NOSCAN
North of Scotland
Cancer Network

Lung Cancer
Managed Clinical Network

Audit Report

Lung Cancer
Quality Performance Indicators

Patients diagnosed January – December 2016

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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.

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EXECUTIVE SUMMARY

This publication reports the performance of lung cancer services in the six NHS Boards in the North of Scotland (NOS) against the Lung Cancer Quality Performance Indicators (QPIs) for patients diagnosed between January and December 2016.

In 2016, following the first three years of reporting, the QPIs for lung cancer were reviewed to ensure that they continued to be clinically relevant. As part of this national process, some of the QPIs were removed or updated, while some new QPIs were added. Where data availability has permitted, the new QPI definitions have been used to report performance during 2016. Results are also compared with those from previous years where appropriate.

This is the fourth year in which these QPIs have been collected, during which time in the North of Scotland:

- 1018 patients diagnosed with lung cancer in were audited in the North of Scotland.
- Overall case ascertainment was high at 92.5%, similar to that in previous years.
- Results were considered to be representative of lung cancer services in the region.

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: Multi-Disciplinary Team (MDT) Meeting – Proportion of patients with lung cancer who are discussed at MDT meeting before definitive treatment.	**95%**	**93%** n=966	93% n=404	88% n=217	67% n=6	80% n=15	98% n=303	81% n=21
QPI 2: Pathological Diagnosis – Proportion of patients who have a pathological diagnosis of lung cancer.								
Specification (i): Patients with lung cancer who have a pathological diagnosis.	**80%**	**72%** n=976	68% n=418	78% n=224	67% n=6	43% n=14	72% n=293	90% n=21
Specification (ii): Patients with a pathological diagnosis of non small cell lung cancer (NSCLC) who have tumour subtype identified.	**90%**	**89%** n=573	90% n=231	93% n=150	-	83% n=6	83% n=169	93% n=14
Specification (iii): Patients with a pathological diagnosis of NSCLC who have analysis of predictive markers undertaken.	**75%**	**82%** n=224	83% n=102	83% n=63	-	-	76% n=50	83% n=6
QPI 4: PET CT in patients being treated with curative intent – Proportion of patients with non small cell lung cancer (NSCLC) who are being treated with curative treatment who undergo PET CT prior to start of treatment.	**95%**	**99%** n=179	100% n=69	98% n=50	-	-	98% n=52	100% n=5

QPI	QPI Target	Performance[b]						
		NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	NHS W Isles
QPI 6: Surgical Resection in Non Small Cell Lung Cancer – Proportion of patients who undergo surgical resection for NSCLC.								
Specification (i): Patients with NSCLC who undergo surgical resection.	**17%**	**18%** n=566	16% n=229	22% n=149	-	50% n=6	16% n=165	21% n=14
Specification (ii): Patients with stage I – II NSCLC who undergo surgical resection.	**50%**	**70%** n=117	69% n=39	69% n=42	-	-	71% n=31	-
QPI 7: Lymph Node Assessment – Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes performed at time of surgical resection or at previous mediastinoscopy.	**80%**	**45%** n=44	45% n=44	-	-	-	-	-
QPI 8: Radiotherapy in inoperable lung cancer – Proportion of patients with lung cancer not undergoing surgery who receive radiotherapy with radical intent (54Gy or greater) ± chemotherapy.	**15%**	**29%** n=321	32% n=126	30% n=69	-	-	27% n=113	29% n=7
QPI 9: Chemoradiotherapy in locally advanced Non Small Cell Lung Cancer – Proportion of patients with NSCLC not undergoing surgery who receive radical radiotherapy, to 54Gy or greater, and concurrent or sequential chemotherapy.	**50%**	**67%** n=18	57% n=7	-	-	-	86% n=7	-
QPI 10: Chemoradiotherapy in limited stage small cell lung cancer – Proportion of patients with limited stage (stage I – IIIB) SCLC treated with radical intent who receive both platinum-based chemotherapy, and radiotherapy to 40Gy or greater.	**70%**	**64%** n=28	40% n=10	80% n=5	-	-	73% n=11	-
QPI 11: Systemic Anti Cancer Therapy in Non Small Cell Lung Cancer – Proportion of patients with NSCLC not undergoing surgery who receive platinum based chemotherapy.								
Specification (i): Patients with NSCLC who receive systemic anti cancer therapy.	**35%**	**48%** n=435	48% n=178	37% n=108	-	-	56% n=133	45% n=11
Specification (ii): Patients with stage IIIB and IV NSCLC receive doublet chemotherapy including platinum as their first line regimen.	**60%**	**59%** n=165	59% n=70	50% n=36	-	-	63% n=52	80% n=5
QPI 12: Chemotherapy in Small Cell Lung Cancer – Proportion of patients with SCLC who receive first line chemotherapy ± radiotherapy.								

QPI	QPI Target	Performance[b]						
		NOSCAN	NHS Grampian	NHS Highland	NHS Orkney	NHS Shetland	NHS Tayside	W Isles
Specification (i): All patients with SCLC.	**70%**	**79%** n=102	73% n=44	86% n=22	-	-	81% n=31	-
Specification (ii): All patients with SCLC not undergoing treatment with curative intent.	**50%**	**75%** n=77	72% n=36	81% n=16	-	-	73% n=22	-
QPI 13: Mortality Following Treatment for Lung Cancer - Proportion of patients with lung cancer who die within 30 or 90 days of active treatment for lung cancer.								
(i) Surgery – 30 day mortality	**< 5%**	**5%** n=62	5% n=62	-	-	-	-	-
(i) Radical Radiotherapy – 30 day mortality	**< 5%**	**3%** n=70	0% n=34	14% n=14	-	-	0% n=20	-
(i) Adjuvant Chemotherapy – 30 day mortality	**< 5%**	**0%** n=23	0% n=9	0% n=6	-	-	0% n=6	-
(i) Chemoradiotherapy – 30 day mortality	**< 5%**	**2%** n=50	0% n=14	0% n=13	-	-	5% n=21	-
(i) Palliative Chemotherapy – 30 day mortality – patients with NSCLC	**<10%**	**14%** n=138	15% n=62	8% n=26	-	-	20% n=44	0% n=5
(i) Palliative Chemotherapy – 30 day mortality – patients with SCLC	**<10%**	**17%** n=59	7% n=27	15% n=13	-	-	31% n=16	-
(i) Biological Therapy – 30 day mortality – patients with NSCLC	**<10%**	**3%** n=32	0% n=12	0% n=5	-	-	7% n=14	-
(i) Biological Therapy – 30 day mortality – patients with SCLC	**<10%**	**-**	-	-	-	-	-	-
(ii) Surgery - 90 day mortality	**< 5%**	**5%** n=62	5% n=62	-	-	-	-	-
(ii) Radical Radiotherapy – 90 day mortality	**< 5%**	**6%** n=66	6% n=31	14% n=14	-	-	0% n=19	-
(ii) Adjuvant Chemotherapy – 90 day mortality	**< 5%**	**5%** n=21	14% n=7	0% n=6	-	-	0% n=6	-
(ii) Chemoradiotherapy – 90 day mortality	**< 5%**	**11%** n=47	0% n=13	8% n=12	-	-	19% n=21	-

Clinical Trials Access - Proportion of patients with colorectal cancer who are enrolled in an interventional clinical trial or translational research.

QPI	Target	NOSCAN Performance
Specification (i): Interventional Trials	**7.5%**	**2%** n=1101
Specification (ii): Translational Research	**15%**	**8%** n=1101

Performance shaded pink where QPI target has not been met.

[b] Excluding Boards with less than 5 patients.

This is the fourth year of reporting of lung cancer QPIs, during which NOSCAN boards have had mixed results with the targets for 5 of the 12 measured outcomes for lung cancer have been exceeded.

Surgical resection rates remains one of the key drivers in the quality of care for patients with lung cancer, this is measured in QPI 6. While both parts of this QPI were met for patients diagnosed in 2016, the North of Scotland has been shown to have a lower resection rate than other regions in Scotland in recent years.

Extensive research has been performed into the causes of these regional differences and there does not seem to be any difference in criteria for resection. Further statistical analysis has shown that there are regional differences in Performance Status and tumour staging at presentation, with more patients presenting with advanced disease in the North of Scotland. As patients with more advanced disease are less likely to be suitable for surgical resection the differences in tumour stage at presentation explain two thirds of the differences in resection rates between the North of Scotland and other Scottish regions. The rest of the difference relates to resection rates in patients with early stage cancer, however resection rates for these patients have improved in NOSCAN as can be seen from the results of QPI 6(ii).

As the most dispersed region in Scotland with the smallest number of patients, the existence of surgical services for lung cancer patients is highly dependent on the cohesion of the regional service. Cooperation and participation in regional working across lung cancer services is key, especially to maximise the utilisation of the surgical service within NOSCAN, which is paramount for the survival of the service.

Actions to improve services across the North of Scotland have been identified as follows:

- NOSCAN to pursue amendment of the QPI data definitions so that patients that are appropriately identified for ‘best supportive care’ on clinical grounds and are subsequently discussed at MDT do not fail QPI 1.

- NHS Grampian to ensure that all patients are to be discussed and documented at MDT, regardless of age, frailty and life expectancy. A communication around this should go out to all those clinicians attending / involved with this patient cohort to ensure results improves moving forward.

- All NHS Boards and NOSCAN to report time to PET CT with results for QPI 4.

- MCN to continue to review NOSCAN resection rate.

- Aberdeen Royal Infirmary surgical team to start using the SCAN proforma for nodal sampling at the time of surgery.

- Aberdeen Royal Infirmary surgical team to reflect on practice with respect to lymph node sampling.

- NHS Boards and NOSCAN to report time to chemotherapy for patients with SCLC alongside performance against QPI 12.

- All NHS Boards to review any patient deaths reported within QPI 13 and develop actions to address any issues identified.

Contents

1. Introduction

The National Cancer Quality Steering Group (NCQSG) took 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 Lung Cancer QPIs are available from the ISD website[1].

The need for regular reporting of activity and performance (to assure the quality of care delivered) was first nationally set out 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].

Regular reporting of activity and performance to assure the quality of care delivered across the region is a fundamental requirement of a Managed Clinical Network (MCN). The following report presents the performance of the North of Scotland (NoS) lung cancer services using clinical audit data relating to patients diagnosed with lung cancer in the twelve months from 1st January to 31st December 2016.

Results are measured against the Lung Cancer Quality Performance Indicators (QPIs)[6] which were implemented for patients diagnosed on or after 1st April 2014, and compares this fourth year of QPI reporting with earlier results where appropriate. Results for the Clinical Trials Access QPI are also presented for patients with lung cancer.

2. Background

Six NHS Boards across the North of Scotland serve the 1.40 million population[7]. There were 1018 patients diagnosed with lung cancer in the North of Scotland between 1st January and 31st December 2016. The configuration of the three Multidisciplinary Teams (MDTs) in the region is set out below.

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

Best practice recommends that patients diagnosed with cancer should have all aspects of their clinical multidisciplinary management considered thereby ensuring enhanced consistency and quality of patient care and clinical outcomes. On that basis, it is recognised that patients diagnosed with lung cancer should be discussed at a Multidisciplinary Team Meeting

(customarily referred to as an MDT or MDTM). In the North of Scotland these were usually convened on a weekly basis.

2.1 National Context

Lung cancer is the most common cancer for men and women combined in Scotland, accounting for 16% of all cancers in 2015[8], with an average of more than 5,000 patients diagnosed each year between 2011 and 2015[9].

The long-term decline seen in the incidence rate of lung cancer in males has continued: the second most common cancer in men, there has been a significant fall in the incidence rate of 15% over the last ten years. Conversely, lung cancer incidence rates in females have increased by almost 7% over the last ten years. To a large extent, this trend reflects historic trends in the prevalence of smoking, which has differed between men and women[8].

Relative survival for lung cancer is increasing[10]. The table below shows the percentage change in one-year and five-year age-standardised survival rates for patients diagnosed in 1987-1991 compared to those diagnosed in 2007-2011.

Relative age-standardised survival for lung cancer in Scotland at 1 year and 5 years showing percentage change from 1987-1991 to 2007-2011[10].

	Relative survival at 1 year (%)		Relative survival at 5 years (%)	
	2007-2011	% change	2007-2011	% change
Male	30.9%	+9.0%	9.5%	+3.1%
Female	35.0%	+12.9%	12.0%	+5.0%

2.2 North of Scotland Context

A total of 1018 cases of lung cancer were recorded through audit in the North of Scotland between 1st January and 31st December 2016, very similar to the 2015 figure of 1017. The number of patients diagnosed within each Board is presented below.

	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
Number of Patients	424	230	6	15	322	21	1018
% of NoS total	41.7%	22.6%	0.6%	1.5%	31.6%	2.1%	100.0%

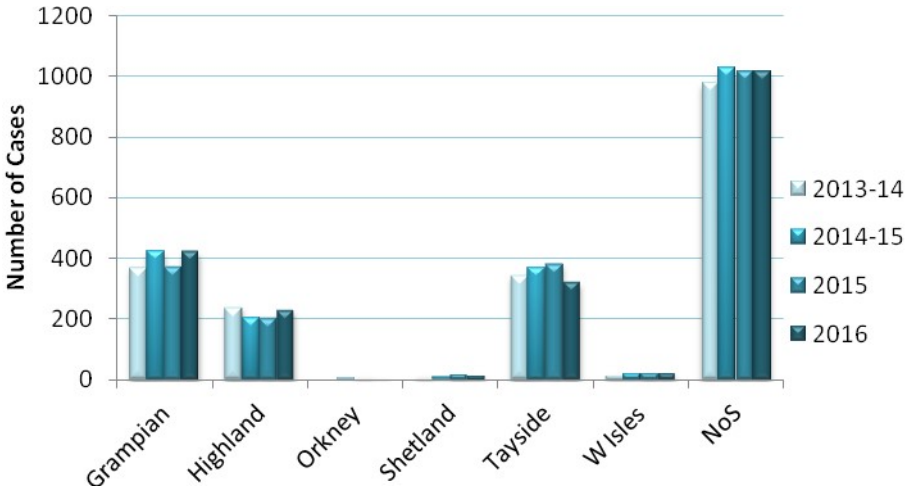


Figure 1: Number of patients diagnosed with lung cancer by Board of diagnosis in 2013/14 - 2016.

3. Methodology

The clinical audit data presented in this report was collected by 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 January and 31st December 2016 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 cases meeting the denominator criteria for any indicator is between one and four, the results has 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 charts or 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

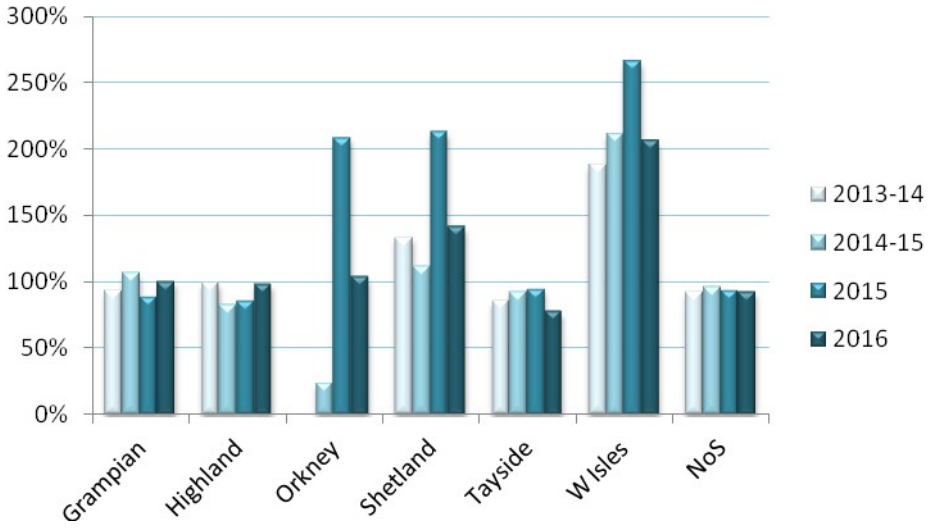
Audit data completeness can be obtained from case ascertainment, which is the proportion of expected patients who have been identified through audit. Case ascertainment is calculated by comparing the number of new cases identified by the cancer audit with the numbers recorded by the National Cancer Registry, 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 (i.e. 2011 to 2015) is used to take account of annual fluctuations in incidence within NHS Boards. It should be noted that case ascertainment figures are provided for guidance only. As it is not possible to compare the same cohort of patients, they are not an exact measurement of audit completeness.

Overall case ascertainment for 2016 in the North of Scotland was high at 92.5%, which indicates good data capture through audit. This is similar to the 2015 figure of 92.8%. Case ascertainment for each Board across the North of Scotland is illustrated below.

Across the Boards there was variation in percentage case ascertainment, ranging from 77.3% to 100.3% in the mainland Boards during 2016. Fluctuations in case ascertainment are expected in the island boards as a result of chance variation due to the small numbers of patients diagnosed.



Case ascertainment by NHS Board for patients diagnosed with lung cancer 2013/14 - 2016.

	Grampian	Highland	Orkney	Shetland	Tayside	W. Isles	**NOSCAN**
Cases from audit	424	230	6	15	322	21	1018
ISD Cases annual average (2011-2015)	423	235	6	11	417	10	1101
% Case ascertainment	**100.3%**	**98.0%**	**103.4%**	**141.5%**	**77.3%**	**205.9%**	**92.5%**

Audit data were considered sufficiently complete to allow QPI calculations. The number of instances of data not being recorded was very low, with the only notable gaps being the absence of TNM recording and recording of performance status for some patients in some NHS Boards, particularly the reporting of whether there was metastatic disease in some patients from NHS Grampian.

4.2 Performance against Quality Performance Indicators (QPIs)

Results of the analysis of Lung Cancer Quality Performance Indicators are set out in the following sections. Graphs and charts have been provided where this aids interpretation: 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 7 and 13 (surgical mortality)) are reported by hospital of surgery.

Where performance is shown to fall below the required target, commentary has also been included to provide context to the variation. Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis where appropriate.

Following completion of the first three years of reporting, and as part of an agreed national process, the Lung Cancer QPIs were formally reviewed during 2016 and some of the QPI definitions were amended, either to make them more clinically relevant or to raise the required performance threshold. Some of the new and amended indictors for lung cancer require the collection of data that was not recorded for patients diagnosed in 2016; in these instances it is not possible to report the QPIs for this cohort. This will be highlighted in the commentary and the QPIs will be reported in subsequent years.

QPI 1: Multi-Disciplinary Team (MDT) Meeting

QPI 1: Multi-Disciplinary Team (MDT) Meeting – Patients should be discussed by a multidisciplinary team prior to definitive treatment.

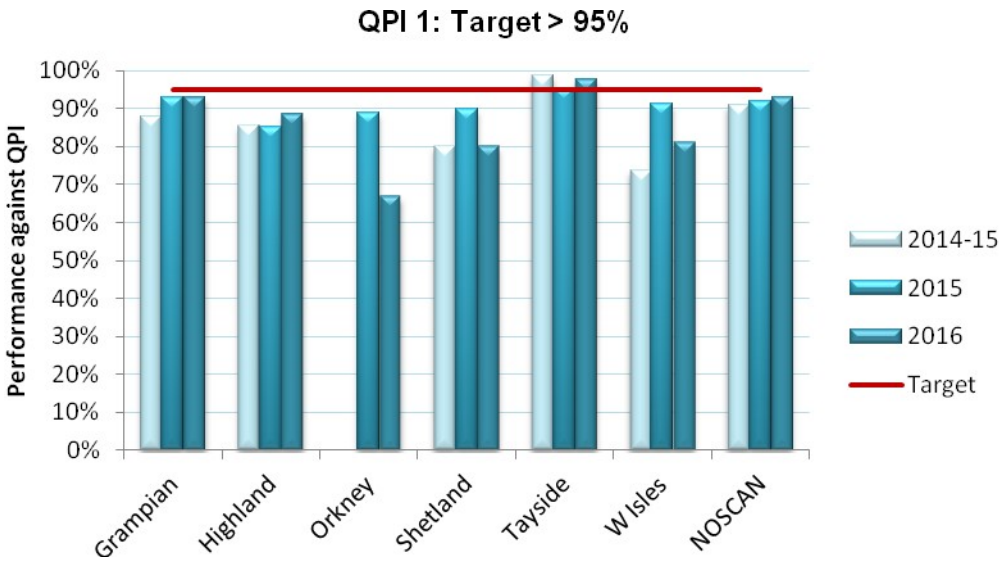
Evidence suggests that patients with cancer managed by a multi-disciplinary team have a better outcome. There is also evidence that the multidisciplinary management of patients increases overall satisfaction with their care.

Numerator:	Number of patients with lung cancer discussed at the MDT before definitive treatment.
Denominator:	All patients with lung cancer.
Exclusions:	Patients who died before first treatment.
Target:	95%

QPI 1 Performance against target

Of the 966 lung cancer patients diagnosed in the North of Scotland in 2016, 896 were discussed at the MDT before definitive treatment, which equates to a rate of 92.8%, below the target rate of 95% and very similar to the 2015 figure of 92.0%.

As in previous years, NHS Tayside was the only Board in the North of Scotland to meet the target for this QPI in 2016.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**92.8%**	375	404	1	0.3%	0	0%	0	-0.1%
Highland	**88.5%**	192	217	1	0.5%	1	0.5%	0	+3.3%
Orkney	**66.7%**	4	6	0	0%	0	0%	0	-22.2%
Shetland	**80.0%**	12	15	0	0%	0	0%	0	-10.0%
Tayside	**97.7%**	296	303	0	0%	0	0%	0	+2.5%
W Isles	**81.0%**	17	21	0	0%	0	0%	0	-10.3%
NoS	**92.8%**	**896**	**966**	**2**	**0.2%**	**1**	**0.1%**	**0**	**+0.8%**

It has become clear over time that some of the NHS Boards in the North of Scotland perform less well against this QPI than in other areas of Scotland. As such NOSCAN has undertaken further analysis to explore which patients are not being discussed at MDT before treatment.

It is good clinical practice to manage any distressing symptoms or other oncological emergencies (such as insertion of a chest drain or commencement of treatment for spinal cord compression) prior to MDT discussion. Such practice is common across NHS Boards and it is for this reason that there is a 5% tolerance in the target for this QPI.

The variation in performance against this QPI in the North of Scotland is in performance for patients having 'best supportive care'.

1) In NHS Tayside the decision for 'best supportive care' is confirmed at MDT meeting and therefore all patients meet the QPI.
2) In some other NHS Boards the decision for 'best supportive care' is made at clinic review following discussion of the treatment options, and subsequently discussed at MDT. Despite this practice being considered clinically appropriate, these patients will not meet the QPI.
3) Some patients for 'best supportive care' have not been discussed at MDT meetings at all due to their advanced disease at presentation in NHS Grampian, NHS Orkney and NHS Shetland, although all NHS Boards have already identified actions to ensure all patients are discussed at MDT and practice has now been changed in those island Boards.

Actions required:

- **NOSCAN to pursue amendment of the QPI data definitions so that patients that are appropriately identified for 'best supportive care' on clinical grounds and are subsequently discussed at MDT do not fail QPI 1.**

- **NHS Grampian to ensure that all patients are to be discussed and documented at MDT, regardless of age, frailty and life expectancy. A communication around this should go out to all those clinicians attending / involved with this patient cohort to ensure results improves moving forward.**

QPI 2: Pathological Diagnosis

QPI2(i): Pathological Diagnosis - Patients should have a pathological diagnosis of lung cancer.

A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.

Numerator: Number of patients with lung cancer who have a pathological diagnosis (including following surgical resection).

Denominator: All patients with lung cancer.

Exclusions:

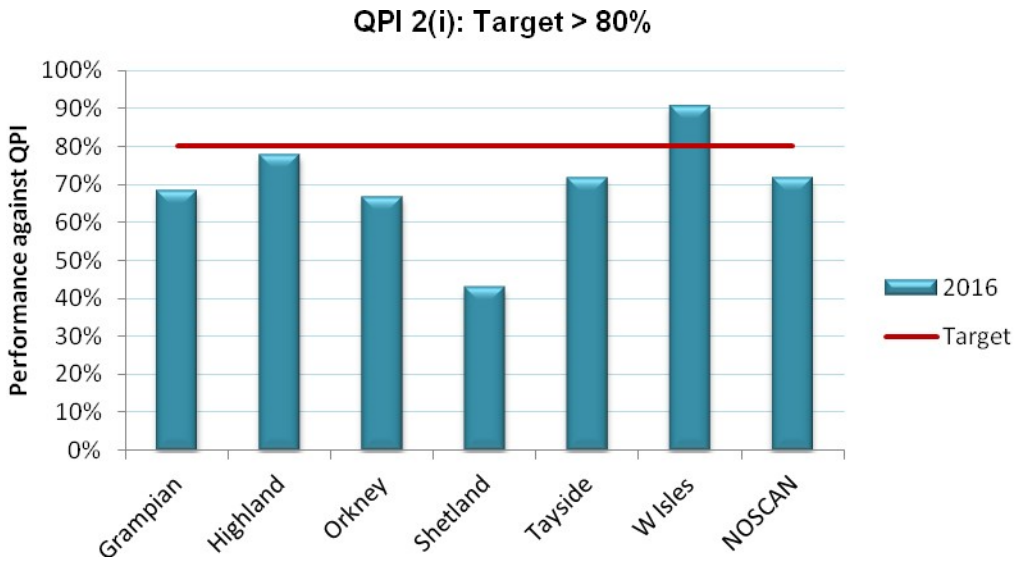
- Patients who refuse investigations or surgical resection.

Target: 80%

QPI 2(i) Performance against target

Overall, in the north of Scotland, 71.5% of patients diagnosed with lung cancer in 2016 had a pathological diagnosis. Due to changes in the way that this QPI is defined it is not possible to compare results with previous years.

The only NHS Board that met this QPI in the North of Scotland in 2016 was NHS W Isles.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**68.2%**	285	418	0	0%	0	0%	0
Highland	**77.7%**	174	224	0	0%	0	0%	0
Orkney	**66.7%**	4	6	0	0%	0	0%	0
Shetland	**42.9%**	6	14	0	0%	0	0%	0
Tayside	**71.7%**	210	293	0	0%	0	0%	0
W Isles	**90.5%**	19	21	0	0%	0	0%	0
NoS	**71.5%**	**698**	**976**	**0**	**0%**	**0**	**0%**	**0**

QPI2(ii): Pathological Diagnosis - Patients with a pathological diagnosis of non small cell lung cancer (NSCLC) should have tumour subtype identified.

A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.

Numerator: Number of patients with a pathological diagnosis of NSCLC who have a tumour subtype identified.

Denominator: All patients with a pathological diagnosis of NSCLC.

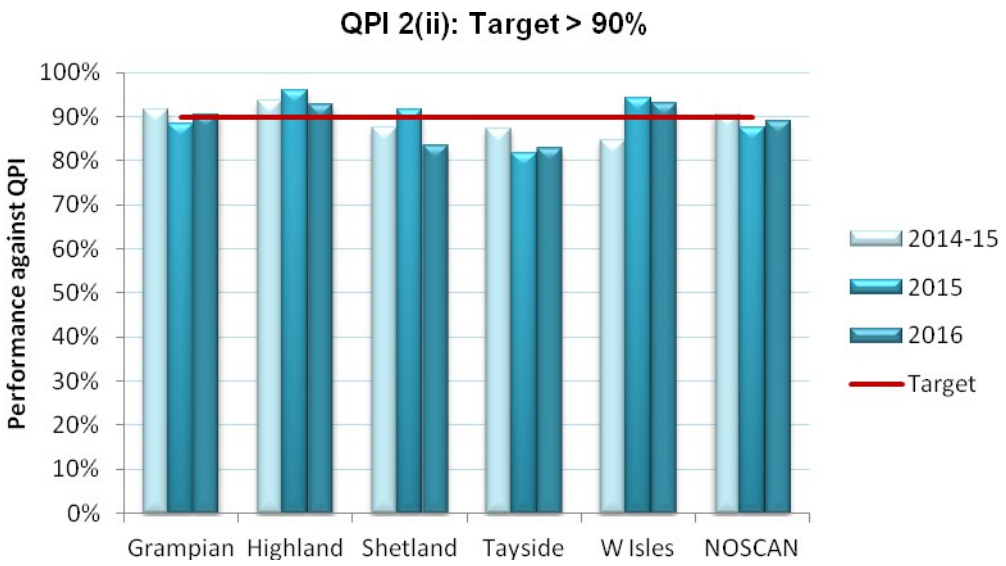
Exclusions: No exclusions.

Target: 90%

QPI 2(ii) Performance against target

Overall, in the north of Scotland, 509 out of the 573 patients with a pathological diagnosis of NSCLC had a tumour sub-type identified. At 88.8% this is just below the target level of 90% and very similar to 2015, where the 87.4% of patients met this target.

NHS Grampian, NHS Highland, NHS Orkney and NHS W Isles met this QPI in 2016, despite the increase in performance required to meet the target from 80% in previous years to 90% for patients diagnosed in 2016.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**90.5%**	209	231	0	0%	0	0%	0	+2.2%
Highland	**92.7%**	139	150	0	0%	0	0%	0	-3.2%
Orkney*	**-**	-	-	**-**	-	-	**-**	-	-
Shetland	**83.3%**	5	6	0	0%	0	0%	0	-8.4%
Tayside	**82.8%**	140	169	0	0%	0	0%	0	+1.2%
W Isles	**92.9%**	13	14	0	0%	0	0%	0	-1.2%
NoS	**88.8%**	**509**	**573**	**0**	**0%**	**0**	**0%**	**0**	**+1.4%**

QPI2(iii): Pathological Diagnosis - Patients with a pathological diagnosis of NSCLC should have analysis of predictive markers undertaken.

A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.

Numerator: Number of patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC who have analysis of predictive markers undertaken.

Denominator: All patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC.

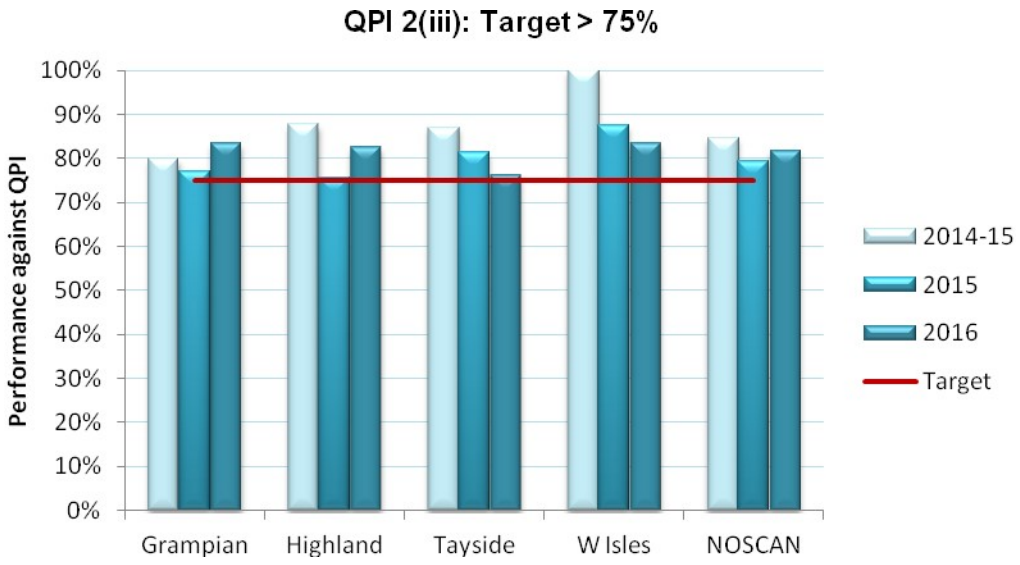
Exclusions: Patients with performance status 4.

Target: 75%

QPI 2(iii) Performance against target

Overall, in the north of Scotland, 81.7% of patients diagnosed with stage IIIB or IV adenocarcinoma NSCLC in 2016 had analysis of predictive markers undertaken. This result is a slight improvement on the 2015 figure of 79.3% and well above the target level set.

All NHS Boards within the North of Scotland met this QPI in 2016.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**83.3%**	85	102	0	0%	2	2.0%	2	+ 6.1%
Highland	**82.5%**	52	63	0	0%	0	0%	1	+ 6.9%
Orkney*	-	-	-	-	-	-	-	-	-
Shetland*	-	-	-	-	-	-	-	-	-
Tayside	**76.0%**	38	50	0	0%	0	0%	0	- 5.3%
W Isles	**83.3%**	5	6	0	0%	0	0%	0	- 4.2%
NoS	**81.7%**	**183**	**224**	**0**	**0%**	**2**	**0.9%**	**5**	**+2.4%**

Results indicate good practice in both sampling of diagnostic tissue and pathology reporting generally across the North of Scotland. Results for specification (i) are not as good as in previous years due to recent changes in the QPI definition to include patients receiving 'best supportive care only', some of whom may not be well enough to have a biopsy taken. Results for specification (i) for the North of Scotland reflect those across Scotland and it has been noted at a national level that histological diagnosis has no impact on survival for patients with advanced disease or poor performance status and the definition of this specification may therefore need to be reconsidered at the next formal review.

Actions required: No specific actions were identified

QPI 4: PET CT in patients being treated with curative intent

QPI 4: PET CT in patients being treated with curative intent - Patients with lung cancer who are being treated with curative intent should have a PET CT Scan (Positron Emission Tomography – Computed Tomography) prior to treatment.

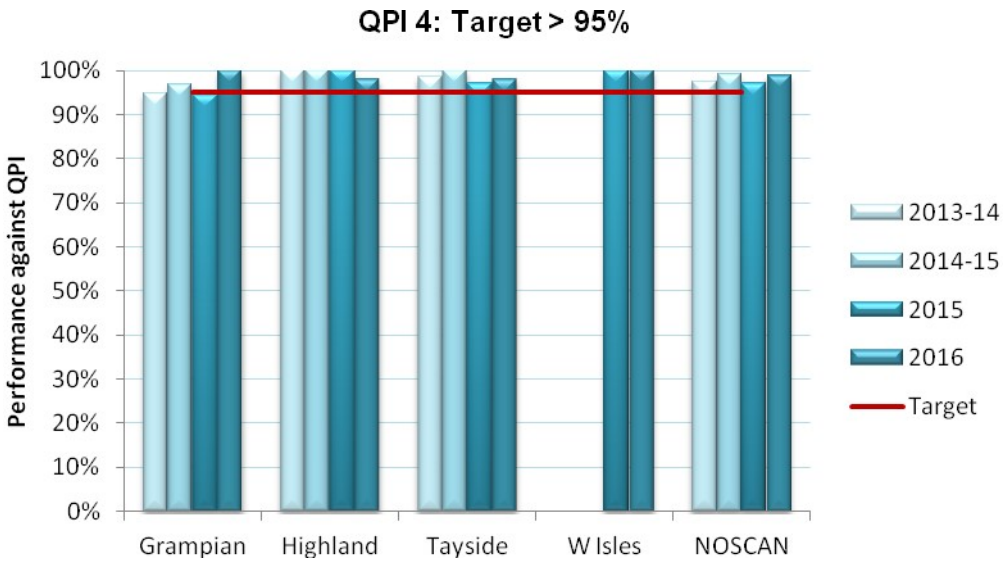
Accurate staging is important to ensure appropriate treatment is delivered to patients with lung cancer. All patients being considered for radical treatment with curative intent should have a PET CT scan completed and reported before treatment.

Numerator:	Number of patients with NSCLC who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment.
Denominator:	All patients with NSCLC who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection).
Exclusions:	No exclusions
Target:	95%

QPI 4 Performance against target

In the North of Scotland, 177 of the 179 patients diagnosed with NSCLC in 2016 who were treated with curative intent had a PET CT prior to the start of treatment. At 98.9% this exceeds the target of 95% for this QPI. This is very similar to the 2015 result of 97.1%.

All NHS Boards in the North of Scotland met this QPI 2016.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**100%**	69	69	0	0%	0	0%	0	+ 5.5%
Highland	**98.0%**	49	50	0	0%	0	0%	0	- 2.0%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**98.1%**	51	52	0	0%	0	0%	0	+ 0.8%
W Isles	**100%**	5	5	0	0%	0	0%	0	0%
NoS	**98.9%**	**177**	**179**	**0**	**0%**	**0**	**0%**	**0**	**+ 1.8%**

While performance against this QPI was good in the North of Scotland, at it has been noted a national level that in addition to QPI performance, ensuring timely reporting of PET CT scanning is also important. In light of this, an action was identified at the Scottish Lung Cancer Forum to record the time to PET CT alongside the performance against this QPI in future years.

Actions required:

- **All NHS Boards and NOSCAN to report time to PET CT with results for QPI 4.**

QPI 6: Surgical Resection in non small cell lung cancer

QPI 6(i): Surgical resection in non small cell lung cancer - Patients with non small cell lung cancer (NSCLC) should undergo surgical resection.

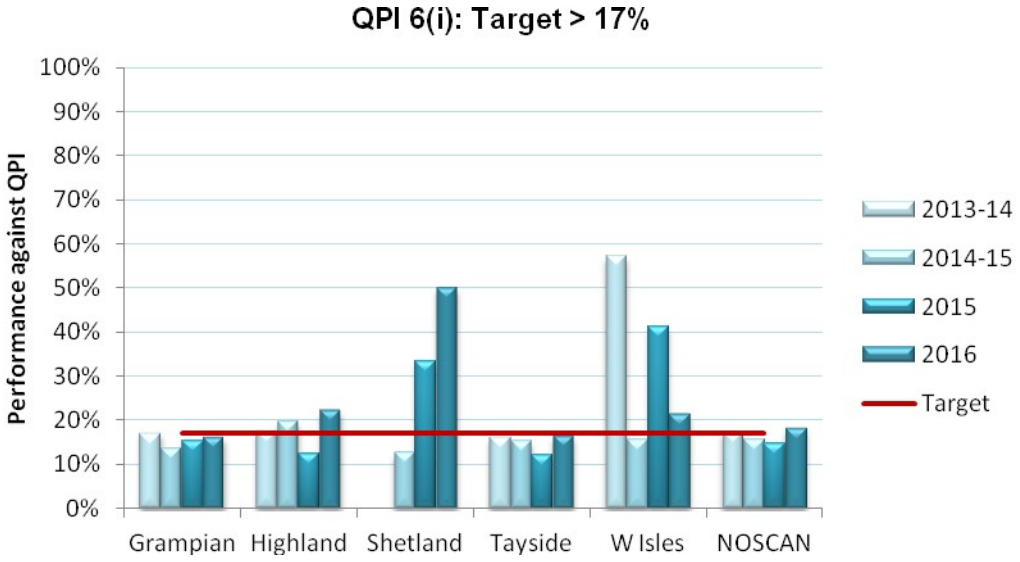
All patients should be considered for surgical treatment appropriate to their stage of disease. For patients with NSCLC who are suitable for treatment with curative intent surgical resection by lobectomy is the superior treatment option. Surgery is the treatment which offers the best chance of cure to patients with localised NSCLC.

Numerator:	Number of patients with non small cell lung cancer (NSCLC) who undergo surgical resection.
Denominator:	All patients with non small cell lung cancer (NSCLC).
Exclusions:	Patients who refuse surgery and patients who die before surgery.
Target:	17%

QPI 6(i) Performance against target

In the North of Scotland, 18.2% of the 566 patients diagnosed with NSCLC in 2016 underwent surgical resection. This meets the target of 17% and an improvement on the 2015 figure of 14.6%.

Three out of the six NHS Boards in the North of Scotland met this QPI, NHS Highland, NHS Shetland 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
Grampian	**16.2%**	37	229	0	0%	0	0%	0	+ 0.8%
Highland	**22.1%**	33	149	0	0%	0	0%	0	+ 9.8%
Orkney*	-	-	-	-	-	-	-	-	-
Shetland	**50.0%**	3	6	0	0%	0	0%	0	+ 16.4%
Tayside	**16.4%**	27	165	0	0%	0	0%	0	+ 4.2%
W Isles	**21.4%**	3	14	0	0%	0	0%	0	- 19.8%
NoS	**18.2%**	**103**	**566**	0	0%	0	0%	0	**+ 3.6%**

QPI 6(ii): Surgical resection in non small cell lung cancer - Patients with stage I – II non small cell lung cancer (NSCLC) should undergo surgical resection.

All patients should be considered for surgical treatment appropriate to their stage of disease. For patients with NSCLC who are suitable for treatment with curative intent surgical resection by lobectomy is the superior treatment option. Surgery is the treatment which offers the best chance of cure to patients with localised NSCLC.

Patients with stage I and II NSCLC are more likely to be suitable for surgical resection.

Numerator: Number of patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC who undergo surgical resection.

Denominator: All patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC.

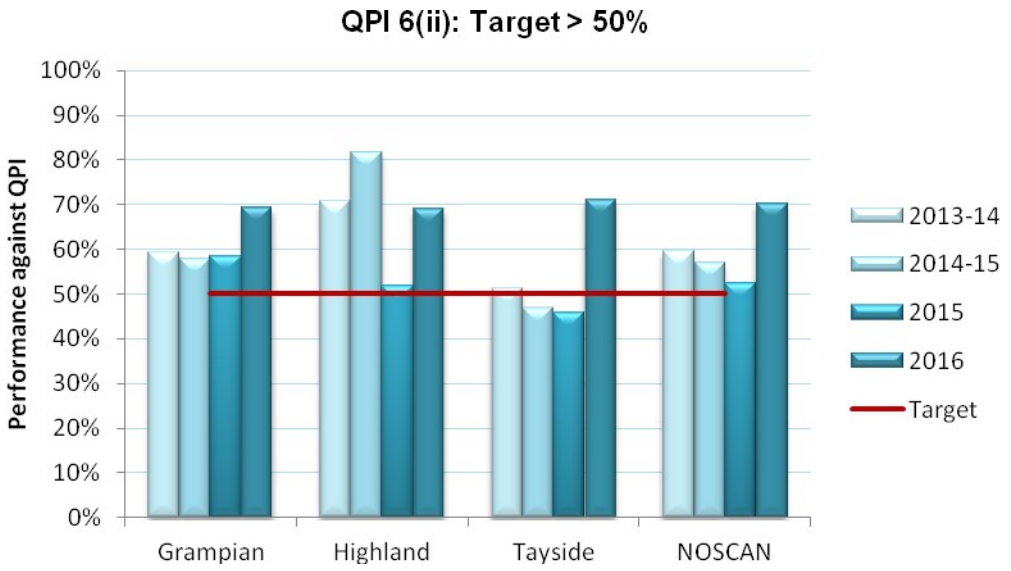
Exclusions: Patients who refuse surgery and patients who die before surgery.

Target: 50%

QPI 6(ii) Performance against target

In 2016, 82 out of the 117 patient diagnosed with stage I-II NSCLC in the North of Scotland underwent surgical resection. At 70.1% this is well above the target of 50% and also higher than the 2015 figure of 52.5%.

All NHS Boards in the North of Scotland met this QPI in 2016, with results improving across 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
Grampian	**69.2%**	27	39	0	0%	0	0%	1	+ 10.7%
Highland	**69.0%**	29	42	0	0%	0	0%	1	+ 17.0%
Orkney	-	0	0	0	-	0	-	2	-
Shetland*	-	-	-	-	-	-	-	-	-
Tayside	**71.0%**	22	31	0	0%	0	0%	0	+ 25.2%
W Isles*	-	-	-	-	-	-	-	-	-
NoS	**70.1%**	**82**	**117**	**0**	**0%**	**0**	**0%**	**4**	**+ 17.6%**

Over the last 4 years, QPI results have shown that resection rates in the North of Scotland have been significantly lower than those in other regions of Scotland. In light of this the MCN and individual NHS Boards in the North of Scotland have undertaken a considerable amount of work to understand the reasons for this difference. This has included:

- Arranging a visit to an MDT meeting in another region to consider whether there are differences in clinical decision making across Scotland.
- Reviewing decisions for not progressing with surgery for individual patients.
- More detailed analysis of data from across Scotland to better understand whether the differences in resection rate were specific to certain group of patients.

The above reviews and visits did not flag any clear differences in decision making between the 3 regions in Scotland. However, more detailed analysis of the available data has indicated that

- with more patients being diagnosed with advanced lung cancer in the North of Scotland compared with other areas

and

- patients with more advanced disease being much less likely to be considered suitable for surgical resection

approximately two thirds of the difference in resection rate between the North of Scotland and the rest of the country is due to differences in stage of disease of patients in the region when they are diagnosed.

The other third of the difference in resection rates is due to historic lower resection rates in the North of Scotland for patients with Stage I and II disease. However, as can be seen in the results for specification (ii), the resection rate for these patients was much improved in 2016 and figures reported here are comparable to those in other regions. This is likely to be the result of increased focus and discussion on resection rates in the region in recent years.

While both targets were met in 2016, it is noted that the target for specification (i) will increase to 20% for the next reporting cycle. This will be very challenging for NOSCAN in light of the higher proportion of patients with advanced disease in the region.

Actions required:

- **MCN to continue to review NOSCAN resection rate.**

QPI 7: Lymph Node Assessment

QPI 7: Lymph node assessment - In patients with non small cell lung cancer (NSCLC) undergoing surgery, adequate assessment of lymph nodes should be made.

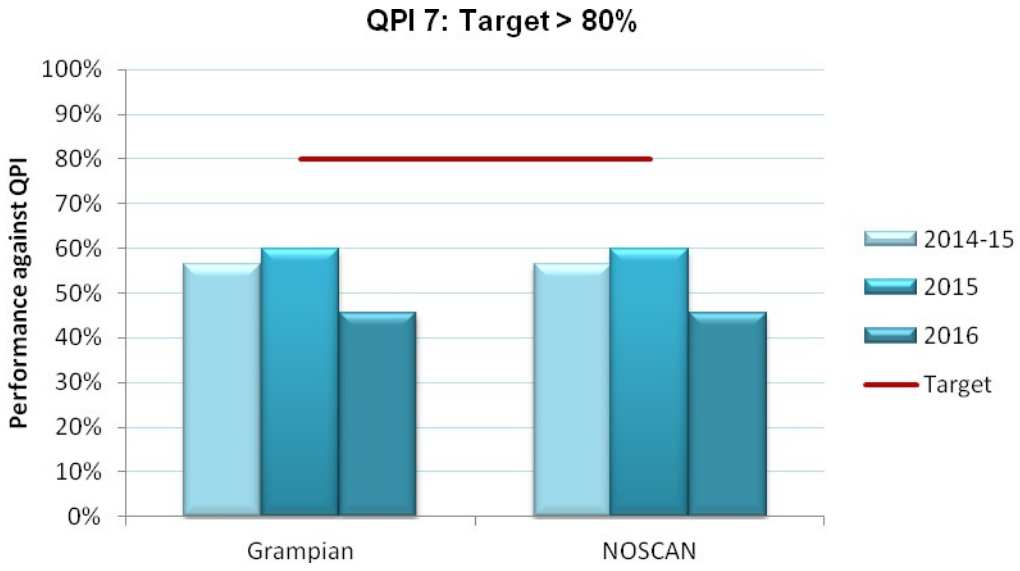
Adequate assessment of lymph nodes for accurate staging will help guide prognosis and further treatment management. Nodal sampling should be performed for all patients undergoing surgery with curative intent.

Numerator:	Number of patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy that have at least 1 node from at least 3 N2 stations sampled at time of resection or at previous mediastinoscopy.
Denominator:	All patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy.
Exclusions:	No exclusions.
Target:	80%

QPI 7 Performance against target

Twenty out of the 44 patient diagnosed with NSCLC in 2016 and undergoing surgical resection by lobectomy or pneumonectomy in the North of Scotland had at least 1 node from at least 3 N3 stations sampled. At 45.5% this falls well below the QPI target of 80%, with results lower than the 2015 figure of 60.0%.

Within the North of Scotland this surgery is only undertaken at Aberdeen Royal Infirmary, NHS Grampian. It is therefore not possible to compare performance between Boards.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**45.5%**	20	44	0	0%	0	0%	0	- 14.5%
Highland	-	0	0	0	-	0	-	0	-
Orkney	-	0	0	0	-	0	-	0	-
Shetland	-	0	0	0	-	0	-	0	-
Tayside	-	0	0	0	-	0	-	0	-
W Isles	-	0	0	0	-	0	-	0	-
NoS	**45.5%**	**20**	**44**	**0**	**0%**	**0**	**0%**	**0**	**- 14.5%**

Performance against this QPI is consistently lower in NOSCAN than in other surgical centres in Scotland. The surgical team in NHS Lothian have recently shared a proforma they use to collect data on nodal sampling at the time of surgery with the Aberdeen Royal Infirmary surgical team and this will be implemented in NHS Grampian. It is hoped that this will drive improvement in performance against this QPI.

Actions Required:

- **Aberdeen Royal Infirmary surgical team to start using the SCAN proforma for nodal sampling at the time of surgery.**
- **Aberdeen Royal Infirmary surgical team to reflect on practice with respect to lymph node sampling.**

QPI 8: Radiotherapy in inoperable lung cancer

QPI 8: Radiotherapy in inoperable lung cancer - Patients with inoperable lung cancer should receive radiotherapy ± chemotherapy.

Radiotherapy is an important treatment option for patients with lung cancer; it has a proven survival benefit for patients with lung cancer.

For patients with stage I, II or III NSCLC, radical radiotherapy is the recommended treatment option if patients are not suitable for surgery.

Numerator: Number of patients with lung cancer not undergoing surgery who receive radical radiotherapy (> 54Gy) ± chemotherapy.

Denominator: All patients with lung cancer not undergoing surgery.

Exclusions:

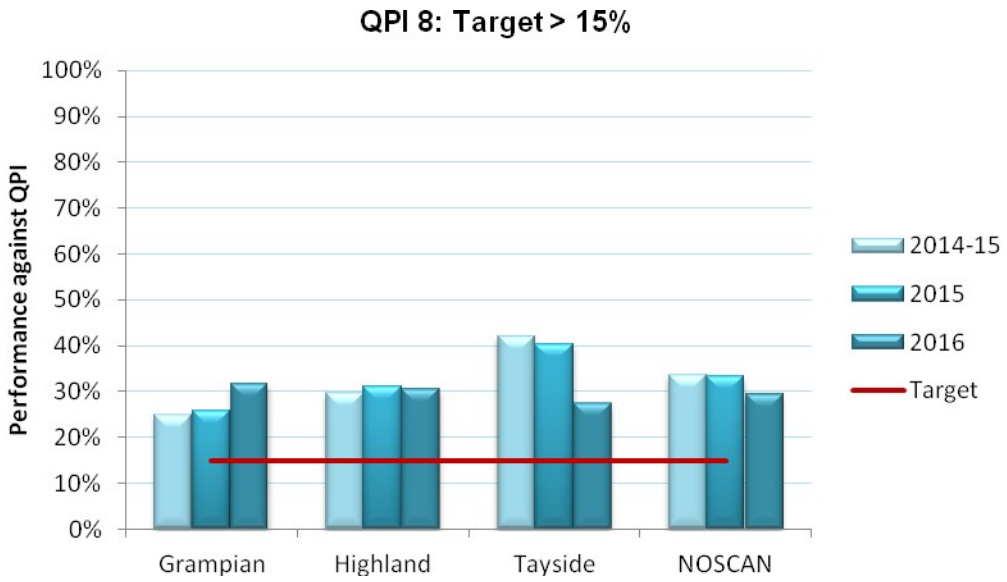
- Patients with Small Cell Lung Cancer (SCLC)
- Patients who refuse radiotherapy
- Patients who die prior to treatment
- Patients with stage IV (M1a or M1b) disease.

Target: 15%

QPI 8 Performance against target

Of the 321 patients diagnosed with lung cancer in the North of Scotland in 2016 and not undergoing surgery, 94 patients received radical radiotherapy. At 29.3%, this meets the target of 15%, although results are slightly lower than in 2015 (33.3%).

All NHS Boards in the North of Scotland met this QPI in 2016 except NHS Orkney and NHS Shetland, where patient numbers were very small.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**31.7%**	40	126	0	0%	26	20.6%	0	+ 6.0%
Highland	**30.4%**	21	69	0	0%	6	8.7%	0	- 0.6%
Orkney*	**-**	-	-	-	-	-	-	-	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**27.4%**	31	113	0	0%	1	0.9%	0	- 12.9%
W Isles	**28.6%**	2	7	0	0%	1	14.3%	0	-
NoS	**29.3%**	**94**	**321**	**0**	**0%**	**36**	**11.2%**	**0**	**- 4.0%**

In future years the target for this QPI will be increased to 35% and include the use of stereotactic ablative radiotherapy.

Actions Required: No specific actions identified.

QPI 9: Chemoradiotherapy in locally advanced non small cell lung cancer

QPI 9: Chemoradiotherapy in locally advanced non small cell lung cancer - Patients with inoperable locally advanced non small cell lung (NSCLC) cancer should receive potentially curative radiotherapy and concurrent or sequential chemotherapy.

Patients with stage III NSCLC who are not suitable for surgery should receive chemoradiotherapy, as this has a proven survival benefit. Potential benefit of survival does, however, have to be balanced with the risk of additional toxicities from this treatment.

Numerator: Number of patients with stage IIIA NSCLC, with performance status 0-1, not undergoing surgery who receive chemoradiotherapy (radiotherapy > 54Gy and concurrent or sequential chemotherapy).

Denominator: All patients with stage IIIA NSCLC, with performance status 0-1, not undergoing surgery who receive radical radiotherapy > 54Gy.

Exclusions:

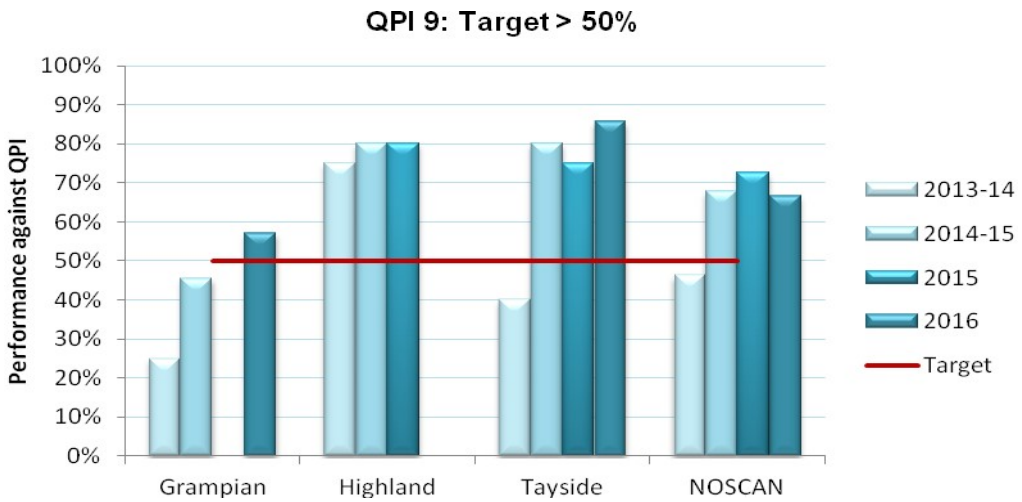
- Patients who refuse treatment.
- Patients who die before treatment.
- Patients receiving Continuous Hyperfractionated Radiotherapy.

Target: 50%

QPI 9 Performance against target

In the North of Scotland, 12 out of the18 patient included within the denominator of this QPI received chemoradiotherapy. At 66.7% this meets the 50% target for this QPI but is less than the 2015 result of 72.7%.

All NHS Boards in the North of Scotland met this QPI in 2015 with the exception of NHS W Isles, where numbers of patients were very small.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**57.1%**	4	7	0	0%	0	0%	1	-
Highland*	**-**	-	-	-	-	-	-	-	-
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**85.7%**	6	7	0	0%	0	0%	0	+10.7%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**66.7%**	**12**	**18**	**0**	**0%**	**0**	**0%**	**1**	**- 6.0%**

Actions required: No specific actions identified.

QPI 10: Chemoradiotherapy in limited stage small cell lung cancer - Patients with limited stage small cell lung cancer (SCLC) should receive platinum-based chemotherapy and (concurrent or sequential) radiotherapy.

Patients with limited stage disease SCLC should receive concurrent chemoradiotherapy, as this is proven to improve survival. Combination treatment is dependent on patient fitness levels and any potential survival benefit should be balanced with the risk of additional toxicities of this treatment.

Numerator: Number of patients with T1-4, N0-3, M0 (stage I to IIIB) SCLC, performance status 0 or 1 who receive chemoradiotherapy (radiotherapy > 40Gy and concurrent or sequential platinum-based chemotherapy).

Denominator: All patients with T1-4, N0-3, M0 (stage I to IIIB) SCLC, performance status 0 or 1.

Exclusions:

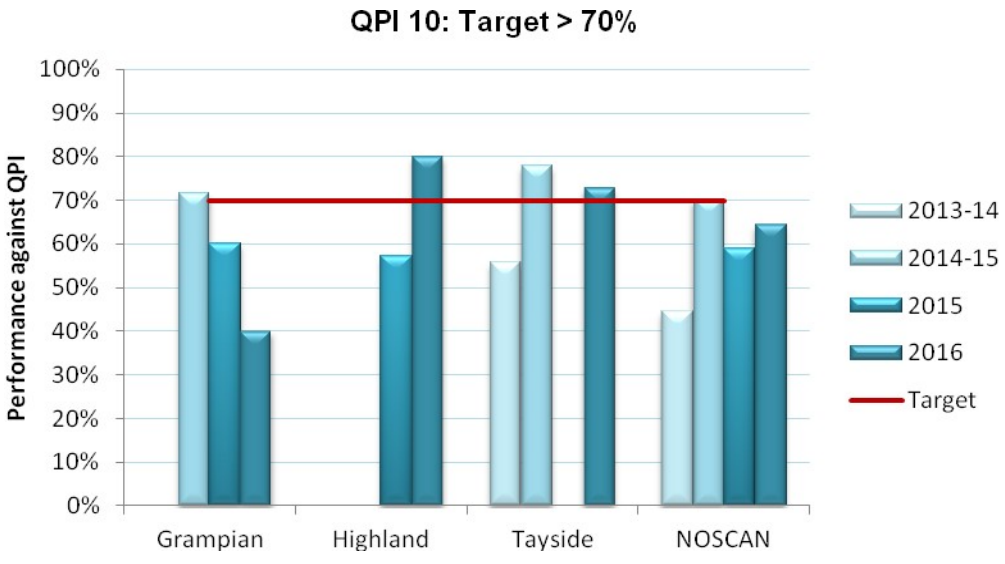
- Patients who refuse treatment.
- Patients who die before treatment.
- Patients who undergo surgical resection.

Target: 70%

QPI 10 Performance against target

Eighteen out of the 28 patients diagnosed with limited stage small cell lung cancer in the North of Scotland in 2016 (and with performance status of 0 or 1) had chemoradiotherapy. At 64.3% this falls below the target for this QPI, although it is an improvement on the 2015 result of 58.8%.

In 2016 NHS Highland, NHS Tayside and NHS W Isles met this QPI whereas NHS Grampian did not. However, as only very small numbers of patients were included in calculations, any variation either between NHS Boards or between years is difficult to interpret.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**40.0%**	4	10	0	0%	0	0%	1	- 20.0%
Highland	**80.0%**	4	5	0	0%	0	0%	1	+ 22.9%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**72.7%**	8	11	0	0%	0	0%	0	-
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**64.3%**	**18**	**28**	**0**	**0%**	**0**	**0%**	**2**	**+ 5.5%**

Actions required: No specific actions were identified.

QPI 11: Systemic anti cancer therapy in non small cell lung cancer

QPI 11(i): Systemic anti cancer therapy in non small cell lung cancer: Patients with non small cell lung cancer (NSCLC) should receive systemic anti cancer therapy, where appropriate.

Systemic anti cancer therapy should be offered to all patients with NSCLC and good performance status, to improve survival, disease control and quality of life.

Numerator: Number of patients with NSCLC not undergoing surgery who receive systemic anti cancer therapy.

Denominator: All patients with NSCLC not undergoing surgery.

Exclusions:

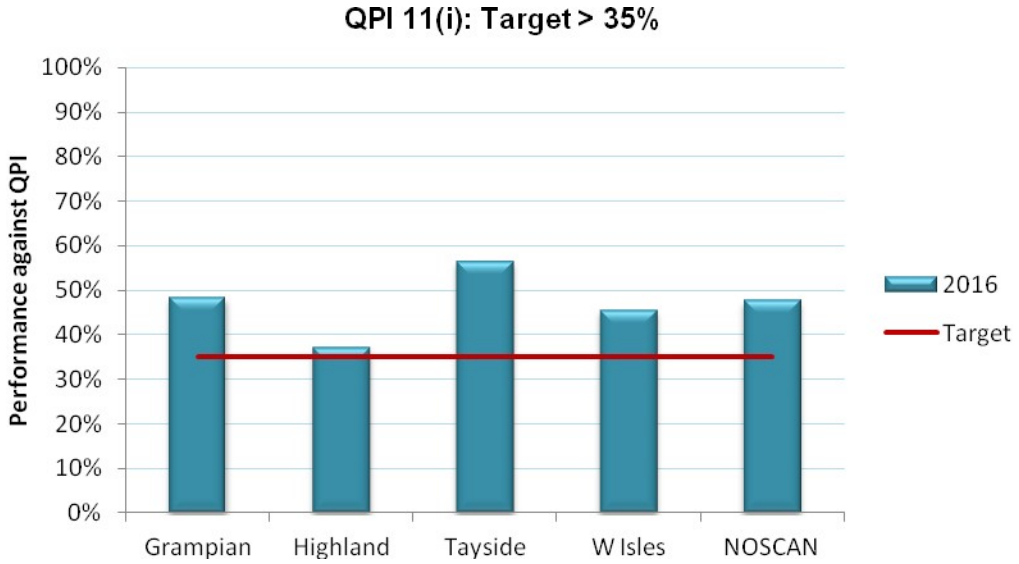
- Patients who refuse chemotherapy.
- Patients who die before treatment.

Target: 35%

QPI 11(i) Performance against target

Out of the 435 patients diagnosed with NSCLC in the North of Scotland in 2016 and not undergoing surgery, 207 received systemic anti cancer therapy. At 47.6%, this was above the target of 35%. Results cannot be compared with previous years due to changes in the way this QPI is measured.

All NHS Boards in the North of Scotland met this QPI in 2016 with the exception of NHS Orkney and NHS Shetland, where there were small numbers of patients.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**48.3%**	86	178	0	0%	0	0%	0
Highland	**37.0%**	40	108	0	0%	1	0.9%	0
Orkney*	-	-	-	-	-	-	-	-
Shetland*	-	-	-	-	-	-	-	-
Tayside	**56.4%**	75	133	0	0%	0	0%	0
W Isles	**45.5%**	5	11	0	0%	0	0%	0
NoS	**47.6%**	**207**	**435**	**0**	**0%**	**1**	**0.2%**	**0**

QPI 11(ii): Systemic anti cancer therapy in non small cell lung cancer: Patients with stage IIIB and IV NSCLC should receive doublet chemotherapy including platinum as their first line regimen.

Patients with stage III or IV NSCLC should be offered chemotherapy, dependent on fitness level, as this is proven to improve survival, provides palliation for symptoms caused by primary or metastatic tumour and improves quality of life.

Numerator: Number of patients with stage IIIB or IV NSCLC, with performance status 0-1 not undergoing surgery who receive doublet chemotherapy, including platinum, as their first-line regimen.

Denominator: All patients with stage IIIB or IV NSCLC, with performance status 0-1 not undergoing surgery.

Exclusions:

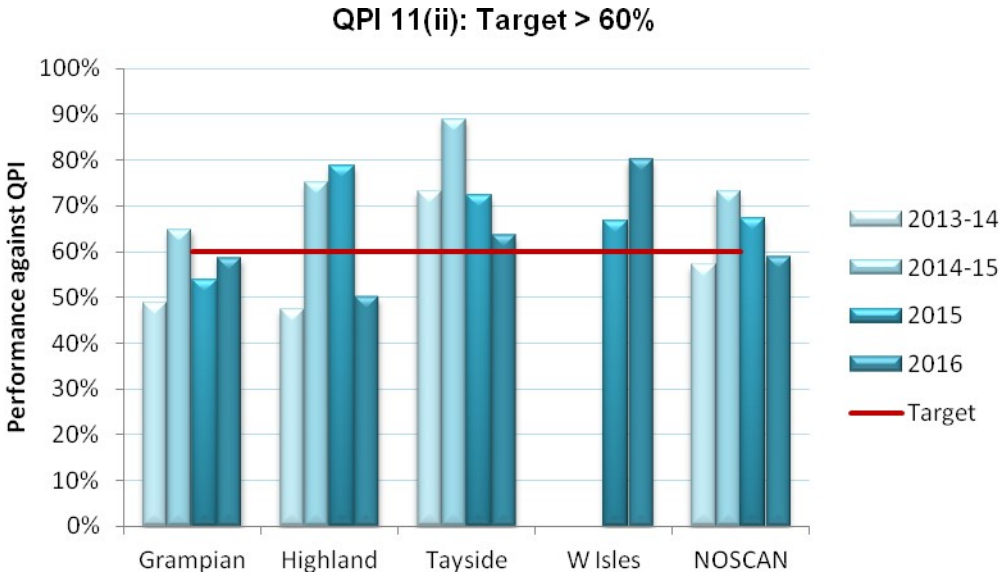
- Patients who refuse chemotherapy.
- Patients who die before treatment.
- Patients who are participating in clinical trials.
- Patients with known EGFR mutation.

Target: 60%

QPI 11(ii) Performance against target

In 2016, there were 165 patients diagnosed with stage IIIB or IV NSCLC in the North of Scotland who had a performance status 0-1 and did not undergo surgery. Of these, 58.8% received doublet chemotherapy, including platinum, as their first-line regimen. This is just below the target of 60% for this QPI and lower than the 2015 result of 67.3%.

Across the North of Scotland the QPI target was met by only NHS Tayside and NHS W Isles. Although trends in performance against this QPI vary across NHS Boards, performance appears to have decreased in recent years.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**58.6%**	41	70	0	0%	0	0%	10	+ 4.8%
Highland	**50.0%**	18	36	0	0%	0	0%	2	- 28.8%
Orkney	**-**	0	0	0	-	0	-	2	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**63.5%**	33	52	0	0%	0	0%	0	- 8.8%
W Isles	**80.0%**	4	5	0	0%	0	0%	0	+ 13.3%
NoS	**58.8%**	**97**	**165**	**0**	**0%**	**0**	**0%**	**14**	**- 8.5%**

The decline in performance against this QPI in recent years may be due to changes in oncological practice in light of new clinical evidence and therapies becoming available. This QPI will change for future years to focus on EGFR and ALK positive patients receiving biological therapy.

Actions Required: No specific actions were identified.

QPI 12: Chemotherapy in small cell lung cancer

QPI 12(i): Chemotherapy in small cell lung cancer: Patients with small cell lung cancer (SCLC) should receive chemotherapy.

Patients with SCLC should receive combination chemotherapy, dependent on fitness levels, as this has a proven survival benefit and provides palliation for symptoms caused by primary or metastatic tumour.

Numerator: Number of patients with SCLC who receive chemotherapy ± radiotherapy.

Denominator: All patients with SCLC.

Exclusions:

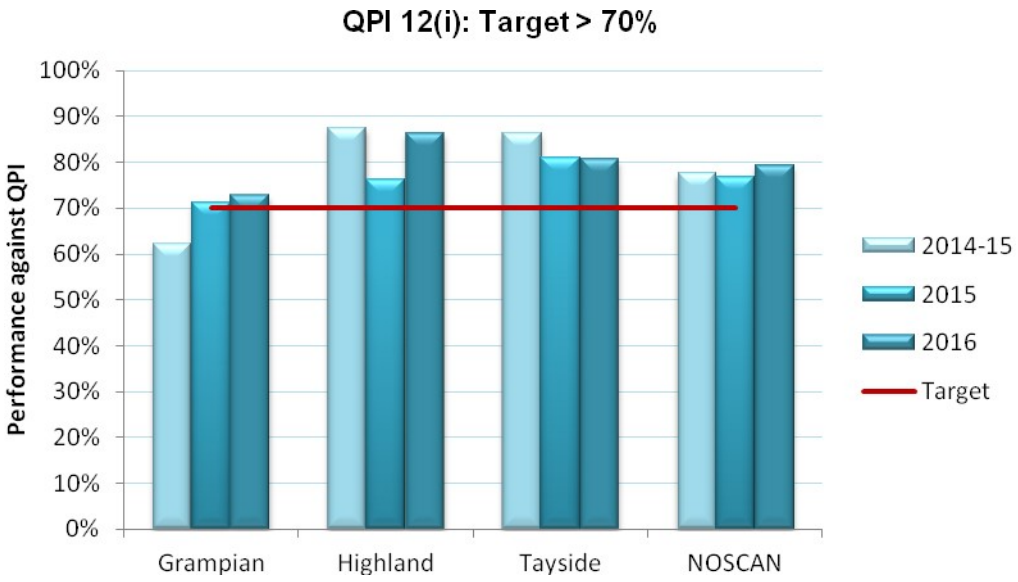
- Patients who refuse chemotherapy.
- Patients who die prior to treatment.
- Patients who are participating in clinical trials.

Target: 70%

QPI 12(i) Performance against target

81 out of the 102 patients diagnosed with SCLC in the North of Scotland in 2016 had chemotherapy. At 79.4% this exceeds the target for this QPI and is a slight improvement on the 2015 figure of 76.8%.

All Boards in the North of Scotland met this QPI in 2016, as in 2015.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**72.7%**	32	44	0	0%	0	0%	0	+ 1.6%
Highland	**86.4%**	19	22	0	0%	0	0%	0	+ 10.2%
Orkney*	-	-	-	-	-	-	-	-	-
Shetland	-	0	0	0	-	0-	-	0	-
Tayside	**80.6%**	25	31	0	0%	0	0%	0	- 0.5%
W Isles*	-	-	-	-	-	-	-	-	-
NoS	**79.4%**	**81**	**102**	**0**	**0%**	**0**	**0%**	**0**	**+ 2.6%**

QPI 12(ii): Chemotherapy in small cell lung cancer: Patients with small cell lung cancer (SCLC) should receive chemotherapy.

Patients with SCLC should receive combination chemotherapy, dependent on fitness levels, as this has a proven survival benefit and provides palliation for symptoms caused by primary or metastatic tumour.

Numerator: Number of patients with SCLC not undergoing treatment with curative intent who receive palliative chemotherapy.

Denominator: All patients with SCLC not undergoing treatment with curative intent.

Exclusions:

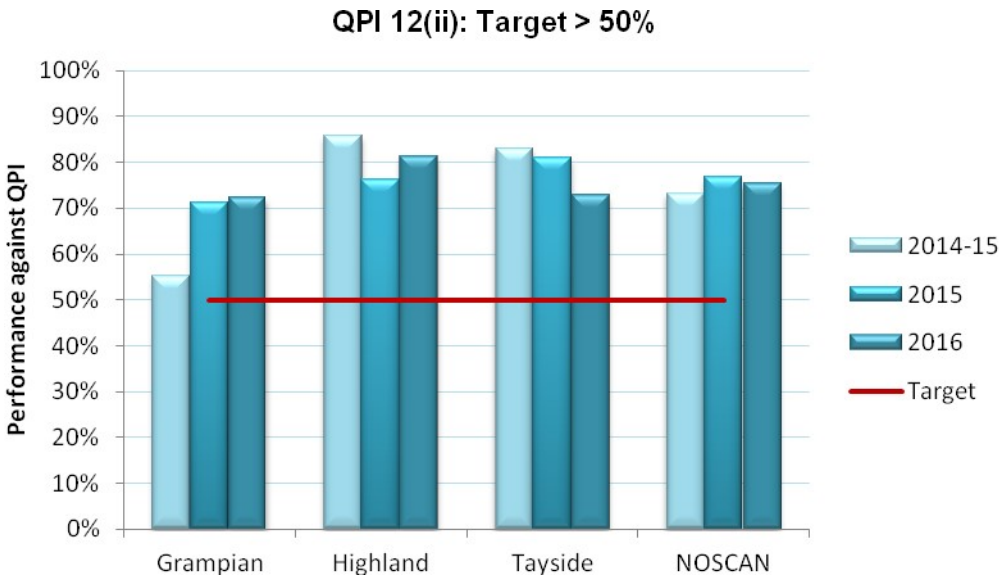
- Patients who refuse chemotherapy.
- Patients who die prior to treatment.
- Patients who are participating in clinical trials.

Target: 50%

QPI 12(ii) Performance against target

58 out of the 77 patients diagnosed with SCLC in the North of Scotland in 2016 and not undergoing treatment with curative intent had palliative chemotherapy. At 75.3% this exceeds the target for this QPI of 50% and is slightly higher than the 2015 figure of 71.1%.

All Boards in the North of Scotland met this QPI in 2016, as in 2015.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**72.2%**	26	36	0	0%	0	0%	0	+ 7.7%
Highland	**81.3%**	13	16	0	0%	0	0%	0	+ 12.5%
Orkney*	-	-	-	-	-	-	-	-	-
Shetland	-	0	0	0	-	0	-	0	-
Tayside	**72.7%**	16	22	0	0%	0	0%	0	- 5.1%
W Isles*	-	-	-	-	-	-	-	-	-
NoS	**75.3%**	**58**	**77**	**0**	**0%**	**0**	**0%**	**0**	**+ 4.2%**

Performance against this QPI in the North of Scotland has continued to be good. However, the importance of patients with SCLC receiving chemotherapy in a timely manner has been raised at a national level. In light of this an action was identified at the Scottish Lung Cancer Forum to record the time to chemotherapy alongside the performance against this QPI to provide additional information on the quality of service provided.

Actions Required:

- **NHS Boards and NOSCAN to report time to chemotherapy for patients with SCLC alongside performance against QPI 12.**

QPI 13: Mortality following treatment for lung cancer

QPI 13: 30 and 90 day mortality following treatment for lung 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. Treatment should only be undertaken in individuals that may benefit from that treatment, that is, treatments should not be undertaken in futile situations. This QPI is intended to ensure treatment is given appropriately, and the outcome reported on and reviewed.

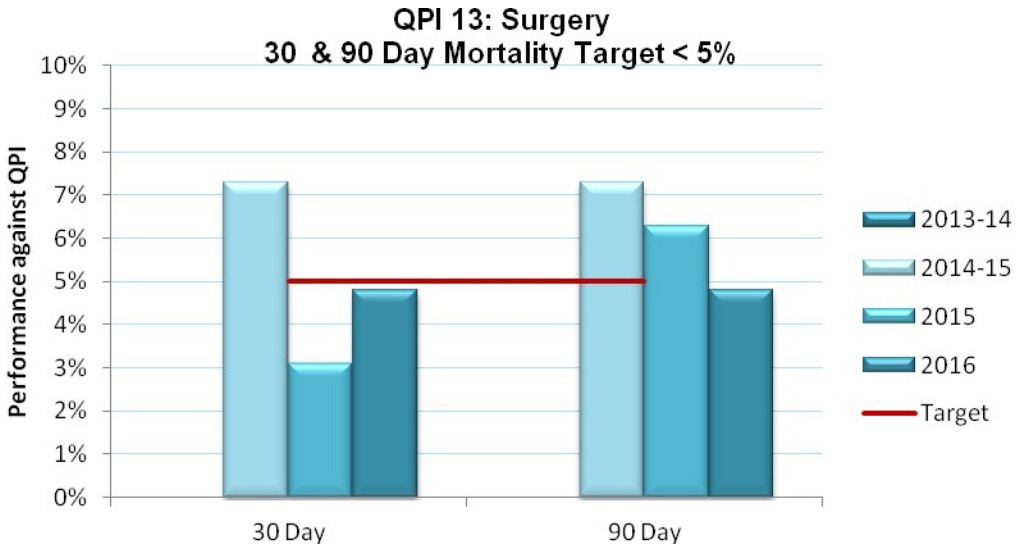
Numerator:	Number of patients with lung cancer who receive active treatment who die within 30 / 90 days of treatment.
Denominator:	All patients with lung cancer who receive active treatment.
Exclusions:	No Exclusions
Targets:	Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy <5% Palliative Chemotherapy/Biological Therapy Patients with NSCLC <10% Patients with SCLC <15%

QPI 13(i) Performance against target

Surgery

Out of the 62 patients diagnosed with lung cancer in 2016 who underwent surgery in the North of Scotland, 3 died within 30 and 90 days of treatment. At a rate of 4.8% this meets the target for the QPI of less than 5% and is similar to 2015, when 30 day mortality was 3.1% and 90 day mortality was 6.3%.

As NHS Grampian is the only centre within the north of Scotland at which such surgery was undertaken in 2016 it is not possible to compare results between Boards.



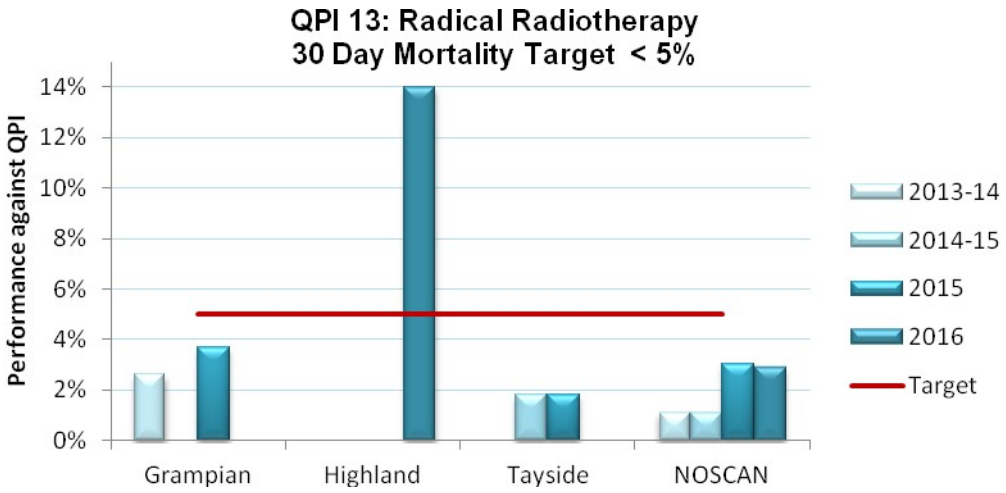
30 and 90 day mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	4.8%	3	62	0	0%	0	0%	0
Highland	-	0	0	0	-	0	-	0
Orkney	-	0	0	0	-	0	-	0
Shetland	-	0	0	0	-	0	-	0
Tayside	-	0	0	0	-	0	-	0
W Isles	-	0	0	0	-	0	-	0
NoS	**4.8%**	**3**	**62**	**0**	**0%**	**0**	**0%**	**0**

Radical Radiotherapy

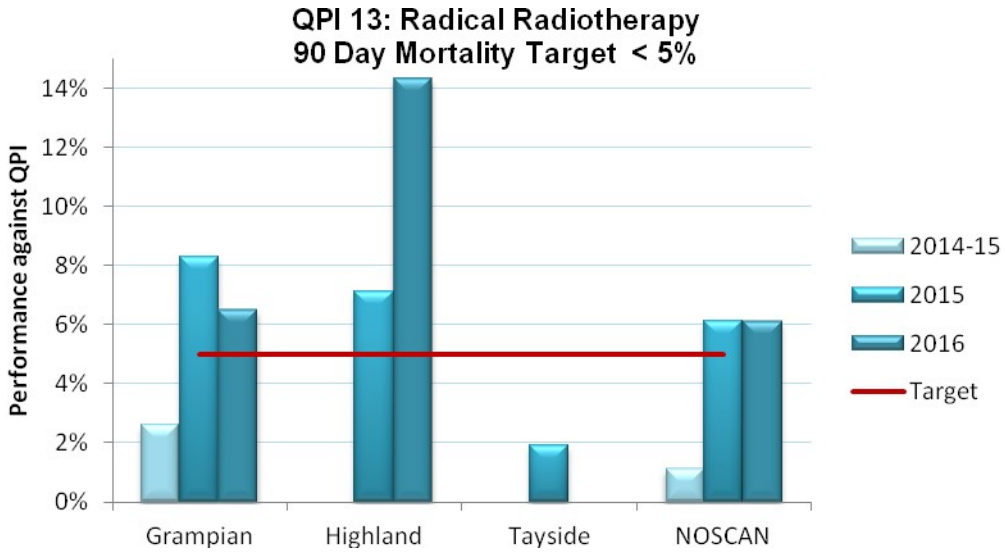
Two of the 70 patients diagnosed with lung cancer in 2016 who received radical radiotherapy died within 30 days of treatment, at a rate of 2.9%, this is very similar to 2015, when the rate was 3.0%, and is well within the 5% target for this QPI. Four patients died within 90 days of treatment during 2016, which at 6.1% is higher than the target rate but again similar to the 2015 rate of 5.4%.

The 30 day target was met across all NHS Boards in the North of Scotland except NHS Highland, which was the result of the outcome of two patients, while the 90 day target was only met by NHS Tayside and NHS W Isles.

It should be noted that the numbers of patients included within calculations for individual NHS Boards are very low and it is therefore difficult to compare results between Boards. Mortality following radical radiotherapy had been 0% in NHS Highland over the previous 3 years and there are no notable geographical differences in mortality over the 4 years reported to date.



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
Grampian	**0%**	0	34	1	2.9%	0	0%	0	- 3.7%
Highland	**14.3%**	2	14	0	0%	0	0%	0	+ 14.0%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**0%**	0	20	0	0%	0	0%	0	- 1.8%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**2.9%**	**2**	**70**	**1**	**1.4%**	**0**	**0%**	**0**	**- 0.1%**



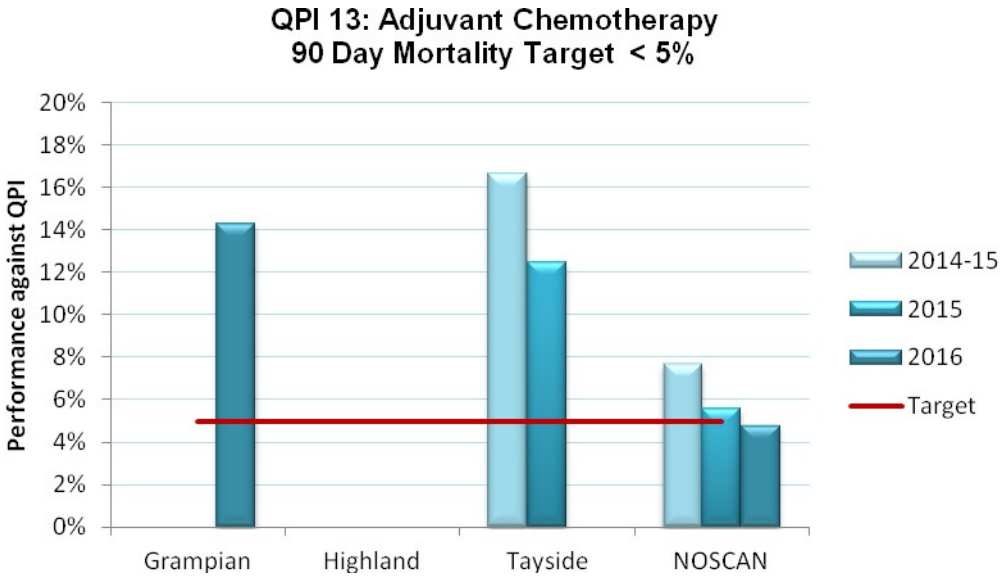
90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**6.5%**	2	31	1	3.2%	0	0%	0	- 1.8%
Highland	**14.3%**	2	14	0	0%	0	0%	0	+ 7.2%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**0%**	0	19	0	0%	0	0%	0	- 1.9%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**6.1%**	**4**	**66**	**1**	**1.5%**	**0**	**0%**	**0**	**+ 0.7%**

Adjuvant Chemotherapy

Out of the 23 patients diagnosed with lung cancer in 2016 who underwent adjuvant chemotherapy, none died within 30 days of treatment. At a rate of 0% this meets the target for this QPI of less than 5% both at a regional level and for all the NHS Boards within the North of Scotland and is less than the 2015 figure of 4.8%.

One of these patients died within 90 days of treatment. At 4.8% this meets the target of less that 5% for 90 day mortality and is similar to the 5.6% figure for patients diagnosed in 2015. While NHS Grampian did not meet the QPI target, this was due to the outcome of a single patient and 90 day mortality for this NHS Board has been 0% in both 2014-15 and 2015.

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
Grampian	**0%**	0	9	0	0%	0	0%	0	0%
Highland	**0%**	0	6	0	0%	0	0%	0	-
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**0%**	0	6	0	0%	0	0%	0	- 11.1%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**0%**	**0**	**23**	**0**	**0%**	**0**	**0%**	**0**	**- 4.8%**



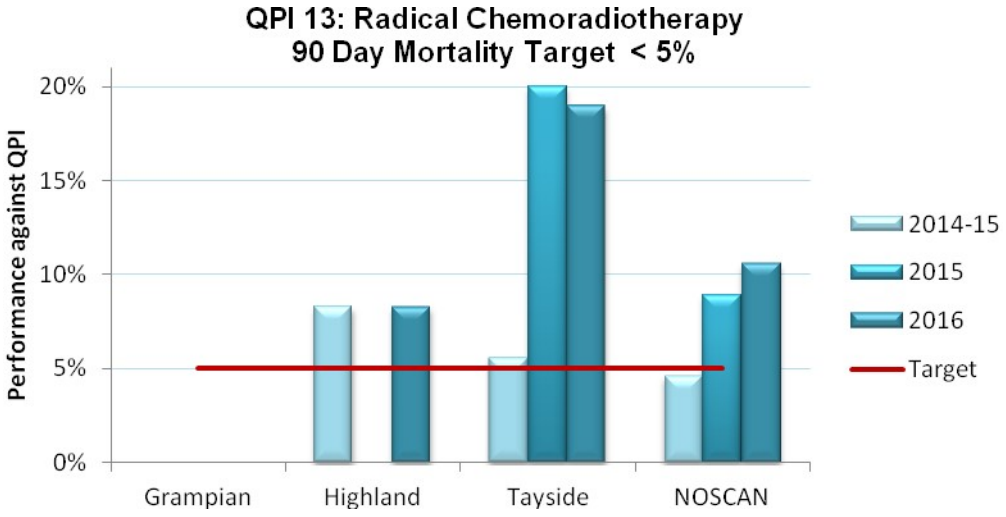
90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**14.3%**	1	7	0	0%	0	0%	0	+ 14.3%
Highland	**0%**	0	6	0	0%	0	0%	0	-
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland*	**-**	-	-	-	-	-	-	-	-
Tayside	**0%**	0	6	0	0%	0	0%	0	- 12.5%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**4.8%**	**1**	**21**	**0**	**0%**	**0**	**0%**	**0**	**- 0.8%**

Chemoradiotherapy

Out of the 50 patients diagnosed with lung cancer in 2016 who underwent chemoradiotherapy, one died within 30 days of treatment. At a rate of 2.0% this meets the target for this QPI of less than 5% and is lower than the 2015 figure, when 30 day mortality was 4.3%. Five of these patients died within 90 days of treatment. At a rate of 10.6% this does not meet the target and is similar to the 2015 figure of 8.9%.

All NHS Boards in the North of Scotland met the QPI target of less than 5% for 30 day mortality following radical chemoradiotherapy in 2016; however NHS Highland and NHS Tayside did not meet the 90 day target.

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
Grampian	**0%**	0	14	0	0%	0	0%	0	0%
Highland	**0%**	0	13	0	0%	0	0%	0	0%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**4.8%**	1	21	0	0%	0	0%	0	- 4.7%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**2.0%**	**1**	**50**	**0**	**0%**	**0**	**0%**	**0**	**- 2.3%**

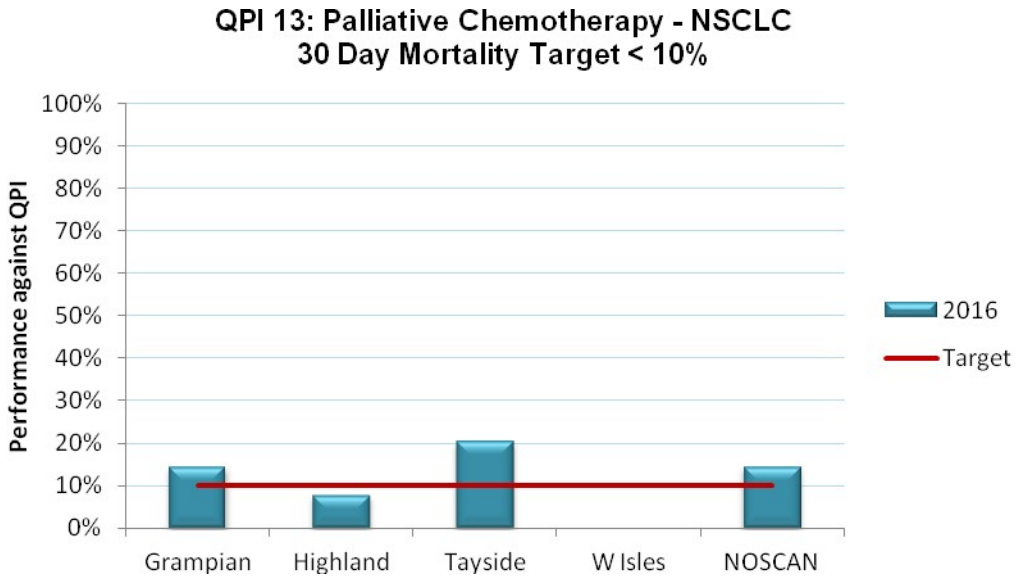


90 Day Mortality	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator	Change in Performance since 2015
Grampian	**0%**	0	13	0	0%	0	0%	0	0%
Highland	**8.3%**	1	12	0	0%	0	0%	0	+ 8.3%
Orkney	**-**	0	0	0	-	0	-	0	-
Shetland	**-**	0	0	0	-	0	-	0	-
Tayside	**19.0%**	4	21	0	0%	0	0%	0	- 1.0%
W Isles*	**-**	-	-	-	-	-	-	-	-
NoS	**10.6%**	**5**	**47**	**0**	**0%**	**0**	**0%**	**0**	**+ 1.7%**

Palliative Chemotherapy - NSCLC

Out of the 138 patients diagnosed with NSCLC in 2016 who underwent palliative chemotherapy, 20 patients died within 30 days of treatment. At a rate of 14.5% this does not meet the target for this QPI of less than 10%. Data cannot be compared with previous years due to changes in the way the QPI is defined.

Across the North of Scotland this QPI target was not met in NHS Tayside and NHS Grampian.

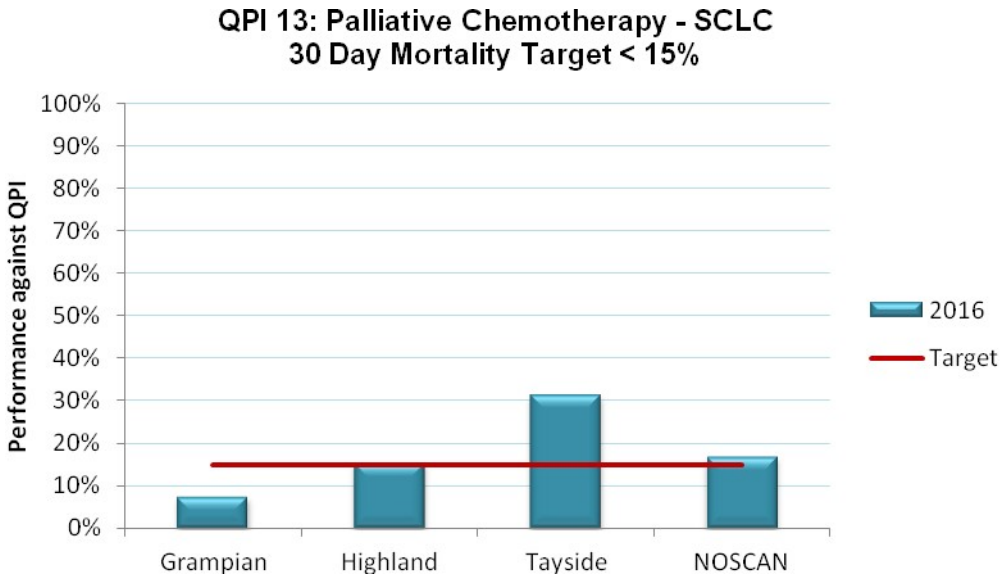


	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**14.5%**	9	62	0	0%	0	0%	0
Highland	**7.7%**	2	26	0	0%	0	0%	0
Orkney	**-**	0	0	0	-	0	-	0
Shetland*	**-**	-	-	-	-	-	-	-
Tayside	**20.5%**	9	44	0	0%	0	0%	0
W Isles	**0%**	0	5	0	0%	0	0%	0
NoS	**14.5%**	**20**	**138**	**0**	**0%**	**0**	**0%**	**0**

Palliative Chemotherapy - SCLC

Out of the 59 patients diagnosed with SCLC in 2016 who underwent palliative chemotherapy, 10 patients died within 30 days of treatment. At a rate of 16.9% this does not meet the target for this QPI of less than 15%. Data cannot be compared with previous years due to changes in the way the QPI is defined.

Across the North of Scotland this QPI target was not met in NHS Tayside, NHS Highland and NHS W Isles.



	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**7.4%**	2	27	0	0%	0	0%	0
Highland	**15.4%**	2	13	0	0%	0	0%	0
Orkney*	-	-	-	-	-	-	-	-
Shetland	-	0	0	0	-	0	-	0
Tayside	**31.3%**	5	16	0	0%	0	0%	0
W Isles*	-	-	-	-	-	-	-	-
NoS	**16.9%**	**10**	**59**	**0**	**0%**	**0**	**0%**	**0**

Biological therapy

One of the 32 patients diagnosed with NSCLC in 2016 who were treated with biological therapy died within 30 days of treatment. At a rate of 3.1% this meets the target for this QPI of less than 10%. These results cannot be compared with previous years due to changes in the way the QPI is defined.

All NHS Boards in the North of Scotland except NHS Tayside met this QPI. However it should be noted that the inability of NHS Tayside to meet the QPI target in 2016 was the results of the outcome of a single patient, due to the small numbers of patients included within this QPI.

Due to the restricted amount of data for this QPI, results are not presented graphically.

	Performance (%)	Numerator	Denominator	Not recorded - Numerator	% not recorded - Numerator	Not recorded - Exclusions	% not recorded - Exclusions	Not recorded Denominator
Grampian	**0%**	0	12	0	0%	0	0%	0
Highland	**0%**	0	5	0	0%	0	0%	0
Orkney*	**-**	-	-	-	-	-	-	-
Shetland	**-**	0	0	0	-	0	-	0
Tayside	**7.1%**	1	14	0	0%	0	0%	0
W Isles	**-**	0	0	0	-	0	-	0
NoS	**3.1%**	**1**	**32**	**0**	**0%**	**0**	**0%**	**0**

No patients diagnosed with SCLC had biological therapy.

Whilst any variation in mortality levels can be heavily influenced by the deaths of even small numbers of patients, it is nonetheless noted that 90 day mortality for chemoradiotherapy in NHS Tayside has been quite high over the last 2 years. All NHS Boards should continue to review any deaths following treatment.

Actions Required:

- **All NHS Boards to review any patient deaths reported within QPI 13 and develop actions to address any issues identified.**

QPI 14: Stereotactic Ablative Radiotherapy (SABR) in inoperable stage I lung cancer

QPI 14: Stereotactic Ablative Radiotherapy (SABR) in inoperable stage I lung cancer- Patients with inoperable stage I lung cancer should receive stereotactic ablative radiotherapy (SABR).

SABR is now a recognised treatment option for patients with medically inoperable early stage lung cancer. Patients with stage I lung cancer who are not suitable for surgery should receive SABR as this has a proven survival benefit.

Numerator: Number of patients with stage I lung cancer not undergoing surgery who receive SABR.

Denominator: All patients with stage I lung cancer not undergoing surgery.

Exclusions:

- Patients with small cell lung cancer (SCLC)
- Patients who refuse SABR.
- Patients who die prior to treatment.

Target: 35%

This QPI was developed through the Formal Review of Lung Cancer QPIs in 2016-2017. Data required to report this standard has not been collected for patients diagnosed in 2016 and therefore it is not possible to report performance against this target here. Results will be reported for patients diagnosed in 2017.

QPI 15: Pre-treatment diagnosis

QPI 15: Pre-treatment diagnosis - Where possible patients should have a cytological / histological diagnosis prior to treatment.

A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.

Appropriate treatment depends on accurate diagnosis which should be confirmed by cytology / histology.

Numerator:	Number of patients who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that have a cytological / histological diagnosis prior to treatment.
Denominator:	All patients with lung cancer who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection).
Exclusions:	Patients who refuse investigations
Target:	75%

This QPI was developed through the Formal Review of Lung Cancer QPIs in 2016-2017. Data required to report this standard has not been collected for patients diagnosed in 2016 and therefore it is not possible to report performance against this target here. Results will be reported for patients diagnosed in 2017.

QPI 16: Brain imaging

QPI 16: Brain imaging - Patients with N2 disease who are undergoing curative treatment should have brain imaging performed prior to commencing treatment.

Brain metastases are an important prognostic factor in lung cancer patients and the detection of these can influence decisions on appropriate treatment.

Contrast enhanced CT is the most common imaging method used to detect brain metastases and has been shown to be as reliable as non-contrast enhanced MRI. Contrast enhanced MRI will detect more metastases than contrast enhanced CT but does not detect metastases in a greater number of patients.

All patients with N2 disease being considered for curative treatment should undergo contrast enhanced head CT or MRI.

Numerator:	Number of patients with N2 disease who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo contrast enhanced CT or contrast enhanced MRI prior to start of treatment.
Denominator:	All patients with N2 disease who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection).
Exclusions:	Patients who decline brain imaging
Target:	95%

This QPI was developed through the Formal Review of Lung Cancer QPIs in 2016-2017. Data required to report this standard has not been collected for patients diagnosed in 2016 and therefore it is not possible to report performance against this target here. Results will be reported for patients diagnosed in 2017.

Clinical Trials Access QPI

The ability of patients to readily access a Clinical Trial is a common issue for all cancer types, and in order to further support recruitment through more active comparison and measurement of Board and network performance across the country, a generic QPI was developed as part of the National Programme of cancer quality improvement. Further details on the development and definition of this QPI can be found here.

The QPI is defined as follows.

Clinical Trials Access QPI

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

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

Denominator: All patients with lung cancer.

Exclusions: No Exclusions

Target: Interventional clinical trials – 7.5%

Translational research - 15%

Key points during the period audited:

- 1.7% of patients with lung cancer in the North of Scotland were recruited into interventional clinical trials in 2016 in one of the three cancer centres in the region; this is well below the required target of 7.5% but similar to the 2015 figure of 0.4%.
- 7.9% of patients with lung cancer in the North of Scotland were recruited into translational research in 2016, well below the more challenging target which is set at 15% but slightly higher than the 2015 figure of 5.9%.
-

	Number of patients recruited	ISD Cases annual average (2009-2013)	Percentage of patients recruited
Interventional Clinical Trials	19	1101	**1.7%**
Translational Research	87	1101	**7.9%**

The QPI targets for clinical trials are 7.5% for interventional trials and for translational trials are 15%. It should be noted that these targets are 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 lung 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 lung cancer.

During 2016 in NOSCAN, there were 8 interventional trials and 4 translational trials open and recruiting patients, thereby offering patients with a lung cancer diagnosis the opportunity to participate in a range of different lung cancer tumour types and levels of treatment investigation. Furthermore, all the lung 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 with lung cancer in the North of Scotland during 2016, 30 (2.7%) patients were screened for interventional trials and 101 (9.2%) 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 of 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.

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 implemented a programme of annual reporting of regional performance against QPIs. This is the fourth year Lung Cancer QPI reporting and will help to provide a clearer indication of performance and a more formal structure for enabling improvements to be made.

This is the fourth year of reporting of lung cancer QPIs, during which NOSCAN boards have had mixed results: the targets for 6 of the 12 measured outcomes for lung cancer have been exceeded.

Surgical resection rates remains one of the key drivers in the quality of care for patients with lung cancer, this is measured in QPI 6. While both parts of this QPI were met for patients diagnosed in 2016, the North of Scotland has been shown to have a lower resection rate than other regions in Scotland in recent years.

Extensive research has been performed into the causes of these regional differences and, there does not seem to be any difference in criteria for resection. Further statistical analysis has shown that there are regional differences in Performance Status and tumour staging at presentation, with more patients presenting with advanced disease in the North of Scotland. As patients with more advanced disease are less likely to be suitable for surgical resection the differences in tumour stage at presentation explain two thirds of the differences in resection rates between the North of Scotland and other Scottish regions. The rest of the difference relates to resection rates in patients with early stage cancer, however resection rates for these patients have improved in NOSCAN as can be seen from the results of QPI 6(ii).

This analysis should continue in the coming years to create a better understanding of resection rates.

As the most dispersed region in Scotland with the smallest number of patients, the existence of surgical services for lung cancer patients is highly dependent on the cohesion of the regional service. Cooperation and participation in regional working across lung cancer services is key, especially to maximise the utilisation of the surgical service within NOSCAN, which is paramount for the survival of the service.

Actions identified that will improve lung cancer services in the North of Scotland are as follows:

- **NOSCAN to pursue amendment of the QPI data definitions so that patients that are appropriately identified for 'best supportive care' on clinical grounds and are subsequently discussed at MDT do not fail QPI 1.**

- **NHS Grampian to ensure that all patients are to be discussed and documented at MDT, regardless of age, frailty and life expectancy. A communication around this should go out to all those clinicians attending / involved with this patient cohort to ensure results improves moving forward.**

- **All NHS Boards and NOSCAN to report time to PET CT with results for QPI 4.**

- **MCN to continue to review NOSCAN resection rate.**
- **Aberdeen Royal Infirmary surgical team to start using the SCAN proforma for nodal sampling at the time of surgery.**
- **Aberdeen Royal Infirmary surgical team to reflect on practice with respect to lymph node sampling.**
- **NHS Boards and NOSCAN to report time to chemotherapy for patients with SCLC alongside performance against QPI 12.**
- **All NHS Boards to review any patient deaths reported within QPI 13 and develop actions to address any issues identified.**

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 two months of publication of this report.

Progress against these plans will be monitored by the MCN Advisory Board 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 Lead Cancer Clinician, as part of the regional audit governance process to enable RCAF to review and monitor regional improvement.

6 References

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Appendix 1: Clinical trials into which lung cancer patients in the North of Scotland were recruited in 2016.

Trial	Principle Investigator	Trial Type
CEDAR	Janabel Said (Tayside) MacGregor, Dr Carol (Highland)	Interventional
SPLENDOUR: Survival imProvement in Lung cancEr iNduced by DenOsUmab theRapy	Marianne Nicolson (Grampian)	Interventional
The ASTRIS Study	Marianne Nicolson (Grampian)	Interventional
CANC-4880 - PEARLS: A randomized, phase 3 trial with anti-PD-1 monoclonal antibody pembrolizumab (MK-3475) versus placebo for patients with early stage NSCLC after resection and completion of standard adjuvant therapy	Marianne Nicolson (Grampian)	Interventional
GO29438	MacGregor, Dr Carol (Highland)	Interventional
NCRN - 3033: EGF cancer vaccine in IIIb/IV biomarker positive, wild type EGF-R NSCLC patients	Marianne Nicolson (Grampian)	Interventional
MK3475-189	Marianne Nicolson (Grampian)	Interventional
Bio-repository (lung)	(Grampian)	Translational
SPUtNik	Lesley Gomersall (Grampian)	Translational
TRACERx	Marianne Nicolson (Grampian)	Translational
DIAPHRAGM	Marianne Nicolson (Grampian)	Translational

Appendix 2: Blank Board Action Plan template

Completed Action Plans should be returned to NOSCAN within two months of publication of this report.

NOSCAN
North of Scotland Cancer Network

Action Plan: Lung Cancer

Based on patients diagnosed in 2016

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 of reasons why no action has been taken.*	*Insert no. from key*