendix 2: NHS Board Action Plans

A blank Action Plan template can be found attached. Completed Action Plans should be returned to NOSCAN within one month of publication of this report.

NOSCAN

North of Scotland Cancer Network

Action Plan: Colorectal Cancer

Patients diagnosed 2016-2017

Board:	
Action Plan Lead:	
Date:	

Status key	
1	Action Fully Implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

QPI	Action Required	NHS Board Action Taken	Date		Lead	Progress	Status
			Start	End			
	Ensure actions mirror those detailed in Audit Report	*Detail specific actions that will be taken by the NHS Board*	*Insert date*	*Insert date*	*Insert name of responsible lead for each action.*	*Detail actions in progress, changes in practice, problems encountered or reasons why no action has been taken.*	*Insert no. from key*