

# Publication Report



## Lung Cancer Quality Performance Indicators

Patients diagnosed during April 2013 to December 2015

Publication date – 28<sup>th</sup> February 2017

**RESTRICTED STATISTICS**

Release embargoed until Tuesday 28<sup>th</sup> February 2017 at 9.30am.

**An Official Statistics Publication for Scotland**

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## Introduction

The cancer strategy '[Beating Cancer: Ambition and Action](#)' published in March 2016 builds on the commitment made in the Better Cancer Care plan to 'develop a work programme which will define how we will take forward... quality indicators for cancer services' by further supporting a culture of continuous quality improvement in cancer care across NHSScotland. The new cancer strategy states a commitment to improving data collection to advance the quality and delivery of care for cancer patients.

To achieve this, the Scottish Cancer Taskforce established the National Cancer Quality Steering Group (NCQSG), which includes responsibility for:

- The development of small sets (approximately 10-15 indicators) of tumour specific national quality performance indicators (QPIs) as a proxy measure of quality care.
- Overseeing the implementation of the national governance framework that underpins the reporting of performance against these national QPIs.

The QPIs have been developed collaboratively with the three Regional Cancer Networks: North of Scotland Cancer Network ([NOSCAN](#)), South East Scotland Cancer Network ([SCAN](#)), West of Scotland Cancer Network ([WoSCAN](#)), [Information Services Division \(ISD\)](#), and Healthcare Improvement Scotland. The QPIs are published on the [Healthcare Improvement Scotland website](#).

These indicators, used to drive quality improvement in cancer care across NHSScotland are kept under regular review; NHS Boards will be required to report against QPIs as part of a mandatory [national cancer quality programme](#).

ISD support NHS Boards in improving the quality of local data collection and reporting through the production of data validation specifications, and measurability criteria for QPIs. The current data sets are outlined on the [Cancer Audit website](#).

A rolling programme of reporting is planned across many tumour sites. National reports will include comparative reporting of performance against QPIs at NHS Board level across NHS Scotland, trend analysis and survival analysis (where applicable). This approach will help overcome existing issues relating to the reporting of small volumes in any one year.

This report assesses performance against 13 [Lung Cancer QPIs](#) using clinical audit data relating to patients diagnosed with Lung cancer for the period from April 2013 to December 2015. An [initial report](#) on the first year of data collection (April 2013 to March 2014) was previously published in May 2015 and the commentary included in that report may still be applicable when interpreting this report.

### ***Data collection and analysis***

Lung cancer QPI data for patients diagnosed between April 2013 and December 2015 were collected by NHS Boards, supported by the regional cancer networks, and then analysed against the [Lung cancer measurability document](#). Aggregated analysed data were then submitted to ISD via a data collection template for collation to allow comparisons at NHS Board level.

To support the national reporting of QPIs and to provide context in their interpretation, an analysis of lung cancer survival was undertaken. A cohort of patients diagnosed with lung cancer during 2012 to 2014, and registered on the Scottish Cancer Registry, was used and linked to deaths data (up to December 2015) to provide up to 4 years of follow up.

### ***Data quality and completeness***

#### *Small numbers:*

Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on 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 a dash (-). However, any commentary provided by NHS Boards relating to the impacted indicators will be included as a record of continuous improvement.

#### *Quality Assurance:*

A quality assurance assessment of the Lung Cancer QPI dataset was conducted on a sample of records throughout mainland Scotland. 434 records were assessed, which represents approximately 9% of Lung cancer patients in the QPI cohort who were diagnosed between 1<sup>st</sup> April 2013 and 31<sup>st</sup> March 2014 and for which records were submitted to ISD. The accuracy of recording of all data items in the Lung Cancer QPI data set for this sample was very high, ranging from 97% to almost 100% at a Scotland level.

#### *Baseline Review:*

Following baseline review and year 1 publication of lung cancer QPIs data, some changes were made to measurability in order that the QPIs appropriately measured what they were intended to. These were positive changes and led to more focussed analysis in year 2. However, the alterations to measurability meant that year 1 and year 2 results were not directly comparable for some QPIs.

#### *Formal Review:*

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland it is critical that the QPIs continue to be clinically relevant and focus on areas which will result in improvements to the quality of patient care.

It was proposed that a formal review of all QPIs should take place following 3 years national comparative reporting, with tumour specific Regional Clinical Leads undertaking a key role in determining the need and extent of the review required.

For lung cancer, this review has already taken place; revised lung cancer QPIs for implementation from year 4 onwards will be published in early 2017, following public consultation. Any proposed changes to the QPIs as a result of this review will be noted in this report.

*Private Patients:*

There may be differences across the regions in the inclusion or exclusion of private patients within this dataset. In WoSCAN, patients diagnosed privately, but treated within the NHS, are included in any figures reported by hospital of surgery/treatment but excluded when reported by hospital of diagnosis. This differs in the approach adopted by the other regions where private patients are also included in QPIs reported by NHS Board of diagnosis. These differences will account for very small numbers across the regions.

*Reporting Dates:*

To align with reporting to the [National Lung Cancer Audit](#) the QPI reporting period was changed for year 3 to include patients diagnosed between January 2015 and December 2015 and, therefore, will include a 3 month overlap with year 2 data (April 2014 to March 2015). This should be taken into consideration when comparing across years.

## Foreword from Lung Cancer Clinical Leads

Lung Cancer is the second most common cancer in men and women and the leading cause of cancer related deaths in Scotland. The three regional lung cancer networks (North of Scotland NoSCAN, South East Scotland SCAN and West of Scotland WoSCAN) have been instrumental in the collection and review of cancer audit data on a regular and national basis. The purpose of data collection is to determine incidence of the disease, patient management (including investigation and diagnosis), treatment rates, equity of care and to inform a programme of quality improvement at local through to inter-network national level.

The National Quality Performance Indicators (QPIs) are now the key national comparators in ensuring and comparing quality of care. These current QPIs have been developed with a clear focus on quality and patient outcome. They have become a clear indicator of the quality and standard of lung cancer care in Scotland and yet are continuing to be reviewed and revised. A revision is due for publication early 2017.

This current national report on lung cancer QPIs relates particularly to the twelve months of data 2015. It also includes, to assist comparison, QPI data from the earlier years 2013/14 and 2014/15. Note that the earlier years were reported on a financial-year basis. Lung cancer QPIs have now switched to a calendar year reporting to include being able to continue to align with English and Welsh lung cancer data (NLCA).

This rich source of audit data, now both in breadth and depth, has only been possible by the commitment by all audit and clinical teams in the three areas to collect an impressive array of data; on nearly 4,800 patients in the last year alone.

### Key recommendations/key points to note:

This represents a substantial piece of work which reflects good practice across the nation. It should be noted that not every network or health board has been able to meet each and every Quality Indicator (see summary tables). Some Indicators were a challenge to meet in the first year. Almost without exception there has been a steady year-on-year increase in Indicators being met across all three networks, across the Nation. This confirms that the QPIs are aspirational and designed to improve cancer care and performance, which supports all of us in our drive for continuous quality improvement and development. This three year set of data confirms this drive and demonstrates quality improvement developments in action. There is still work to be done, with all Boards and networks further developing Action Plans to explore and develop services and pathways to strive and meet those Indicators yet to be achieved.

#### QPI 2 pathology

Targets for pathology characterisation have been met consistently across the networks. Selection of material for mutation testing varies across the Boards. Whether to test all appropriate samples or targeted testing remains an area of debate and monitoring. We expect increasing numbers of tumour mutations and markers to be tested as new therapies become available.

#### QPI 5 mediastinal lymph node assessment

This definition and data collection was one of the areas of greatest debate, deliberation and practice review. By working closely with clinicians and supporting systematic node sampling with accurate recording of data, there is now a gratifying improvement over the three years sustained across nearly all areas. .

#### QPI 6 surgical resection

Rates of surgical resection vary across the Boards that provide thoracic surgery. Work is currently on-going to explore such variation. When reviewing the charts and Tables bear in mind that there is some cross network boundary flow of patients for surgery. For example patients from Dumfries (SCAN) will be operated upon in Glasgow (WoSCAN).

#### QPIs 8 to 12

These data confirm the importance of accurate recording and accessibility of oncolytic data across Scotland. Reaching the targets of some of these Indicators remains challenging for some Boards.

#### QPI 13

30 day mortality is an important quality measure. Interventions that are symptom relieving but have the potential to contribute to both morbidity and mortality necessitates careful consideration and balancing of risks-to-benefits with each patient. Over a number of audit cycles we would expect to see and do indeed see, these rates being consistently close to zero. Beware of small numbers that seem to have a disproportionately large percentage.

#### QPI Trial enrolment

Clinical trials are fundamental in improving outcomes for patients. Low numbers of trial participants are noted, but this does not reflect the whole picture of work and commitment by both triallists and participants. There is a substantial attrition rate between numbers of potential participants screened, to those consented to those who ultimately make it into the trial itself. Increasing recruitment to both commercial and academic trials across the nation is our desire but remains a challenge.

#### Conclusions

QPIs for lung cancer have generated much discussion regarding both definitions and data collection during their initial development and subsequent use. They have now completed their first three-year cycle. Targeted audit, regional review and inter-network national discussions and data explorations continue to occur to explore differences in process or outcome. This systematic review of high quality data enhances the continuing development of a quality national service for patients with lung cancer in Scotland.

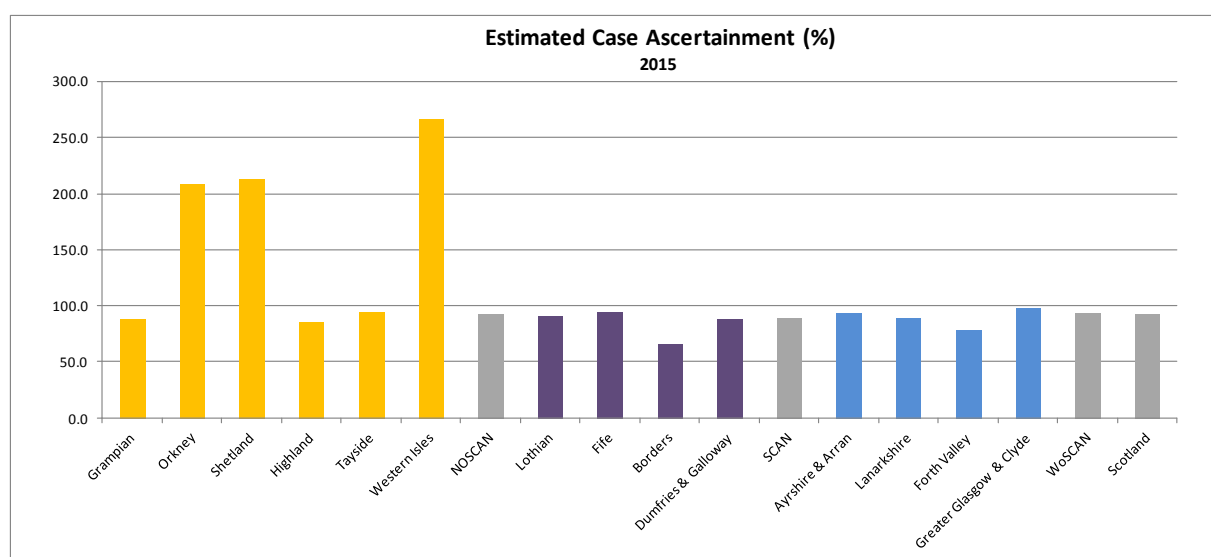
Colin Selby 09 February 2017 clinical lead SCAN, and on behalf of  
John McPhelim clinical lead WoSCAN and  
Hardy Remmen clinical lead NoSCAN

## Results and Commentary

### Case Ascertainment

Case ascertainment is a measure of data quality and is calculated by comparing the number of new patients captured by the cancer audit with a five year average of the numbers recorded on the cancer registry. A five year average is used for registry data as the information is not available until sometime after the year under examination. This is due to data collection and verification processes. As the number of cases will vary each year, it is possible for case ascertainment to be over or under 100%. Therefore, the figures presented should be seen as an indication only.

In 2015, the average case ascertainment across the NHS Boards was 92%:



	Records Diagnosed in 2015	Average No. of Cancer Registrations: 2010-2014	Estimated Case Ascertainment %
<b>NOSCAN</b>	<b>1017</b>	<b>1096</b>	<b>92.8</b>
Grampian	373	424	87.9
Orkney	10	5	208.3
Shetland	20	9	212.8
Highland	206	242	85.1
Tayside	383	406	94.4
Western Isles	25	9	266.0
<b>SCAN</b>	<b>1205</b>	<b>1353</b>	<b>89.0</b>
Lothian	703	780	90.2
Fife	312	331	94.2
Borders	65	100	65.0
Dumfries & Galloway	125	142	87.9
<b>WoSCAN</b>	<b>2556</b>	<b>2742</b>	<b>93.2</b>
Ayrshire & Arran	352	378	93.2
Lanarkshire	495	555	89.2
Forth Valley	214	276	77.6
Greater Glasgow & Clyde	1495	1533	97.5
<b>Scotland</b>	<b>4778</b>	<b>5191</b>	<b>92.0</b>



# Overall Performance Summary

The tables below summarise the overall performance across the country for each QPI.

QPI Summary table – Lung Cancer by Health Board

## NOSCAN:

	Grampian			Shetland			Orkney			Highland			Tayside			WI			NOSCAN		
	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015
QPI 1 - Multi-Disciplinary Team (MDT) Meeting - ≥95%		87.9%	92.9%		80%	90%		-	88.9%		85.6%	85.2%		98.6%	95.2%		73.7%	91.3%		90.9%	92%
QPI 2(i) - Pathological Diagnosis - ≥75%	86.1%	91.5%	87.3%	85.7%	100%	90.9%	*	-	100%	87.8%	92.8%	85.2%	88.5%	86%	85.1%	88.9%	100%	88.2%	87.3%	89.8%	86.2%
QPI 2(ii) - Pathological Diagnosis - ≥80%	83.9%	91.5%	88.3%	80%	87.5%	91.7%	*	-	66.7%	85.6%	93.7%	95.9%	85.1%	87.3%	81.6%	71.4%	84.6%	94.1%	84.5%	90.3%	87.4%
QPI 2(iii) - Pathological Diagnosis - ≥75%	67.7%	79.8%	77.2%	-	-	-	*	-	-	66.7%	87.8%	75.6%	50.8%	87%	81.3%	-	100%	87.5%	63.2%	84.6%	79.3%
QPI 3 - Bronchoscopy - ≥95%	94.4%	96.5%	98.1%	100%	100%	100%	*	*	100%	95.7%	98.6%	97.3%	90.3%	95.3%	96.7%	100%	100%	100%	92.7%	96.3%	97.3%
QPI 4 - PET CT in patients being treated with curative intent - ≥95%	94.9%	96.7%	94.5%	-	-	100%	*	*	-	100%	100%	100%	98.6%	100%	97.3%	-	-	100%	97.4%	99%	97.1%
QPI 5 - Investigation of mediastinal malignancy - ≥80%	72.7%	58.3%	44.4%	-	-	*	*	*		50%	71.4%	85.7%	50%	73.9%	80.8%	-	-	-	55.1%	69.2%	72.7%
QPI 6(i) - Surgical resection in non small cell lung cancer - ≥17%	17.1%	13.6%	15.4%	0%	12.5%	33.3%	*	-	0%	17.6%	19.7%	12.3%	16.1%	15.2%	12.2%	57.1%	15.4%	41.2%	17.3%	15.5%	14.6%
QPI 6(ii) - Surgical resection in non small cell lung cancer - ≥50%	59.2%	57.8%	58.5%	-	-	60%	*	*	*	70.6%	81.5%	52%	51.2%	46.8%	45.8%	-	-	-	59.5%	56.9%	52.5%
QPI 8 - Radiotherapy in inoperable lung cancer - ≥15%	15.6%	25%	25.7%	10%	-	-	*	*	-	12.7%	29.5%	31%	18.7%	42%	40.3%	0%	-	-	15.6%	33.6%	33.3%
QPI 9 - Chemoradiotherapy in locally advanced non small cell lung cancer - ≥50%	25%	45.5%	-	*	*	*	*	*	-	75%	80%	80%	40%	80%	75%	*	*	*	46.2%	67.7%	72.7%
QPI 10 - Chemoradiotherapy in limited stage small cell lung cancer - ≥70%	-	71.4%	60%	*	*	-	*	*	*	-	-	57.1%	55.6%	77.8%	-	-	*	*	44.4%	70%	58.8%
QPI 11(i) - Systemic anti cancer therapy in non small cell lung cancer - ≥35%	37.6%	41.1%	34.2%	40%	57.1%	25%	*	-	60%	39%	43.9%	44.9%	46.9%	54.3%	53%	-	27.3%	50%	41.5%	46.5%	44.4%
QPI 11(ii) - Systemic anti cancer therapy in non small cell lung cancer - ≥60%	48.6%	64.8%	53.8%	-	-	-	*	*	-	47.4%	75%	78.8%	73.1%	88.9%	72.3%	-	-	66.7%	57%	73.1%	67.3%
QPI 12 - Chemotherapy in small cell lung cancer - ≥70%	68.9%						*			87.5%			51.9%			-			66.7%		
QPI 12(i) - Chemotherapy in small cell lung cancer - ≥70%		62.2%	71.1%		*	-		*	*		87.5%	76.2%		86.4%	81.1%		-	-		77.6%	76.8%
QPI 12(ii) - Chemotherapy in small cell lung cancer - ≥50%		55.3%	64.5%		*	*		*	*		85.7%	68.8%		82.9%	77.8%		-	-		73.2%	71.1%
QPI 13(i)b - 30 day mortality - Radical Radiotherapy - <5%	2.6%	0%	3.7%	-	-	-	*	*	-	0%	0%	0%	0%	1.8%	1.8%	*	*	*	1.1%	1.1%	3%
QPI 13(i)c - 30 day mortality - Adjuvant Chemotherapy - <5%	0%	0%	0%	*	*	*	*	*	-	0%	0%	-	-	7.7%	11.1%	-	-	*	0%	3.7%	4.8%
QPI 13(i)d - 30 day mortality - Chemoradiotherapy - <5%	6.7%	0%	0%	*	*	-	*	*	*	0%	0%	0%	0%	0%	9.5%	*	*	*	2.2%	0%	4.3%
QPI 13(i)e - 30 day mortality - Palliative Chemotherapy - <10%	7.9%	14.6%	6.7%	-	-	-	*	-	-	19.5%	15.2%	15.9%	2%	9.9%	17%	-	-	20%	8.8%	13.2%	13.5%
QPI 13(i)f - 30 day mortality - Biological Therapy - <10%	9.1%	0%	0%	*	*	*	*	*	*	0%	-	-	*	*	*	*	*	*	5.9%	7.7%	0%
QPI 13(ii)b - 90 day mortality - Radical Radiotherapy - <5%		0%	8.3%		-	-		*	-		0%	7.1%		5.5%	1.9%		*	*		4.5%	5.4%
QPI 13(ii)d - 90 day mortality - Chemoradiotherapy - <5%		0%	0%		*	-		*	-		8.3%	0%		5.6%	20%		*	*		4.5%	8.9%

SCAN:

	Lothian			Fife			Borders			DG			SCAN		
	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015
QPI 1 - Multi-Disciplinary Team (MDT) Meeting - ≥95%		97.7%	97%		95.9%	96%		97.7%	96.8%		80.8%	84.8%		95.1%	95.4%
QPI 2(i) - Pathological Diagnosis - ≥75%	84.2%	94.4%	76.5%	80.8%	79.8%	82.1%	83.3%	87.5%	79.4%	90.5%	89.3%	91.3%	83.9%	89.6%	79.3%
QPI 2(ii) - Pathological Diagnosis - ≥80%	84.8%	91.3%	92.4%	82.6%	87%	89.1%	82.5%	96.4%	92.9%	84.6%	88.4%	87.5%	84.1%	90.3%	91%
QPI 2(iii) - Pathological Diagnosis - ≥75%	63.6%	85.8%	81.7%	43.5%	62.2%	75.6%	55.6%	75%	77.8%	66.7%	78.9%	76.2%	58.8%	79.6%	79.2%
QPI 3 - Bronchoscopy - ≥95%	97.8%	96.6%	98.8%	100%	99.2%	100%	100%	100%	100%	98.1%	100%	100%	98.5%	98.3%	99.4%
QPI 4 - PET CT in patients being treated with curative intent - ≥95%	98.9%	100%	97.2%	96.9%	95.9%	96.8%	100%	100%	91.7%	100%	100%	100%	98.6%	99%	97.1%
QPI 5 - Investigation of mediastinal malignancy - ≥80%	71.4%	90.6%	87.8%	45.8%	46.7%	46.2%	75%	55.6%	-	63.6%	45.5%	57.1%	65.1%	73%	75%
QPI 6(i) - Surgical resection in non small cell lung cancer - ≥17%	28.3%	25%	25.1%	20.6%	21.7%	17.9%	24.3%	25.5%	25%	21.5%	18.8%	23.8%	25.6%	23.5%	23.1%
QPI 6(ii) - Surgical resection in non small cell lung cancer - ≥50%	79%	69.8%	66.7%	65.1%	62%	53.2%	87.5%	61.1%	83.3%	83.3%	50%	84.6%	76.5%	65.2%	65%
QPI 8 - Radiotherapy in inoperable lung cancer - ≥15%	21.4%	50.2%	47.3%	19.2%	51.4%	45.6%	18.4%	45.2%	45%	16.7%	39.2%	48.1%	20.2%	48.8%	46.8%
QPI 9 - Chemoradiotherapy in locally advanced non small cell lung cancer - ≥50%	73.9%	80%	90.5%	77.8%	66.7%	62.5%	-	50%	-	-	40%	-	65.8%	70%	82.9%
QPI 10 - Chemoradiotherapy in limited stage small cell lung cancer - ≥70%	73.3%	76.5%	83.3%	33.3%	66.7%	80%	83.3%	-	-	-	-	-	62.1%	75%	73.3%
QPI 11(i) - Systemic anti cancer therapy in non small cell lung cancer - ≥35%	38.5%	36%	35.3%	37.4%	34.7%	29.5%	46.4%	47.4%	58.8%	41.7%	39.2%	54.5%	39%	37%	36.6%
QPI 11(ii) - Systemic anti cancer therapy in non small cell lung cancer - ≥60%	57.8%	60.3%	57.6%	58.3%	67.6%	56.7%	45%	60%	63.6%	54.5%	50%	77.8%	56.3%	60.5%	61%
QPI 12 - Chemotherapy in small cell lung cancer - ≥70%	46.9%			44.4%			33.3%			62.5%			47.4%		
QPI 12(i) - Chemotherapy in small cell lung cancer - ≥70%		85.5%	72.7%		65.9%	58.6%		83.3%	100%		76.5%	75%		77.3%	70.5%
QPI 12(ii) - Chemotherapy in small cell lung cancer - ≥50%		82.9%	67.9%		57.7%	47.6%		-	-		69.2%	80%		72%	65.1%
QPI 13(i)b - 30 day mortality - Radical Radiotherapy - <5%	2.9%	2%	1%	0%	0%	0%	0%	14.3%	0%	0%	7.1%	0%	1.7%	2.5%	0.6%
QPI 13(i)c - 30 day mortality - Adjuvant Chemotherapy - <5%	0%	0%	0%	-	0%	-	-	-	-	-	-	-	0%	0%	0%
QPI 13(i)d - 30 day mortality - Chemoradiotherapy - <5%	0%	3.3%	4.3%	0%	3.3%	0%	0%	0%	0%	-	0%	0%	1.2%	2.7%	2.5%
QPI 13(i)e - 30 day mortality - Palliative Chemotherapy - <10%	10.9%	7.8%	8.5%	16%	12.2%	6.9%	9.1%	23.1%	18.2%	8.3%	8%	5.9%	11.7%	9.8%	8.6%
QPI 13(i)f - 30 day mortality - Biological Therapy - <10%	18.2%	*	16.7%	-	*	-	-	*	*	-	*	-	11.1%	*	7.7%
QPI 13(ii)b - 90 day mortality - Radical Radiotherapy - <5%		6%	4.8%		2.4%	2.4%		14.3%	0%		14.3%	12.5%		6.1%	4.4%
QPI 13(ii)d - 90 day mortality - Chemoradiotherapy - <5%		10%	17.4%		7.4%	0%		0%	0%		9.1%	0%		8.3%	9.9%

WoSCAN:

	AA			Lanarkshire			FV			GGC			WoSCAN			Scotland		
	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015
QPI 1 - Multi-Disciplinary Team (MDT) Meeting - ≥95%		93.5%	95%		95.2%	95.2%		95.5%	97%		95.3%	95.7%		95.1%	95.6%		94.2%	94.8%
QPI 2(i) - Pathological Diagnosis - ≥75%	85.9%	88.6%	85.4%	90.4%	91.5%	89.9%	90%	91.2%	84.7%	83.9%	83%	85.3%	86.2%	86.2%	86.1%	85.9%	87.7%	84.6%
QPI 2(ii) - Pathological Diagnosis - ≥80%	92.6%	91.2%	90.4%	86.1%	90%	93.1%	81.9%	87.5%	89.4%	83.4%	89.7%	88.7%	85.2%	89.7%	89.9%	84.8%	90%	89.6%
QPI 2(iii) - Pathological Diagnosis - ≥75%	70.4%	67.6%	82.4%	74.8%	77.9%	88.2%	75%	81.6%	82.8%	66.6%	82.5%	85.3%	69.6%	78.8%	85.5%	65.3%	80.5%	82.2%
QPI 3 - Bronchoscopy - ≥95%	94.9%	99.1%	100%	95.5%	95.6%	95.7%	100%	98.1%	100%	94.9%	97.7%	98.7%	95.5%	97.5%	98.5%	95.5%	97.4%	98.4%
QPI 4 - PET CT in patients being treated with curative intent - ≥95%	88.6%	100%	94.7%	99.2%	98.4%	99.2%	98.1%	100%	95.2%	97.6%	96.2%	98.2%	96.9%	97.4%	97.8%	97.5%	98.1%	97.5%
QPI 5 - Investigation of mediastinal malignancy - ≥80%	47.4%	53.8%	63.6%	48.7%	54.8%	48%	75%	100%	87.5%	62.7%	66.2%	77%	59.5%	64.2%	70.3%	60%	68.2%	72.1%
QPI 6(i) - Surgical resection in non small cell lung cancer - ≥17%	18.2%	21.5%	24.2%	26.3%	24.6%	28.6%	25.9%	29.2%	23.8%	25.2%	24%	27%	24.5%	24.2%	26.7%	23.3%	22.2%	23.3%
QPI 6(ii) - Surgical resection in non small cell lung cancer - ≥50%	71.4%	76.4%	80.7%	70.8%	68.8%	70.5%	63.3%	75%	76.9%	69.3%	62.3%	69.6%	69.4%	66.7%	71.9%	69.5%	64.5%	66.8%
QPI 8 - Radiotherapy in inoperable lung cancer - ≥15%	12.4%	26.2%	37.3%	8.9%	37.5%	36.2%	11.5%	27.8%	26.3%	14.6%	35%	39.4%	12.9%	33.8%	37.4%	15.2%	37.4%	39%
QPI 9 - Chemoradiotherapy in locally advanced non small cell lung cancer - ≥50%	69.2%	100%	40%	26.7%	31.3%	53.3%	-	-	-	39.1%	59.4%	66.7%	42.3%	56.4%	61%	50.9%	64%	69.8%
QPI 10 - Chemoradiotherapy in limited stage small cell lung cancer - ≥70%	50%	-	72.7%	21.4%	33.3%	90.9%	14.3%	37.5%	50%	28.1%	42.5%	62.2%	27.1%	42.2%	67.7%	39.6%	56.7%	67%
QPI 11(i) - Systemic anti cancer therapy in non small cell lung cancer - ≥35%	43.6%	43.7%	44%	44.9%	49.3%	45.9%	41.9%	44%	43%	31.4%	30.1%	27.3%	37.2%	37.2%	34.9%	38.6%	39.4%	37.6%
QPI 11(ii) - Systemic anti cancer therapy in non small cell lung cancer - ≥60%	63%	65.2%	62.3%	63.8%	75.3%	70.7%	62.5%	60%	60%	52.3%	46.6%	40.6%	57.6%	57.3%	52.7%	57.1%	61.7%	58%
QPI 12 - Chemotherapy in small cell lung cancer - ≥70%	65.9%			75%			71.4%			58%			64.1%			61.4%		
QPI 12(i) - Chemotherapy in small cell lung cancer - ≥70%		92.9%	78.4%		77.8%	89.1%		85.2%	78.6%		79.9%	83%		81.6%	83.1%		79.8%	79.1%
QPI 12(ii) - Chemotherapy in small cell lung cancer - ≥50%		84.4%	57.9%		74.2%	86.5%		81.8%	72.7%		74.7%	78.5%		76.3%	77.5%		74.8%	73.5%
QPI 13(i)b - 30 day mortality - Radical Radiotherapy - <5%	2.8%	3.7%	0%	0%	1.8%	2.1%	0%	0%	0%	2.7%	0%	1.1%	1.9%	0.7%	1%	1.7%	1.3%	1.3%
QPI 13(i)c - 30 day mortality - Adjuvant Chemotherapy - <5%	0%	0%	0%	0%	0%	0%	10%	0%	-	4.5%	0%	2.8%	3.4%	0%	1.7%	2.3%	0.8%	2%
QPI 13(i)d - 30 day mortality - Chemoradiotherapy - <5%	0%	0%	0%	0%	0%	0%	-	0%	12.5%	0%	2.6%	0%	0%	1.7%	0.8%	1%	1.8%	1.9%
QPI 13(i)e - 30 day mortality - Palliative Chemotherapy - <10%	20.7%	18.4%	12.3%	17%	14.2%	16.3%	14%	15.7%	17%	15.4%	17.2%	15.1%	16.1%	16.5%	15.1%	13.7%	14.4%	13.6%
QPI 13(i)f - 30 day mortality - Biological Therapy - <10%	*	*	*	*	*	*	*	*	*	*	*	8.3%	*	*	*	8.6%	5%	5.6%
QPI 13(ii)b - 90 day mortality - Radical Radiotherapy - <5%		12.5%	6.1%		9.6%	2.3%		0%	5.3%		1.9%	3.9%		4.4%	4%		5%	4.4%
QPI 13(ii)d - 90 day mortality - Chemoradiotherapy - <5%		0%	12%		14.3%	13.6%		14.3%	25%		8.3%	8%		8.6%	10.8%		7.8%	10.2%

Hospital of Surgery Indicators:

	Aberdeen Royal Infirmary			Golden Jubilee			Royal Infirmary Edinburgh			Scotland		
	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015	2013/14	2014/15	2015
QPI 7 - Lymph node assessment - ≥80%	*	56.4%	60%	*	73.8%	77.0%	*	77.6%	82.9%	*	73.7%	76.6%
QPI 13a (i) - 30 day mortality - Surgery - <5%	*	7.3%	3.1%	*	0.7%	1.3%	*	0%	1.5%	*	1.1%	1.5%
QPI 13a (ii) - 90 day mortality - Surgery - <5%	*	7.3%	6.3%	*	3.2%	3.9%	*	1.6%	2.7%	*	3.2%	3.9%

Clinical Trials - 2015:

Clinical Trials	Access to Clinical Trials		SCRN - North & East	SCRN - South East	SCRN - West
			Interventional	> 7.5%	0.4%
	Translational	> 15%	5.9%	1.8%	0.4%

- Data not shown due to small numbers  
 \* No data matching QPI criteria

Target not met  
 Met or exceeded target

**Quality Performance Indicators**

The following section includes a detailed summary of each of the thirteen Lung cancer QPIs outlining the variation at NHS Board level. Charts are colour coded by network. Where performance at either level is shown to fall below the target, commentary from the relevant NHS Board is included to provide context to the variation.

**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.

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

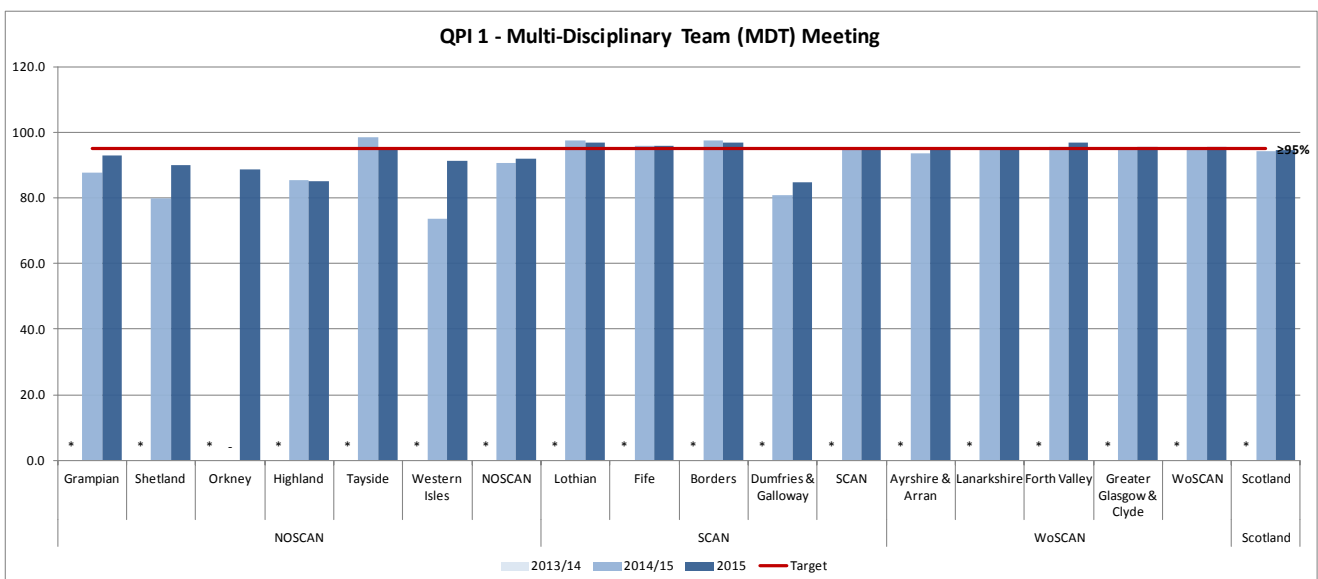
Denominator: All patients with lung cancer

Exclusions:

- Patients who died before first treatment.

Target: 95%

This QPI was only introduced for lung cancer in year 2. In Scotland in 2015, the percentage of patients discussed at MDT prior to definitive treatment was fractionally below target at 94.8%. With the exception of NHS Tayside, the NOSCAN Boards failed to meet target in 2015 although this is likely to be impacted by small numbers. Overall, however, there is an improving trend across the region over the 2 years.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	92.9	326	351				*	87.9
Shetland	90.0	18	20				*	80.0
Orkney	88.9	8	9				*	-
Highland	85.2	167	196				*	85.6
Tayside	95.2	339	356				*	98.6
Western Isles	91.3	21	23				*	73.7
<b>NOSCAN</b>	<b>92.0</b>	<b>879</b>	<b>955</b>				*	90.9
Lothian	97.0	646	666	2	2		*	97.7
Fife	96.0	290	302				*	95.9
Borders	96.8	61	63				*	97.7
Dumfries & Galloway	84.8	106	125				*	80.8
<b>SCAN</b>	<b>95.4</b>	<b>1103</b>	<b>1156</b>	<b>2</b>	<b>2</b>		*	95.1
Ayrshire & Arran	95.0	324	341		1		*	93.5
Lanarkshire	95.2	434	456	1			*	95.2
Forth Valley	97.0	196	202				*	95.5
Greater Glasgow & Clyde	95.7	1330	1390	6	2		*	95.3
<b>WoSCAN</b>	<b>95.6</b>	<b>2284</b>	<b>2389</b>	<b>7</b>	<b>3</b>		*	95.1
<b>Scotland</b>	<b>94.8</b>	<b>4266</b>	<b>4500</b>	<b>9</b>	<b>5</b>		*	<b>94.2</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Those Health Boards which did not meet target in year 2 or 3 cited a number of clinical reasons as contributing factors in their performance. In particular, patients receiving palliative treatment, oncological emergencies or patients receiving best supportive care were given as clinically appropriate reasons why these cases were not discussed prior to MDT.

The tolerance statement within this QPI will be updated following formal review to account for patients where the decision to manage by best supportive care is made prior to MDT discussion.

**QPI 2(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).

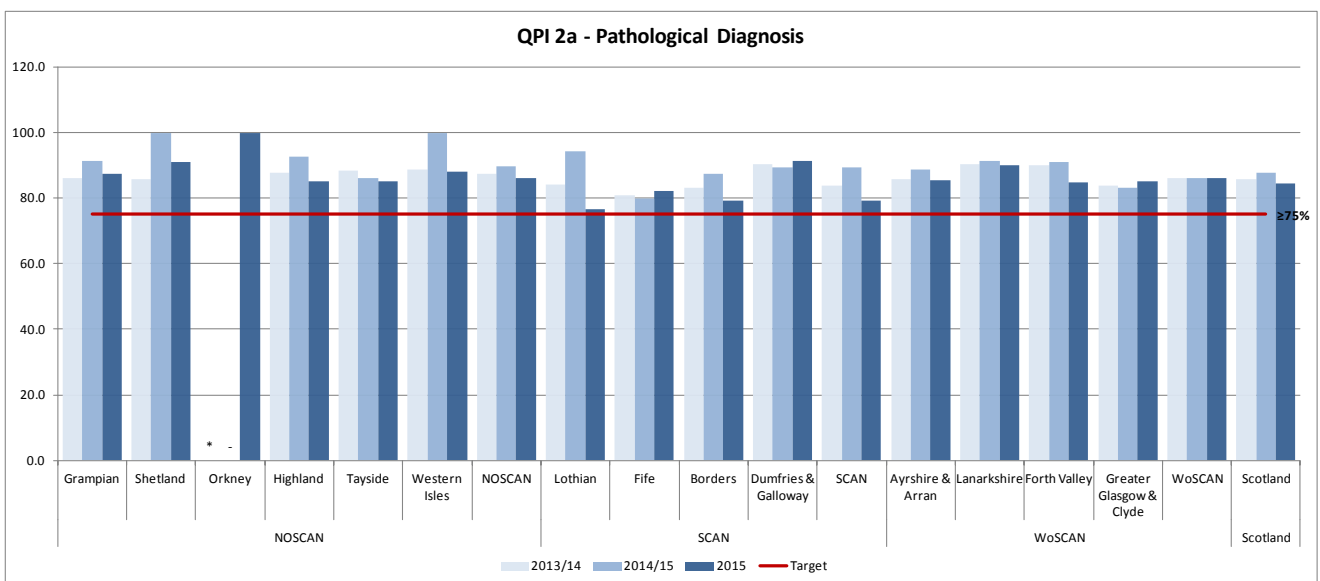
Denominator: All patients with lung cancer.

Exclusions:

- Patients who refuse investigations or surgical resection
- Patients receiving supportive care.

Target: 75% or above

Of the 3,278 patients in this cohort during 2015, 2,773 had a pathological diagnosis. This equates to a rate of 85% which is above the target rate of 75% for this indicator and is consistent with performance in the previous 2 years. In fact, all NHS Boards managed to achieve this target quite comfortably across the 3 years.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	87.3	199	228				86.1	91.5
Shetland	90.9	10	11				85.7	100.0
Orkney	100.0	6	6				*	-
Highland	85.2	121	142				87.8	92.8
Tayside	85.1	228	268				88.5	86.0
Western Isles	88.2	15	17			1	88.9	100.0
<b>NOSCAN</b>	<b>86.2</b>	<b>579</b>	<b>672</b>			<b>1</b>	<b>87.3</b>	<b>89.8</b>
Lothian	76.5	358	468	1	2	1	84.2	94.4
Fife	82.1	142	173				80.8	79.8
Borders	79.4	27	34				83.3	87.5
Dumfries & Galloway	91.3	63	69				90.5	89.3
<b>SCAN</b>	<b>79.3</b>	<b>590</b>	<b>744</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>83.9</b>	<b>89.6</b>
Ayrshire & Arran	85.4	217	254				85.9	88.6
Lanarkshire	89.9	322	358				90.4	91.5
Forth Valley	84.7	133	157			1	90.0	91.2
Greater Glasgow & Clyde	85.3	932	1093		2		83.9	83.0
<b>WoSCAN</b>	<b>86.1</b>	<b>1604</b>	<b>1862</b>		<b>2</b>	<b>1</b>	<b>86.2</b>	<b>86.2</b>
<b>Scotland</b>	<b>84.6</b>	<b>2773</b>	<b>3278</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>85.9</b>	<b>87.7</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

At the formal review post year 3 it was agreed to increase the target to 80% and remove the exclusion of patients receiving supportive care. This will be in place for future reporting of this QPI.

**QPI 2(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.

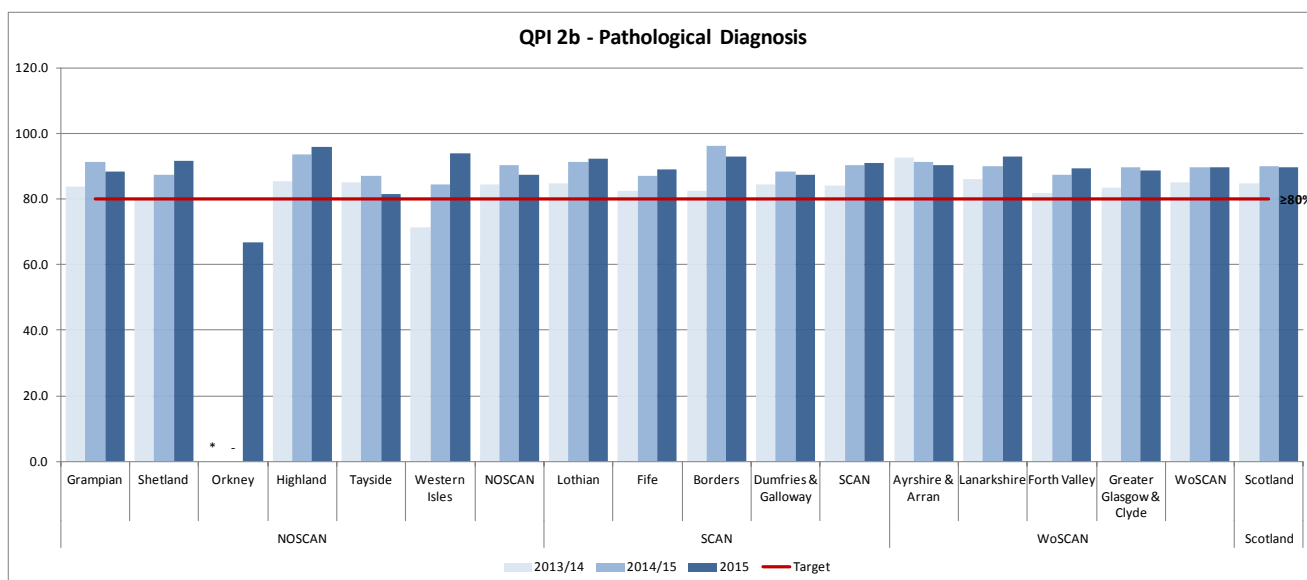
Numerator: Number of patients with a pathological diagnosis of NSCLC who have a tumour subtype identified.

Denominator: All patients with a pathological diagnosis of NSCLC.

Exclusions: No exclusions.

Target: 80% or above

Non small cell lung cancer (NSCLC) was diagnosed in 2,638 patients during 2015. 90% of these patients (2,364) had their tumour subtype identified during pathological diagnosis. Overall, in Scotland, the target was exceeded in each of the 3 years. This was replicated in all Boards with the exception of NHS Orkney (year 3) and NHS Western Isles (year 1), although these are likely to be impacted by small numbers.





NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	88.3	173	196				83.9	91.5
Shetland	91.7	11	12				80.0	87.5
Orkney	66.7	4	6				*	-
Highland	95.9	117	122				85.6	93.7
Tayside	81.6	173	212				85.1	87.3
Western Isles	94.1	16	17				71.4	84.6
<b>NOSCAN</b>	<b>87.4</b>	<b>494</b>	<b>565</b>				<b>84.5</b>	<b>90.3</b>
Lothian	92.4	327	354				84.8	91.3
Fife	89.1	139	156				82.6	87.0
Borders	92.9	26	28				82.5	96.4
Dumfries & Galloway	87.5	56	64				84.6	88.4
<b>SCAN</b>	<b>91.0</b>	<b>548</b>	<b>602</b>				<b>84.1</b>	<b>90.3</b>
Ayrshire & Arran	90.4	188	208				92.6	91.2
Lanarkshire	93.1	270	290				86.1	90.0
Forth Valley	89.4	110	123				81.9	87.5
Greater Glasgow & Clyde	88.7	754	850				83.4	89.7
<b>WoSCAN</b>	<b>89.9</b>	<b>1322</b>	<b>1471</b>				<b>85.2</b>	<b>89.7</b>
<b>Scotland</b>	<b>89.6</b>	<b>2364</b>	<b>2638</b>				<b>84.8</b>	<b>90.0</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Since the majority of Boards have consistently met target it was agreed at the formal review to increase the target to 90% for future reporting of this QPI.

**QPI 2(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.

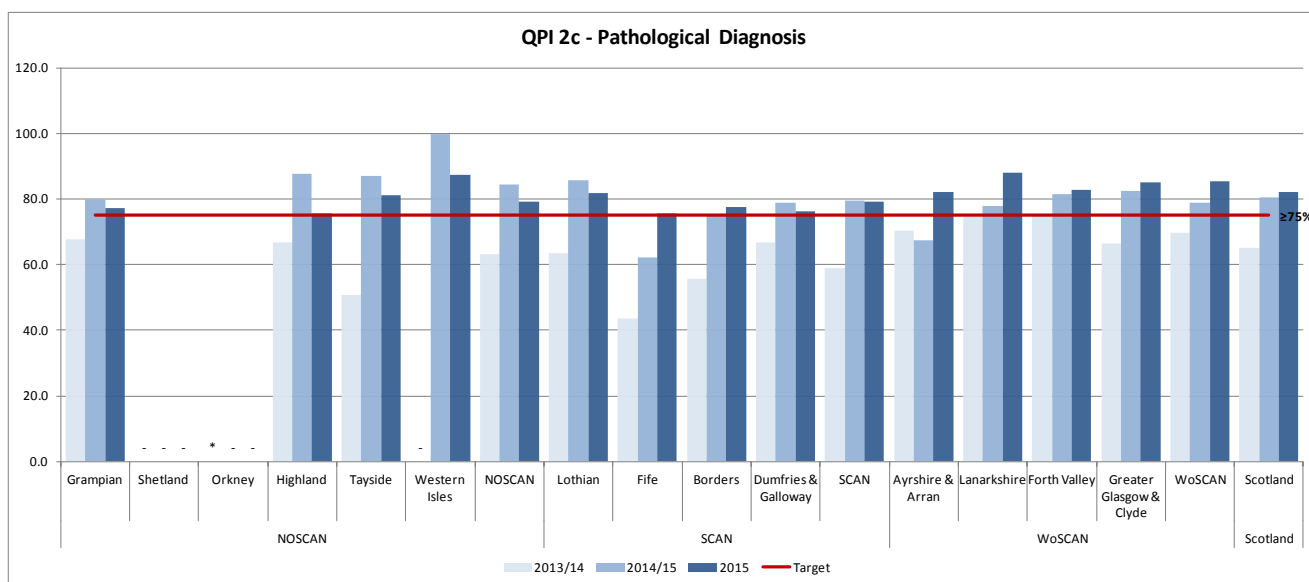
Denominator: All patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC.

Exclusions: Patients with performance status 4.

Target: 75% or above

Since year 1, where most Boards did not achieve the target with the exception of NHS Shetland (albeit with small numbers of patients) and NHS Forth Valley, there has been a steady improvement in the performance of this measure. At national level, the percentage of patients with stage IIIB or IV NSCLC who have analysis of predictive markers undertaken has improved from 65% in year 2013/14 to 82% in 2015.

At the baseline review this indicator was revised to focus on patients with NSCLC adenocarcinoma only which may account for the improvement in some Boards from year 1 onwards.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	77.2	61	79		2	6	67.7	79.8
Shetland	-	-	-				-	-
Orkney	-	-	-				*	-
Highland	75.6	31	41			1	66.7	87.8
Tayside	81.3	52	64				50.8	87.0
Western Isles	87.5	7	8			1	-	100.0
<b>NOSCAN</b>	<b>79.3</b>	<b>157</b>	<b>198</b>		<b>2</b>	<b>8</b>	<b>63.2</b>	<b>84.6</b>
Lothian	81.7	76	93		4	8	63.6	85.8
Fife	75.6	34	45				43.5	62.2
Borders	77.8	7	9				55.6	75.0
Dumfries & Galloway	76.2	16	21			21	66.7	78.9
<b>SCAN</b>	<b>79.2</b>	<b>133</b>	<b>168</b>		<b>4</b>	<b>29</b>	<b>58.8</b>	<b>79.6</b>
Ayrshire & Arran	82.4	42	51			9	70.4	67.6
Lanarkshire	88.2	60	68		5	1	74.8	77.9
Forth Valley	82.8	24	29	1	1	7	75.0	81.6
Greater Glasgow & Clyde	85.3	151	177	4	4	12	66.6	82.5
<b>WoSCAN</b>	<b>85.5</b>	<b>277</b>	<b>324</b>	<b>5</b>	<b>10</b>	<b>29</b>	<b>69.6</b>	<b>78.8</b>
<b>Scotland</b>	<b>82.2</b>	<b>567</b>	<b>690</b>	<b>5</b>	<b>16</b>	<b>66</b>	<b>65.3</b>	<b>80.5</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

At the formal review, for future reporting of this QPI, it was agreed to remove adenocarcinoma from the clinical cohort.

**QPI 3: Bronchoscopy - Patients with lung cancer who are undergoing bronchoscopy for purposes of diagnosis and staging should have a CT thorax prior to bronchoscopy.**

Patients with suspected lung cancer should have timely and appropriate investigations carried out to confirm a diagnosis of lung cancer. CT thorax should be performed before an intended bronchoscopy to avoid unnecessary bronchoscopy and to guide how the procedure is conducted. The sequence of investigations varies according to a variety of factors including clinical and radiological information, patient fitness, treatment intention and patient choice.

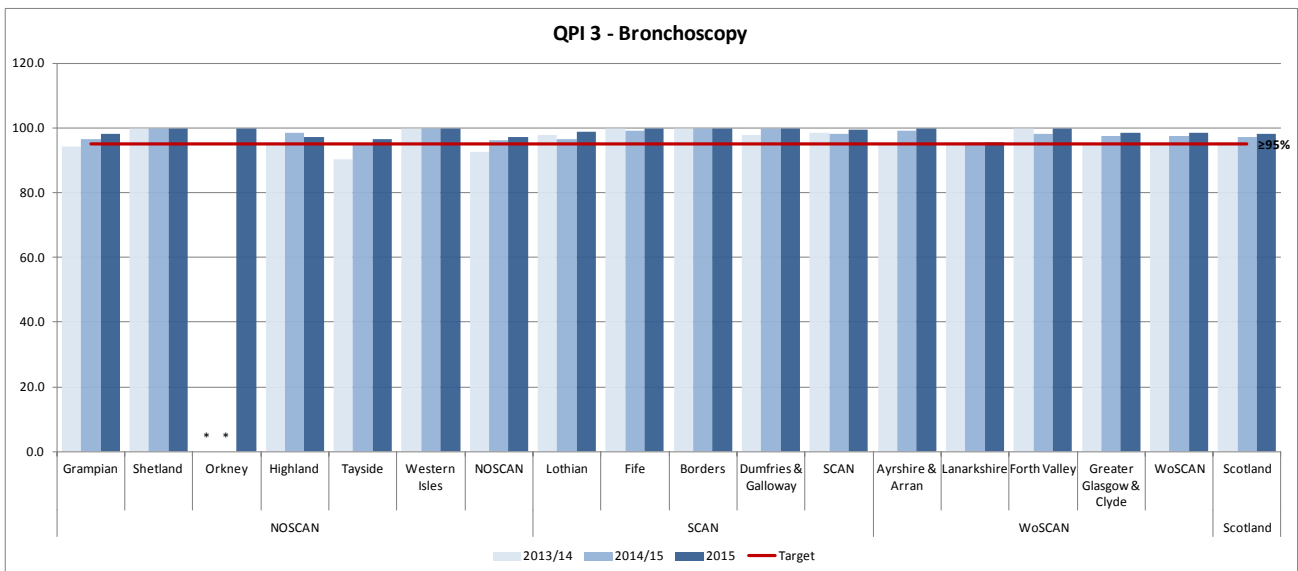
Numerator: Number of patients with lung cancer undergoing bronchoscopy where CT thorax was performed prior to bronchoscopy.

Denominator: All patients with lung cancer undergoing bronchoscopy.

Exclusions: No exclusions.

Target: 95%

In 98% of the patients diagnosed with lung cancer in 2015 who underwent a bronchoscopy a CT scan of the chest (thorax) was performed first. All NHS Boards in Scotland managed to meet the target in 2015 and most showed a steady improvement over the 3 year period.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	98.1	104	106				94.4	96.5
Shetland	100.0	8	8				100.0	100.0
Orkney	100.0	6	6				*	*
Highland	97.3	72	74				95.7	98.6
Tayside	96.7	231	239				90.3	95.3
Western Isles	100.0	5	5				100.0	100.0
<b>NOSCAN</b>	<b>97.3</b>	<b>426</b>	<b>438</b>				<b>92.7</b>	<b>96.3</b>
Lothian	98.8	166	168				97.8	96.6
Fife	100.0	95	95				100.0	99.2
Borders	100.0	21	21				100.0	100.0
Dumfries & Galloway	100.0	45	45				98.1	100.0
<b>SCAN</b>	<b>99.4</b>	<b>327</b>	<b>329</b>				<b>98.5</b>	<b>98.3</b>
Ayrshire & Arran	100.0	145	145				94.9	99.1
Lanarkshire	95.7	180	188				95.5	95.6
Forth Valley	100.0	102	102				100.0	98.1
Greater Glasgow & Clyde	98.7	687	696			1	94.9	97.7
<b>WoSCAN</b>	<b>98.5</b>	<b>1114</b>	<b>1131</b>			<b>1</b>	<b>95.5</b>	<b>97.5</b>
<b>Scotland</b>	<b>98.4</b>	<b>1867</b>	<b>1898</b>			<b>1</b>	<b>95.5</b>	<b>97.4</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

At the baseline review following a review of year 1 data, the criteria for this QPI was changed to ensure that those patients receiving CT and bronchoscopy on the same day met the indicator. This has contributed to the general improvement in performance of this QPI over the subsequent 2 years of data collection. Further commentary on the impact of this change is available in the [Year 1 Lung QPI report](#).

Furthermore, given that all Boards are now meeting target it was agreed at the formal review to archive this QPI.

**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 by the multidisciplinary team before treatment.

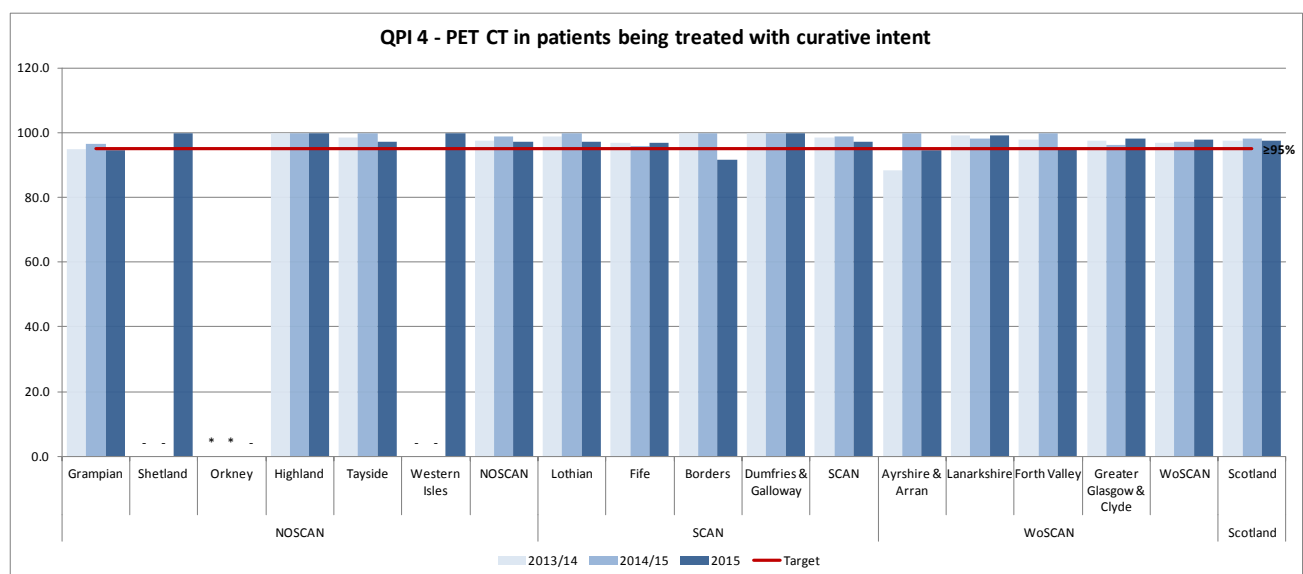
Numerator: Number of patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection) who undergo PET CT prior to start of treatment.

Denominator: All patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection).

Exclusions: No exclusions

Target: 95%

Of the 1,095 patients with NSCLC who were treated with curative intent in 2015, 98% received a PET CT scan prior to treatment, achieving the target for this QPI at a national level. At individual NHS Board level, only NHS Borders was below target for this year, although this was impacted by only a single case. Generally, most Boards achieved the target in each of the 3 years or have considerably improved from the year 1 performance as in the case of NHS Ayrshire & Arran.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	94.5	52	55				94.9	96.7
Shetland	100.0	6	6				-	-
Orkney	-	-	-			2	*	*
Highland	100.0	33	33				100.0	100.0
Tayside	97.3	71	73				98.6	100.0
Western Isles	100.0	7	7				-	-
<b>NOSCAN</b>	<b>97.1</b>	<b>170</b>	<b>175</b>			<b>2</b>	<b>97.4</b>	99.0
Lothian	97.2	174	179			1	98.9	100.0
Fife	96.8	60	62				96.9	95.9
Borders	91.7	11	12				100.0	100.0
Dumfries & Galloway	100.0	27	27				100.0	100.0
<b>SCAN</b>	<b>97.1</b>	<b>272</b>	<b>280</b>			<b>1</b>	<b>98.6</b>	99.0
Ayrshire & Arran	94.7	72	76				88.6	100.0
Lanarkshire	99.2	127	128				99.2	98.4
Forth Valley	95.2	40	42			1	98.1	100.0
Greater Glasgow & Clyde	98.2	387	394	1			97.6	96.2
<b>WoSCAN</b>	<b>97.8</b>	<b>626</b>	<b>640</b>	<b>1</b>		<b>1</b>	<b>96.9</b>	97.4
<b>Scotland</b>	<b>97.5</b>	<b>1068</b>	<b>1095</b>	<b>1</b>		<b>4</b>	<b>97.5</b>	<b>98.1</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

NHS Borders commented on the single case impacting this figure was due to the abandonment of the CT scan as a result of claustrophobia. However, due to the small numbers involved this has had a disproportionate impact on the percentages. Aggregating across the 3 years, however, this small number effect is significantly reduced and NHS Borders performance is above target.

**QPI 5: Investigation of mediastinal malignancy - Patients with non small cell lung cancer (NSCLC) with a possibility of mediastinal malignancy demonstrated on PET CT should undergo node sampling to confirm mediastinal malignancy.**

PET CT positive mediastinal nodes may be positive due to reactive changes rather than cancer. Sampling these nodes to determine if they are definitely positive for malignancy will ensure that patients suitable for radical treatment are treated appropriately.

Numerator: Number of patients with NSCLC undergoing treatment for curative intent\* who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/N3) that have nodes sampled.

Denominator: All patients with NSCLC undergoing treatment for curative intent\* who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/N3).

Exclusions:

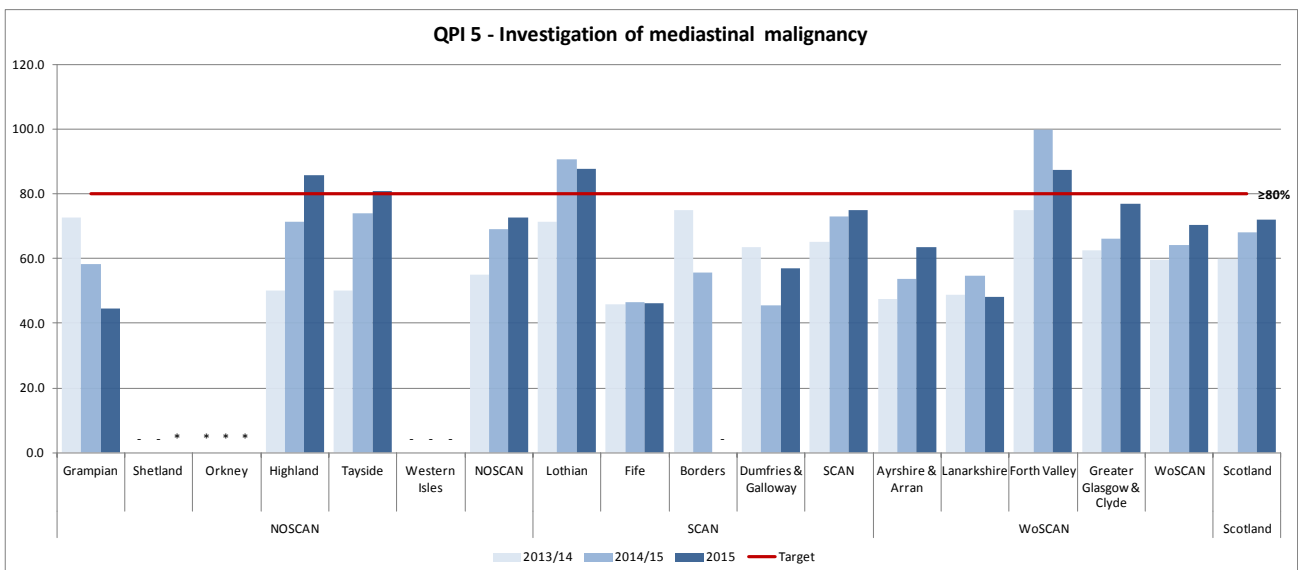
- Patients who refuse investigation
- Patients with stage IV (M1a or M1b) disease.

Target: 80% or above

\*curative intent – radical radiotherapy, radical chemoradiotherapy or surgical resection

In year 1, this QPI was particularly challenging to achieve as no Board managed to meet target. However, since then there has been steady improvement observed in most Boards with NHS Highland, NHS Tayside, NHS Lothian and NHS Forth Valley achieving target in 2015. Overall, though, Scotland is below target but with an increasing trend.

Following the baseline review, it was agreed that the denominator for this QPI should be changed to limit it to only patients who receive curative/radical treatment, as opposed to excluding patients based on performance status. This will ensure this QPI is measuring the most appropriate cohort of patients. This was implemented prior to year 2 data collection.





NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	44.4	4	9				72.7	58.3
Shetland	*	*	*				-	-
Orkney	*	*	*			1	*	*
Highland	85.7	6	7				50.0	71.4
Tayside	80.8	21	26				50.0	73.9
Western Isles	-	-	-				-	-
<b>NOSCAN</b>	<b>72.7</b>	<b>32</b>	<b>44</b>			<b>1</b>	<b>55.1</b>	<b>69.2</b>
Lothian	87.8	36	41	2	1		71.4	90.6
Fife	46.2	6	13				45.8	46.7
Borders	-	-	-				75.0	55.6
Dumfries & Galloway	57.1	4	7			2	63.6	45.5
<b>SCAN</b>	<b>75.0</b>	<b>48</b>	<b>64</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>65.1</b>	<b>73.0</b>
Ayrshire & Arran	63.6	7	11				47.4	53.8
Lanarkshire	48.0	12	25				48.7	54.8
Forth Valley	87.5	7	8		1	1	75.0	100.0
Greater Glasgow & Clyde	77.0	57	74		2	4	62.7	66.2
<b>WoSCAN</b>	<b>70.3</b>	<b>83</b>	<b>118</b>		<b>3</b>	<b>5</b>	<b>59.5</b>	<b>64.2</b>
<b>Scotland</b>	<b>72.1</b>	<b>163</b>	<b>226</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>60.0</b>	<b>68.2</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Contrary to the majority of NHS Boards, NHS Grampian demonstrated a decline in performance of this measure over the 3 years. The effect of small numbers may be contributing to these figures, although the Board will review this in the MDT meeting.

Following a case review, most Boards cited various clinical reasons why individual cases did not meet this target. For example, patient co-morbidity and inaccessibility of the lymph nodes were factors in NHS Borders while in NHS Dumfries & Galloway mediastinal sampling would not have altered the treatment management for the patients not meeting the target

At the formal review post year 3 it was agreed to archive this QPI as it was felt that due to inconsistencies in interpretation this QPI was not comparable and, therefore, was not clinically meaningful.

**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.

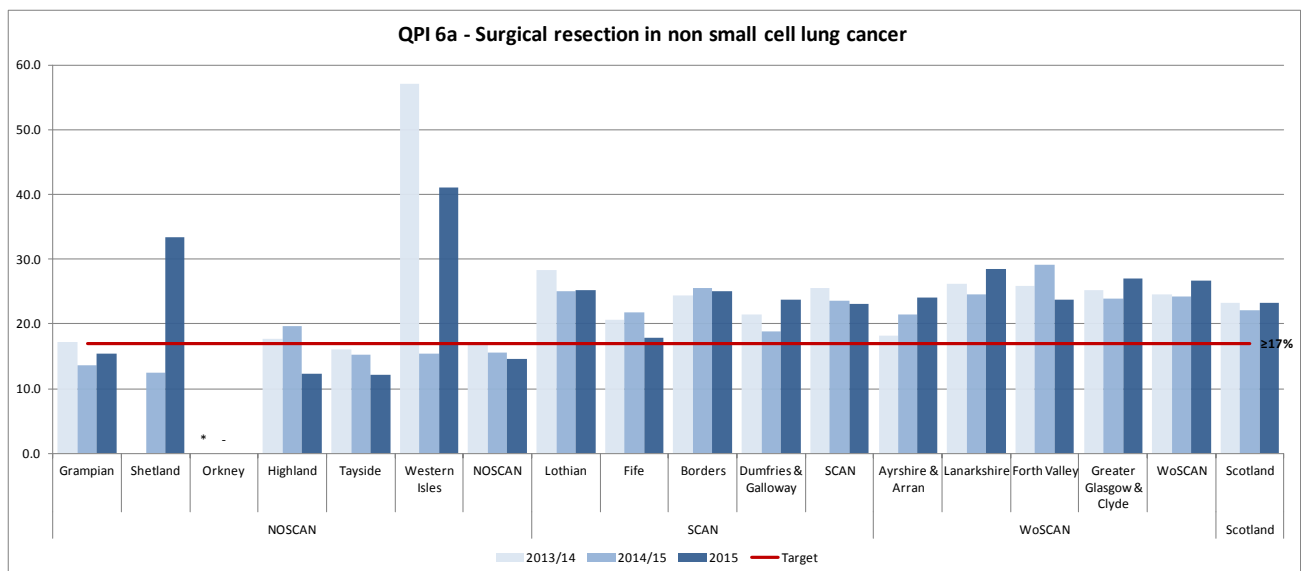
Denominator: All patients with non small cell lung cancer (NSCLC).

Exclusions:

- Patients who refuse surgery.
- Patients who die before surgery.

Target: 17% or above

The percentage of patients with NSCLC who underwent surgical resection was consistently above the 17% target in each of the 3 years for all Health Boards in SCAN and WoSCAN. Performance in NOSCAN was more variable with only the island boards achieving target during the period and the region overall showing a decreasing trend.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	15.4	30	195				17.1	13.6
Shetland	33.3	4	12				0.0	12.5
Orkney	0.0	0	5				*	-
Highland	12.3	15	122				17.6	19.7
Tayside	12.2	25	205				16.1	15.2
Western Isles	41.2	7	17			1	57.1	15.4
<b>NOSCAN</b>	<b>14.6</b>	<b>81</b>	<b>556</b>			<b>1</b>	<b>17.3</b>	<b>15.5</b>
Lothian	25.1	88	350	1	1	1	28.3	25.0
Fife	17.9	27	151				20.6	21.7
Borders	25.0	6	24				24.3	25.5
Dumfries & Galloway	23.8	15	63				21.5	18.8
<b>SCAN</b>	<b>23.1</b>	<b>136</b>	<b>588</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>25.6</b>	<b>23.5</b>
Ayrshire & Arran	24.2	50	207				18.2	21.5
Lanarkshire	28.6	82	287				26.3	24.6
Forth Valley	23.8	29	122			1	25.9	29.2
Greater Glasgow & Clyde	27.0	228	843				25.2	24.0
<b>WoSCAN</b>	<b>26.7</b>	<b>389</b>	<b>1459</b>			<b>1</b>	<b>24.5</b>	<b>24.2</b>
<b>Scotland</b>	<b>23.3</b>	<b>606</b>	<b>2603</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>23.3</b>	<b>22.2</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

NHS Grampian recognise that the surgical resection rate has been below target for the last 2 reporting periods and that discussion is ongoing within the MDT to prioritise resection for all suitable patients to improve this rate. In addition, there were specific reasons given for some of the patients not meeting target including patient fitness or co-morbidity and tumour being inoperable or incurable.

In the NHS Tayside MDT, there were clear appropriate reasons given for not referring for surgery, mainly due to significant co-morbidity such as pulmonary and cardiovascular disease.

Following the formal review after year 3, the target for this QPI will be increased to 20% with the added exclusion of patients who undergo Stereotactic Ablative Body Radiotherapy (SABR).

**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.

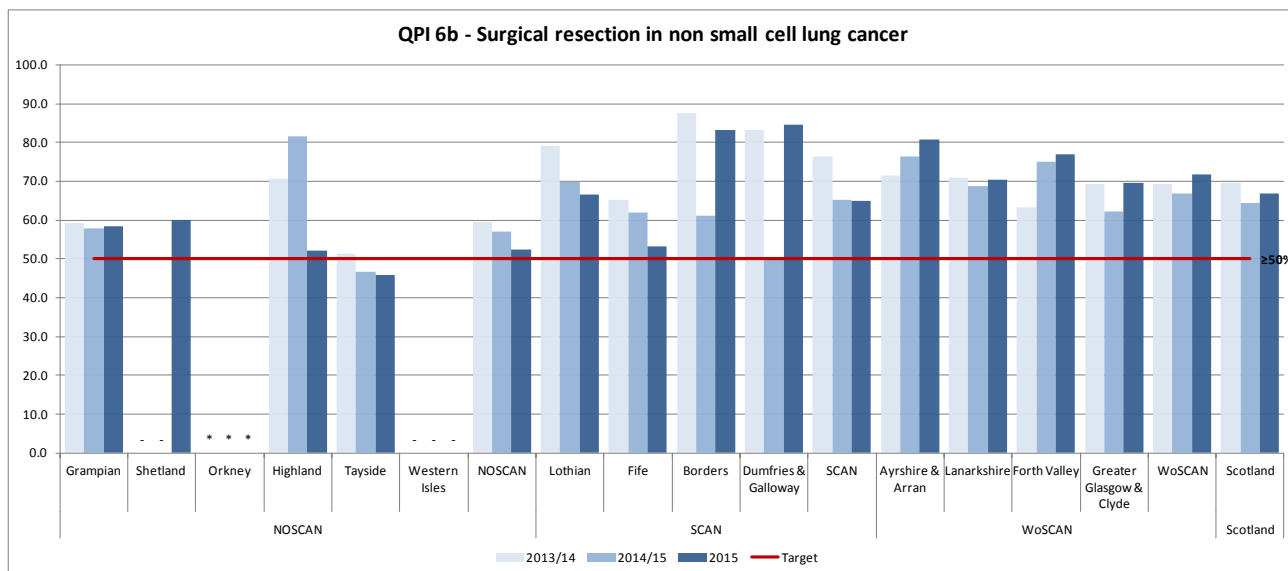
Denominator: All patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC.

Exclusions:

- Patients who refuse surgery.
- Patients who die before surgery.

Target: 50%

In patients with stage I and II NSCLC, surgical resection is a more likely curative treatment option; therefore, the target for this cohort of patients is higher at 50%. All NHS Boards (with the exception of NHS Tayside) achieved this target each year with almost 70% of patients in this cohort across Scotland undergoing surgical resection in 2015.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	58.5	24	41			2	59.2	57.8
Shetland	60.0	3	5				-	-
Orkney	*	*	*			1	*	*
Highland	52.0	13	25				70.6	81.5
Tayside	45.8	22	48				51.2	46.8
Western Isles	-	-	-			2	-	-
<b>NOSCAN</b>	<b>52.5</b>	<b>63</b>	<b>120</b>			<b>5</b>	<b>59.5</b>	<b>56.9</b>
Lothian	66.7	76	114	1	1	1	79.0	69.8
Fife	53.2	25	47			1	65.1	62.0
Borders	83.3	5	6				87.5	61.1
Dumfries & Galloway	84.6	11	13			3	83.3	50.0
<b>SCAN</b>	<b>65.0</b>	<b>117</b>	<b>180</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>76.5</b>	<b>65.2</b>
Ayrshire & Arran	80.7	46	57			1	71.4	76.4
Lanarkshire	70.5	62	88			9	70.8	68.8
Forth Valley	76.9	20	26			9	63.3	75.0
Greater Glasgow & Clyde	69.6	156	224			27	69.3	62.3
<b>WoSCAN</b>	<b>71.9</b>	<b>284</b>	<b>395</b>			<b>37</b>	<b>69.4</b>	<b>66.7</b>
<b>Scotland</b>	<b>66.8</b>	<b>464</b>	<b>695</b>	<b>1</b>	<b>1</b>	<b>47</b>	<b>69.5</b>	<b>64.5</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Following the formal review after year 3, the target for this QPI will be increased to 60% with the added exclusion of patients who undergo Stereotactic Ablative Body Radiotherapy (SABR).

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

Adequate assessment of lymph nodes for accurate staging will help guide prognosis and further treatment management. Nodal dissection 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.

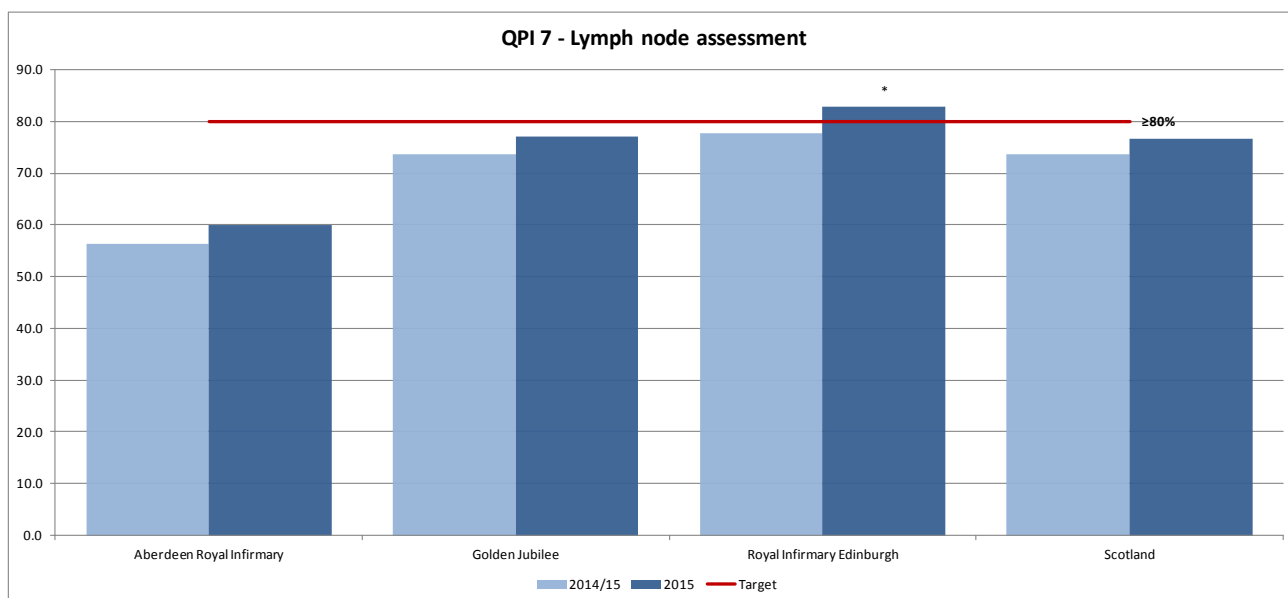
Denominator: All patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy.

Exclusions: No exclusions.

Target: 80%

At the baseline review of the first year of data collection the suitability of this measure was questioned and a revised definition was developed. It was agreed that this QPI should be revised to look at nodes being sampled from at least 3 N2 stations after any surgical resection. Refer to the [Year 1 report](#) for further details on year 1 performance.

For years 2 and 3, this indicator is shown by hospital of surgery. All hospitals have shown an improvement from year 2 to year 3 in this measure. However, despite this improvement, overall for Scotland the target has not been met.



NHS Board/Region	Most Recent Year - 2015						Past % Performance
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2014/15
Aberdeen Royal Infirmary	60.0	30	50	1			56.4
Golden Jubilee	77.0	288	374	3			73.8
Royal Infirmary Edinburgh	82.9	92	111	1			77.6
<b>Scotland</b>	<b>76.6</b>	<b>402</b>	<b>525</b>	<b>5</b>			<b>73.7</b>

Source: Cancer audit

NHS Grampian and NHS Highland commented that these figures reflect the way that lymph node assessment is recorded and also individual surgeon variation. It is also noted that the steady improvement over the 2 years reflects these ongoing discussions with surgeons to improve on this measure. A similar review of clinical variation was undertaken in SCAN and a revised sampling protocol was devised leading to an improvement in this measure.

In the West of Scotland cases not meeting the QPI were identified for review by the appropriate surgeon and pathologist. On review 3 cases were found to have been recorded incorrectly and did in fact meet the QPI. In respect of the other cases, variation in surgical practice and prior staging investigations were identified as the reasons for less than 3 nodes being sampled at the time of surgery.

**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.

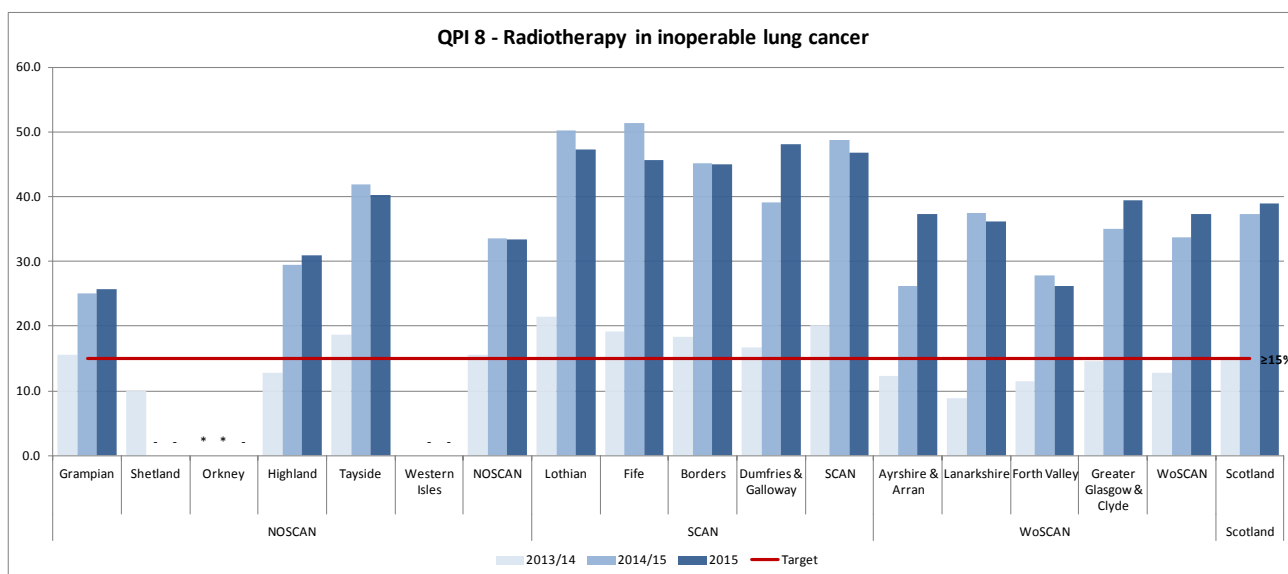
Denominator: All patients with lung cancer not undergoing surgery.

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%

After year one, it was agreed at the baseline review to change the definition such that radiotherapy type is used to identify those patients given radiotherapy with radical intent rather than using radiotherapy dose. It was felt that this change should improve the accuracy of this measure. Additionally, it was also agreed that patients with stage IV cancer should be excluded. It is clear that these changes have significantly improved the performance of this measure such that all Boards are now comfortably above target.





NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	25.7	29	113		15		15.6	25.0
Shetland	-	-	-				10.0	-
Orkney	-	-	-		2		*	*
Highland	31.0	22	71		7		12.7	29.5
Tayside	40.3	60	149				18.7	42.0
Western Isles	-	-	-		2		0.0	-
<b>NOSCAN</b>	<b>33.3</b>	<b>115</b>	<b>345</b>		<b>26</b>		<b>15.6</b>	<b>33.6</b>
Lothian	47.3	133	281	1	1	1	21.4	50.2
Fife	45.6	52	114				19.2	51.4
Borders	45.0	9	20				18.4	45.2
Dumfries & Galloway	48.1	13	27		3		16.7	39.2
<b>SCAN</b>	<b>46.8</b>	<b>207</b>	<b>442</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>20.2</b>	<b>48.8</b>
Ayrshire & Arran	37.3	47	126		25		12.4	26.2
Lanarkshire	36.2	59	163		13		8.9	37.5
Forth Valley	26.3	21	80		16		11.5	27.8
Greater Glasgow & Clyde	39.4	212	538	1	50		14.6	35.0
<b>WoSCAN</b>	<b>37.4</b>	<b>339</b>	<b>907</b>	<b>1</b>	<b>104</b>		<b>12.9</b>	<b>33.8</b>
<b>Scotland</b>	<b>39.0</b>	<b>661</b>	<b>1694</b>	<b>2</b>	<b>134</b>	<b>1</b>	<b>15.2</b>	<b>37.4</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

At the formal review it was agreed to add SABR to the scope of the QPI and, consequently, increase the target from 15% to 35%.

**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).

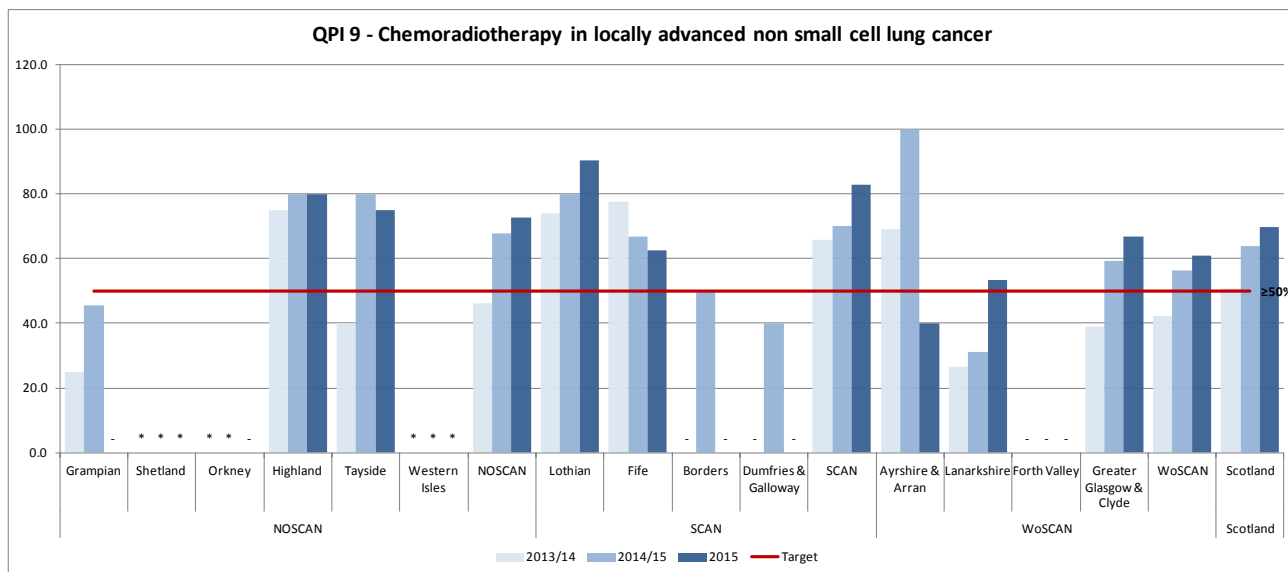
Denominator: All patients with stage IIIA NSCLC, with performance status 0-1, not undergoing surgery who receive radical radiotherapy > 54Gy.

Exclusions:

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

Target: 50%

The number of patients meeting the criteria for this QPI for each Board was relatively low which may be impacting the variation in percentage figures. At a Scotland level, in 2015, there were only 116 patients in this cohort – 81 of these received chemoradiotherapy, thus exceeding the target of 50%.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	-	-	-				25.0	45.5
Shetland	*	*	*				*	*
Orkney	-	-	-				*	*
Highland	80.0	4	5				75.0	80.0
Tayside	75.0	9	12				40.0	80.0
Western Isles	*	*	*				*	*
<b>NOSCAN</b>	<b>72.7</b>	<b>16</b>	<b>22</b>				<b>46.2</b>	<b>67.7</b>
Lothian	90.5	19	21			23	73.9	80.0
Fife	62.5	5	8				77.8	66.7
Borders	-	-	-				-	50.0
Dumfries & Galloway	-	-	-			2	-	40.0
<b>SCAN</b>	<b>82.9</b>	<b>29</b>	<b>35</b>			<b>25</b>	<b>65.8</b>	<b>70.0</b>
Ayrshire & Arran	40.0	2	5			1	69.2	100.0
Lanarkshire	53.3	8	15				26.7	31.3
Forth Valley	-	-	-				-	-
Greater Glasgow & Clyde	66.7	24	36			2	39.1	59.4
<b>WoSCAN</b>	<b>61.0</b>	<b>36</b>	<b>59</b>			<b>3</b>	<b>42.3</b>	<b>56.4</b>
<b>Scotland</b>	<b>69.8</b>	<b>81</b>	<b>116</b>			<b>28</b>	<b>50.9</b>	<b>64.0</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

NHS Ayrshire & Arran noted that small numbers had impacted upon the percentage for this measure. Those cases not meeting the QPI were reviewed and appropriate reasons relating to co-morbidity were provided.

**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).

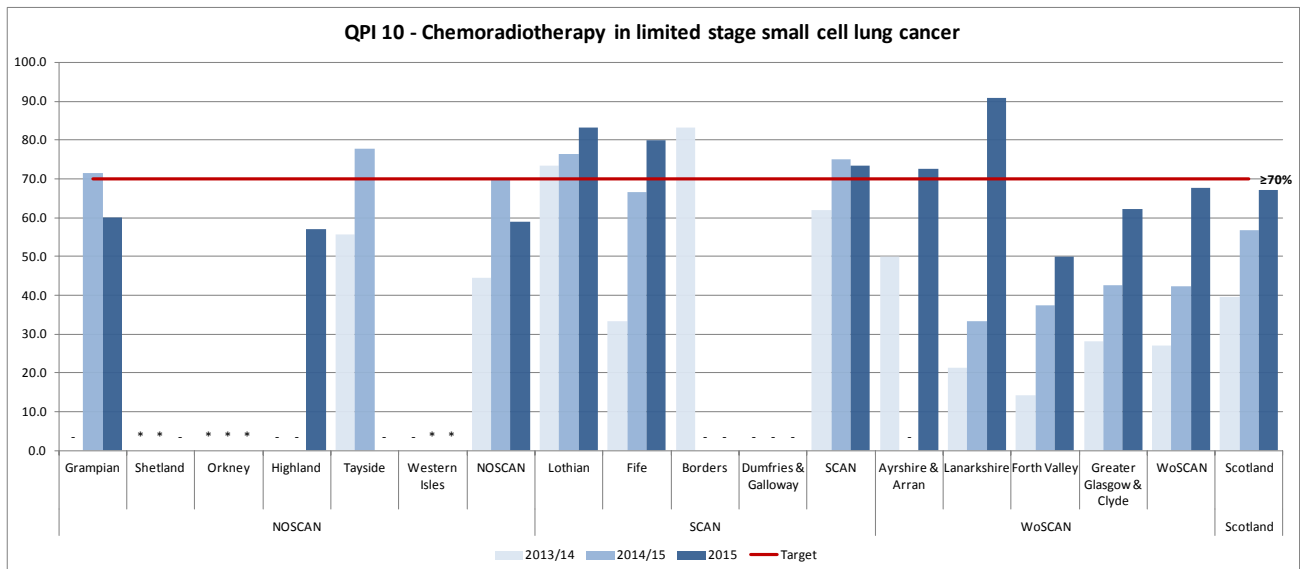
Denominator: All patients with T1-4, N0-3, M0 (stage I to IIIB) SCLC, performance status 0 or 1.

Exclusions:

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

Target: 70%

There was a similar concern regarding the relatively low numbers of patients in this cohort contributing to the variation in this measure observed at NHS Board level. At a network level, there is evidence of improvement post year 1 which is also reflected nationally although the target has not yet been met.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	60.0	3	5				-	71.4
Shetland	-	-	-				*	*
Orkney	*	*	*				*	*
Highland	57.1	4	7				-	-
Tayside	-	-	-				55.6	77.8
Western Isles	*	*	*				-	*
<b>NOSCAN</b>	<b>58.8</b>	<b>10</b>	<b>17</b>				<b>44.4</b>	70.0
Lothian	83.3	5	6			1	73.3	76.5
Fife	80.0	4	5				33.3	66.7
Borders	-	-	-				83.3	-
Dumfries & Galloway	-	-	-				-	-
<b>SCAN</b>	<b>73.3</b>	<b>11</b>	<b>15</b>			<b>1</b>	<b>62.1</b>	75.0
Ayrshire & Arran	72.7	8	11				50.0	-
Lanarkshire	90.9	10	11				21.4	33.3
Forth Valley	50.0	3	6				14.3	37.5
Greater Glasgow & Clyde	62.2	23	37			1	28.1	42.5
<b>WoSCAN</b>	<b>67.7</b>	<b>44</b>	<b>65</b>			<b>2</b>	<b>27.1</b>	42.2
<b>Scotland</b>	<b>67.0</b>	<b>65</b>	<b>97</b>			<b>3</b>	<b>39.6</b>	<b>56.7</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Following casenote review of those cases not meeting target in 2015, NHS Grampian cited clinical reasons (patient receiving single agent chemoradiotherapy as more appropriate treatment than combination) and patient wishes as valid reasons for missing the target, albeit on a very small sample.

Similarly, in NHS Highland some of the patients not meeting this target were unable to receive the treatment as the radiotherapy volume was too large or the lung function was too poor.

NHS Greater Glasgow & Clyde stated that patient fitness, disease progression, patients dying during treatment cycle and patients receiving palliative doses were all factors in those patients not meeting the target.

NHS Forth Valley reviewed cases not meeting the QPI and concluded that patients were appropriately treated.

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

Systemic anti cancer therapy (SACT) 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.

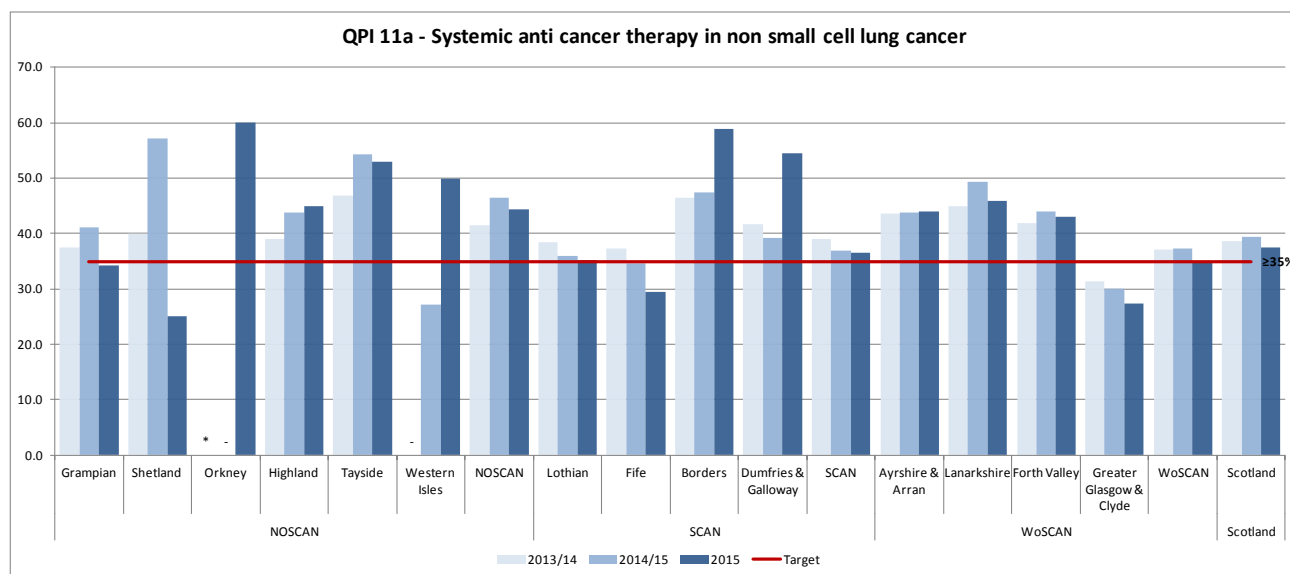
Denominator: All patients with NSCLC not undergoing surgery.

Exclusions:

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

Target: 35%

Overall in Scotland, the percentage of patients with NSCLC receiving SACT was consistently above target across the 3 years. At Board level, the performance was more variable with NHS Greater Glasgow & Clyde, in particular, missing target in each of the 3 years.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	34.2	50	146				37.6	41.1
Shetland	25.0	2	8				40.0	57.1
Orkney	60.0	3	5		1		*	-
Highland	44.9	44	98				39.0	43.9
Tayside	53.0	89	168				46.9	54.3
Western Isles	50.0	5	10			1	-	27.3
<b>NOSCAN</b>	<b>44.4</b>	<b>193</b>	<b>435</b>			<b>1</b>	<b>41.5</b>	<b>46.5</b>
Lothian	35.3	79	224	1		1	38.5	36.0
Fife	29.5	36	122				37.4	34.7
Borders	58.8	10	17				46.4	47.4
Dumfries & Galloway	54.5	24	44		1		41.7	39.2
<b>SCAN</b>	<b>36.6</b>	<b>149</b>	<b>407</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>39.0</b>	<b>37.0</b>
Ayrshire & Arran	44.0	66	150				43.6	43.7
Lanarkshire	45.9	84	183				44.9	49.3
Forth Valley	43.0	34	79			1	41.9	44.0
Greater Glasgow & Clyde	27.3	145	531		3		31.4	30.1
<b>WoSCAN</b>	<b>34.9</b>	<b>329</b>	<b>943</b>		<b>3</b>	<b>1</b>	<b>37.2</b>	<b>37.2</b>
<b>Scotland</b>	<b>37.6</b>	<b>671</b>	<b>1785</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>38.6</b>	<b>39.4</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

NHS Greater Glasgow & Clyde cited co-morbidities and performance status as clinically appropriate reasons for not meeting target. Additionally the use of alternative treatments such as CHART (Continuous Hyperfractionated Accelerated Radiotherapy) or SABR (Stereotactic Ablative Body Radiotherapy) for this patient cohort explains why some are not receiving SACT.

The exclusion of patients participating in clinical trials will be removed for future reporting of this QPI, as agreed at the formal review.

**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.

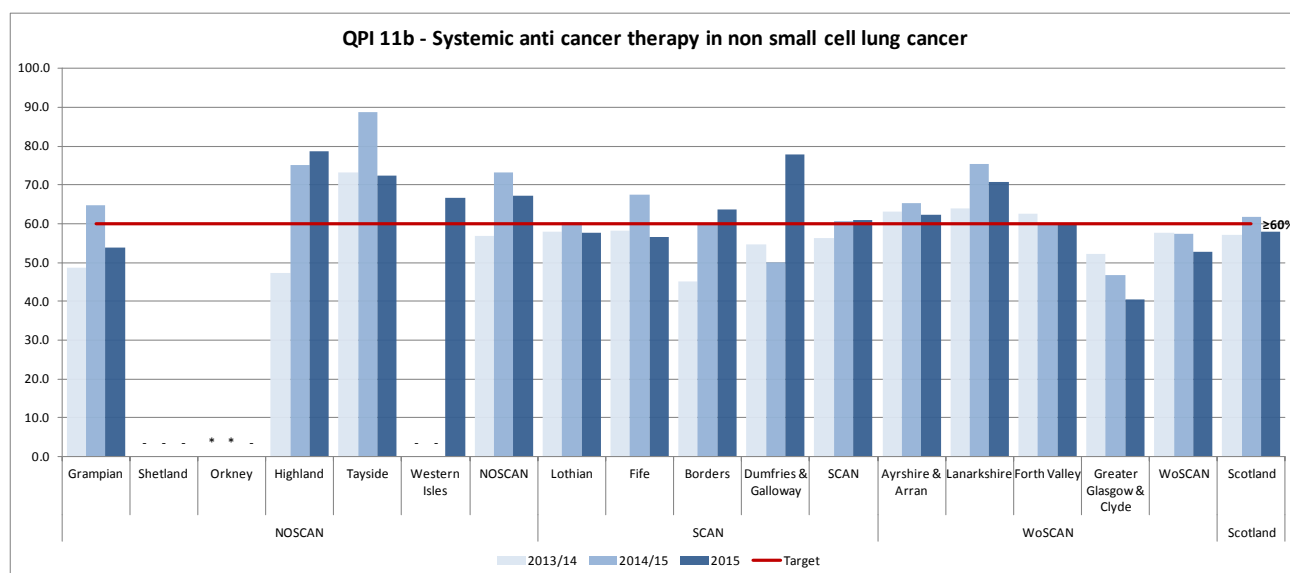
Denominator: All patients with stage IIIB or IV NSCLC, with performance status 0-1 not undergoing surgery.

Exclusions:

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

Target: 60%

Over the 3 year reporting period only NHS Tayside, NHS Ayrshire & Arran, NHS Lanarkshire and NHS Forth Valley consistently achieved target. Performance in the remaining Boards was more variable resulting in Scotland, overall, missing target in 2 of the 3 years.





NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	53.8	28	52			2	48.6	64.8
Shetland	-	-	-				-	-
Orkney	-	-	-		1	1	*	*
Highland	78.8	26	33				47.4	75.0
Tayside	72.3	47	65			1	73.1	88.9
Western Isles	66.7	4	6			1	-	-
<b>NOSCAN</b>	<b>67.3</b>	<b>109</b>	<b>162</b>		<b>1</b>	<b>5</b>	<b>57.0</b>	<b>73.1</b>
Lothian	57.6	34	59	2	3	37	57.8	60.3
Fife	56.7	17	30				58.3	67.6
Borders	63.6	7	11				45.0	60.0
Dumfries & Galloway	77.8	14	18			2	54.5	50.0
<b>SCAN</b>	<b>61.0</b>	<b>72</b>	<b>118</b>	<b>2</b>	<b>3</b>	<b>39</b>	<b>56.3</b>	<b>60.5</b>
Ayrshire & Arran	62.3	38	61			13	63.0	65.2
Lanarkshire	70.7	53	75			12	63.8	75.3
Forth Valley	60.0	21	35		1	4	62.5	60.0
Greater Glasgow & Clyde	40.6	73	180		1	26	52.3	46.6
<b>WoSCAN</b>	<b>52.7</b>	<b>185</b>	<b>351</b>		<b>2</b>	<b>55</b>	<b>57.6</b>	<b>57.3</b>
<b>Scotland</b>	<b>58.0</b>	<b>366</b>	<b>631</b>	<b>2</b>	<b>6</b>	<b>99</b>	<b>57.1</b>	<b>61.7</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Patient co-morbidities, patient choice and deteriorating performance status were common reasons noted by some Boards for missing target during the reporting period. In these cases alternative treatments such as chemoradiotherapy or radiotherapy may have been undertaken, in some cases for palliative intent.

In NHS Greater Glasgow & Clyde, it was suggested given the performance over the 3 years to review practice and consider change particularly in the South Glasgow area.

Following the formal review, this QPI will now focus on biological therapy for EGFR/ALK positive patients with the exclusion of known EGFR mutation removed.

**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 are receiving chemotherapy ± radiotherapy.

Denominator: All patients with SCLC.

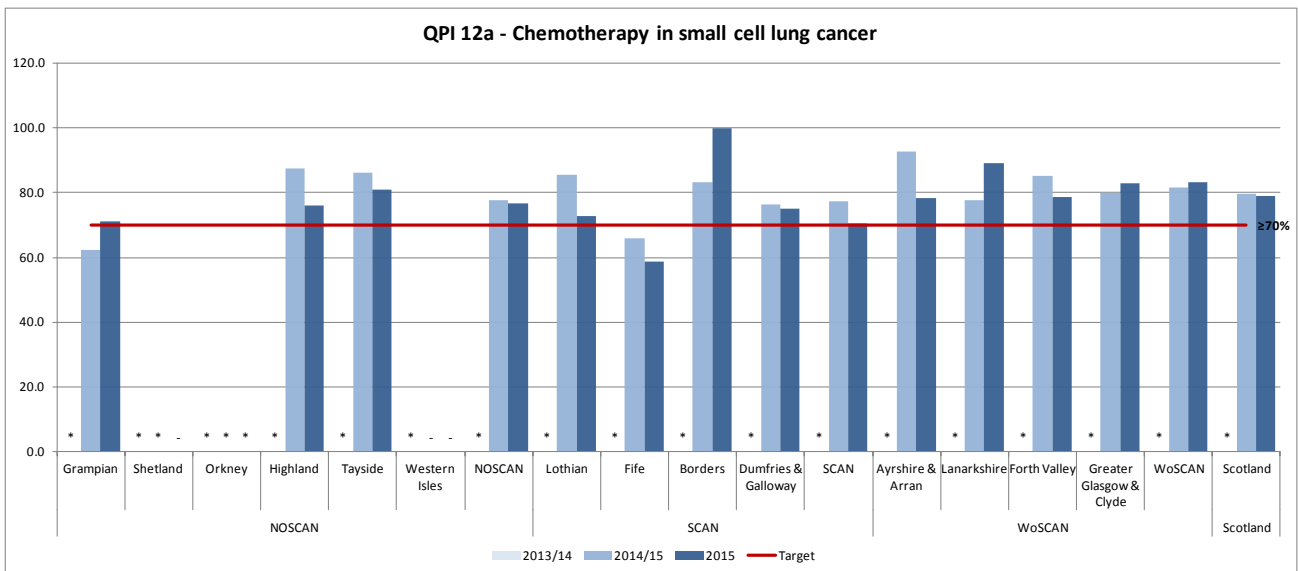
Exclusions:

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

Target: 70%

At the baseline review, this indicator was split into 2 parts to monitor performance of all patients with small cell lung cancer receiving chemotherapy and separately those receiving chemotherapy for palliative intent (QPI 12(ii)).

The target for all patients with small cell lung cancer is 70% and this was comfortably met at a national level over the two year period. Only NHS Fife did not meet target over both years.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	71.1	27	38				*	62.2
Shetland	-	-	-				*	*
Orkney	*	*	*				*	*
Highland	76.2	16	21				*	87.5
Tayside	81.1	30	37				*	86.4
Western Isles	-	-	-			1	*	-
<b>NOSCAN</b>	<b>76.8</b>	<b>76</b>	<b>99</b>			<b>1</b>	*	77.6
Lothian	72.7	48	66		3		*	85.5
Fife	58.6	17	29				*	65.9
Borders	100.0	5	5				*	83.3
Dumfries & Galloway	75.0	9	12		1		*	76.5
<b>SCAN</b>	<b>70.5</b>	<b>79</b>	<b>112</b>		<b>4</b>		*	77.3
Ayrshire & Arran	78.4	29	37				*	92.9
Lanarkshire	89.1	49	55		1		*	77.8
Forth Valley	78.6	22	28			1	*	85.2
Greater Glasgow & Clyde	83.0	151	182				*	79.9
<b>WoSCAN</b>	<b>83.1</b>	<b>251</b>	<b>302</b>		<b>1</b>	<b>1</b>	*	81.6
<b>Scotland</b>	<b>79.1</b>	<b>406</b>	<b>513</b>		<b>5</b>	<b>2</b>	*	<b>79.8</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

In NHS Fife, it was stated that some patients were not suitable for chemotherapy due to poor performance status, co-morbidities or patient deterioration. It was also noted that there are protracted time lags from date of pathology/diagnosis to date of treatment which may contribute to these figures.

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

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.

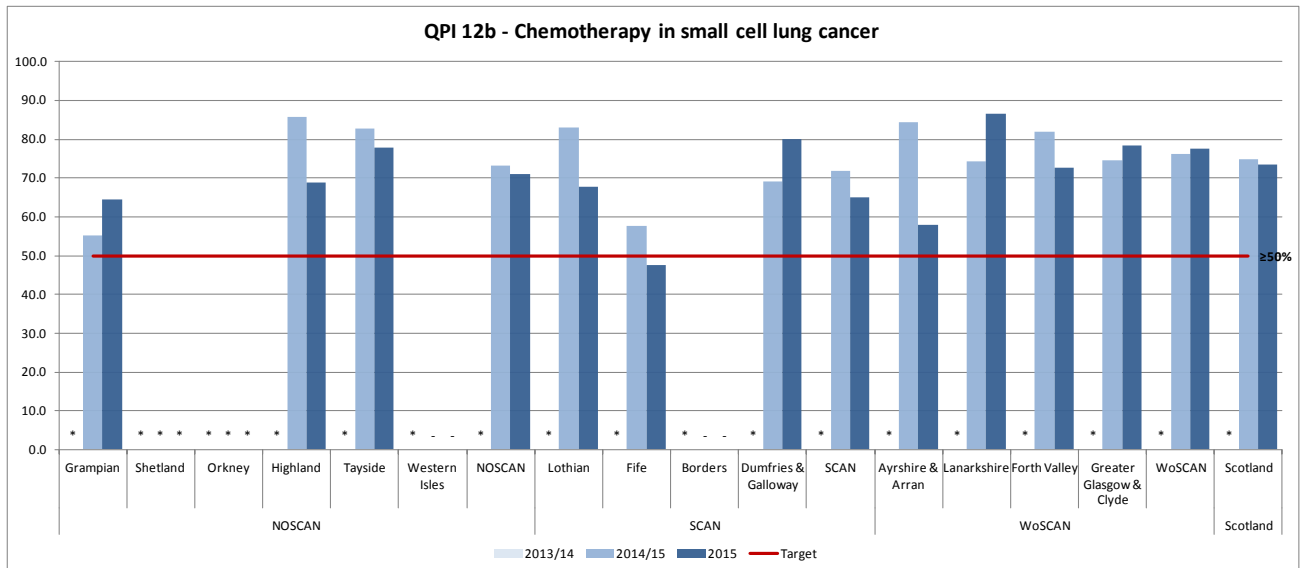
Denominator: All patients with SCLC not undergoing treatment with curative intent.

Exclusions:

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

Target: 50%

In Scotland in 2015, there were 389 patients diagnosed with small cell lung cancer (SCLC) not undergoing treatment with curative intent. Of these, 286 received chemotherapy. This equates to 73% and exceeds the 50% target for the second consecutive year. Again only NHS Fife did not meet target during the reporting period.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	64.5	20	31				*	55.3
Shetland	*	*	*				*	*
Orkney	*	*	*				*	*
Highland	68.8	11	16				*	85.7
Tayside	77.8	21	27				*	82.9
Western Isles	-	-	-			1	*	-
<b>NOSCAN</b>	<b>71.1</b>	<b>54</b>	<b>76</b>			<b>1</b>	*	73.2
Lothian	67.9	38	56		3		*	82.9
Fife	47.6	10	21				*	57.7
Borders	-	-	-				*	-
Dumfries & Galloway	80.0	4	5				*	69.2
<b>SCAN</b>	<b>65.1</b>	<b>56</b>	<b>86</b>		<b>3</b>		*	72.0
Ayrshire & Arran	57.9	11	19				*	84.4
Lanarkshire	86.5	32	37		1		*	74.2
Forth Valley	72.7	16	22			1	*	81.8
Greater Glasgow & Clyde	78.5	117	149				*	74.7
<b>WoSCAN</b>	<b>77.5</b>	<b>176</b>	<b>227</b>		<b>1</b>	<b>1</b>	*	76.3
<b>Scotland</b>	<b>73.5</b>	<b>286</b>	<b>389</b>		<b>4</b>	<b>2</b>	*	<b>74.8</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

As with 12(i), in NHS Fife, it was stated that some patients were not suitable for chemotherapy due to poor performance status, co-morbidities or patient deterioration.

**QPI 13(i) - 30 Day Mortality: 30 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).

Numerator: Number of patients with lung cancer who receive active treatment who die within 30 days of treatment.

Denominator: All patients with lung cancer who receive active treatment.

Exclusions: No exclusions

Targets:

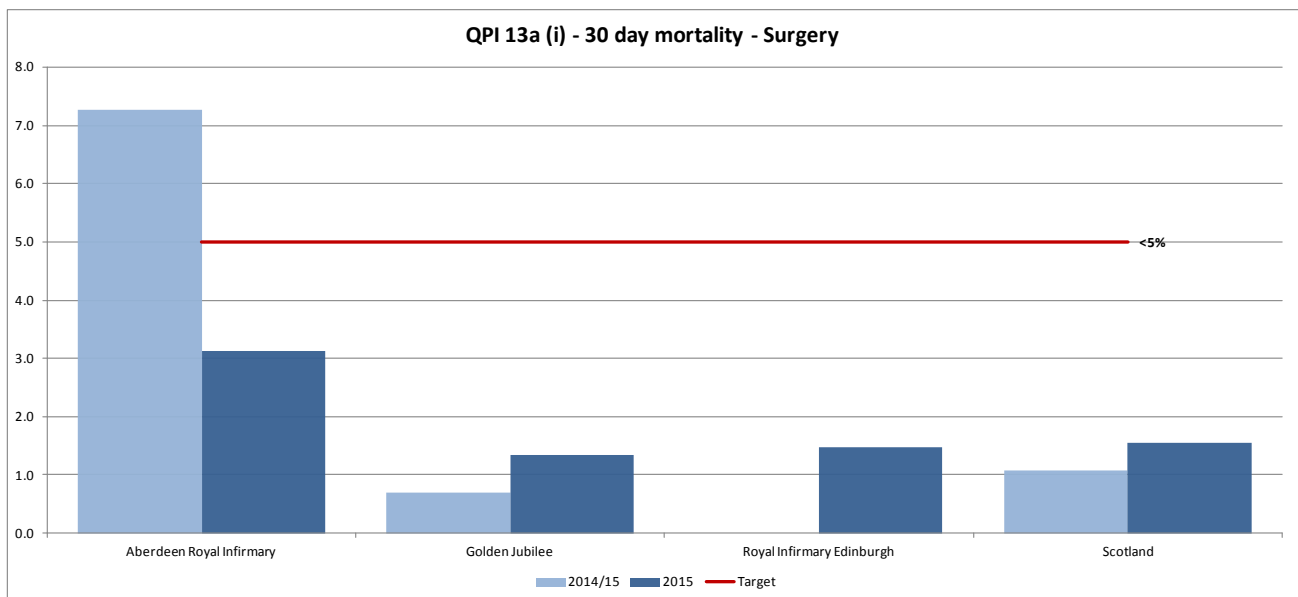
<5% (Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy)

<10% (Palliative Chemotherapy/Biological Therapy)

Due to the variance introduced by small numbers, caution is advised when comparing mortality rates across Boards. Aggregation of results over time will help to minimise the effect of small numbers.

Surgery

This indicator is presented by hospital of surgery. Information by Board of diagnosis is available in the [data tables](#). The mortality rate within 30 days for those patients receiving surgery to treat lung cancer was low at 1.5% for Scotland as a whole in 2015.

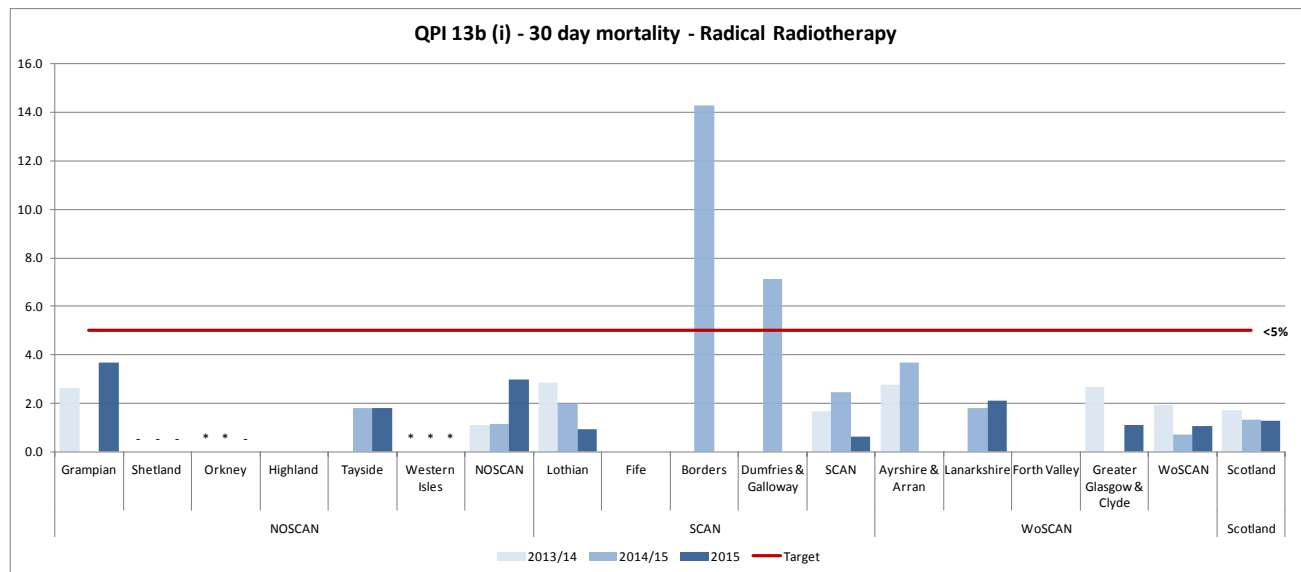


NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2014/15	2013/14
Aberdeen Royal Infirmary	3.1	2	64				7.3	
Golden Jubilee	1.3	6	447				0.7	
Royal Infirmary Edinburgh	1.5	2	136	1			0.0	
<b>Scotland</b>	<b>1.5</b>	<b>10</b>	<b>648</b>	<b>1</b>		<b>1</b>	<b>1.1</b>	

Source: Cancer audit

### Radical Radiotherapy

For patients receiving radical radiotherapy in Scotland, the mortality rate was 1.3% within 30 days in 2015 and consistently below target over the three years.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	3.7	1	27				2.6	0.0
Shetland	-	-	-				-	-
Orkney	-	-	-			2	*	*
Highland	0.0	0	14				0.0	0.0
Tayside	1.8	1	56				0.0	1.8
Western Isles	*	*	*				*	*
<b>NOSCAN</b>	<b>3.0</b>	<b>3</b>	<b>100</b>			<b>2</b>	<b>1.1</b>	<b>1.1</b>
Lothian	1.0	1	105	1		1	2.9	2.0
Fife	0.0	0	42				0.0	0.0
Borders	0.0	0	5				0.0	14.3
Dumfries & Galloway	0.0	0	8				0.0	7.1
<b>SCAN</b>	<b>0.6</b>	<b>1</b>	<b>160</b>	<b>1</b>		<b>1</b>	<b>1.7</b>	<b>2.5</b>
Ayrshire & Arran	0.0	0	37				2.8	3.7
Lanarkshire	2.1	1	47				0.0	1.8
Forth Valley	0.0	0	20				0.0	0.0
Greater Glasgow & Clyde	1.1	2	184	1		1	2.7	0.0
<b>WoSCAN</b>	<b>1.0</b>	<b>3</b>	<b>288</b>	<b>1</b>		<b>1</b>	<b>1.9</b>	<b>0.7</b>
<b>Scotland</b>	<b>1.3</b>	<b>7</b>	<b>548</b>	<b>2</b>		<b>4</b>	<b>1.7</b>	<b>1.3</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

### Adjuvant Chemotherapy

The number of patients receiving adjuvant chemotherapy as a treatment for lung cancer was relatively low in comparison to the other treatment types; therefore, small numbers will impact the mortality rate figures significantly. At a National level, though, the mortality rate within 30 days for patients receiving this treatment type in 2015 was 2%, below the target of 5%.

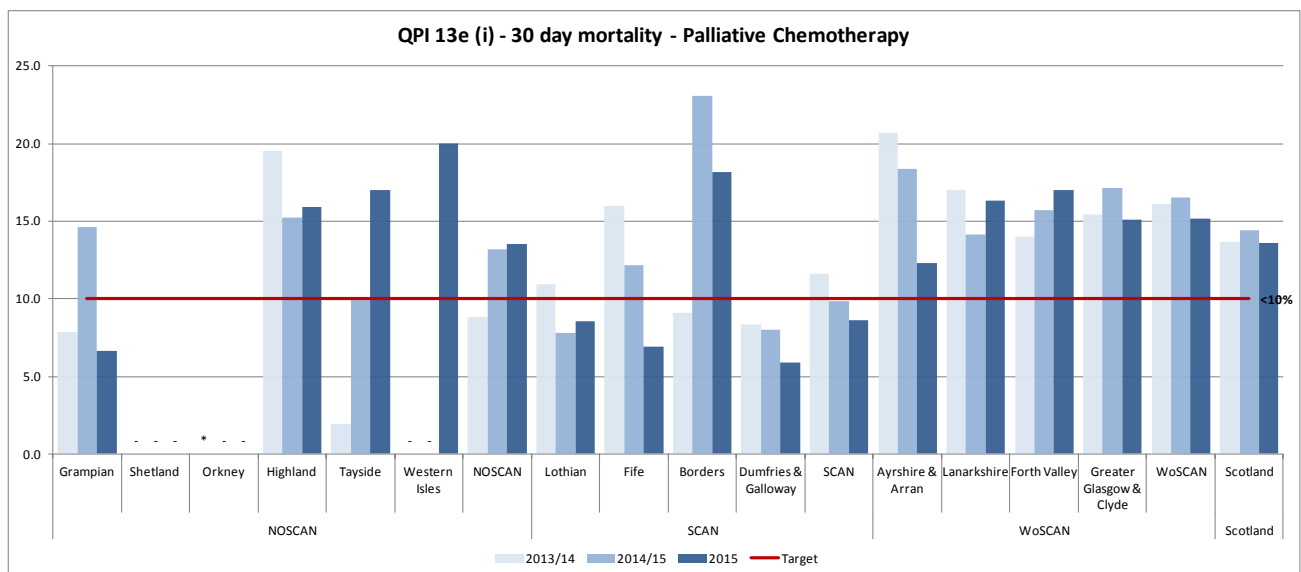
### Radical Chemoradiotherapy

Of the 260 patients receiving chemoradiotherapy as active treatment for lung cancer in 2015, 5 patients (1.9%) died within 30 days of receiving the treatment.

### Palliative Chemotherapy

The mortality rate for patients receiving palliative chemotherapy is expected to be lower than 10% within 30 days. Many Boards were unable to achieve this which impacted the Scotland figures overall where almost 14% of patients died within 30 days of receiving palliative chemotherapy in 2015. The mortality rate for this treatment type was similar for the previous 2 years.

At the baseline review, the definition was changed to remove the exclusion of patients receiving palliative radiotherapy as many patients receive both palliative chemotherapy and radiotherapy to alleviate symptoms.





NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	6.7	4	60				7.9	14.6
Shetland	-	-	-				-	-
Orkney	-	-	-				*	-
Highland	15.9	7	44	1			19.5	15.2
Tayside	17.0	16	94				2.0	9.9
Western Isles	20.0	1	5				-	-
<b>NOSCAN</b>	<b>13.5</b>	<b>28</b>	<b>207</b>	<b>1</b>			<b>8.8</b>	<b>13.2</b>
Lothian	8.5	7	82	1		1	10.9	7.8
Fife	6.9	2	29				16.0	12.2
Borders	18.2	2	11				9.1	23.1
Dumfries & Galloway	5.9	1	17				8.3	8.0
<b>SCAN</b>	<b>8.6</b>	<b>12</b>	<b>139</b>	<b>1</b>		<b>1</b>	<b>11.7</b>	<b>9.8</b>
Ayrshire & Arran	12.3	8	65				20.7	18.4
Lanarkshire	16.3	16	98				17.0	14.2
Forth Valley	17.0	8	47				14.0	15.7
Greater Glasgow & Clyde	15.1	36	239	8			15.4	17.2
<b>WoSCAN</b>	<b>15.1</b>	<b>68</b>	<b>449</b>	<b>8</b>			<b>16.1</b>	<b>16.5</b>
<b>Scotland</b>	<b>13.6</b>	<b>108</b>	<b>795</b>	<b>10</b>		<b>1</b>	<b>13.7</b>	<b>14.4</b>

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

Cases not meeting the QPI in NHS Ayrshire & Arran, NHS Forth Valley and NHS Lanarkshire have been reviewed, and a review is ongoing within NHS GGC. The outcome of these reviews will be followed up by the regional Lung Cancer MCN Advisory Board.

### Biological Therapy

There were relatively few patients in Scotland receiving biological therapy as a treatment for lung cancer. Consequently, comparison of mortality rates at Board level for this treatment type will be impacted by small numbers and is not advised. Overall, in Scotland, 2 of the 36 patients receiving biological therapy died within 30 days.

At the formal review, it was agreed to split the mortality figures by NSCLC and SCLC for the palliative chemotherapy and biological therapy treatment types and, consequently, change the target to 10% for NSCLC and 15% for SCLC.

**QPI 13(ii) - 90 Day Mortality: 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).

Numerator: Number of patients with lung cancer who receive treatment with curative intent (surgical, radical radiotherapy or chemoradiotherapy) who die within 90 days of treatment.

Denominator: All patients with lung cancer who receive treatment with curative intent.

Exclusions: No exclusions

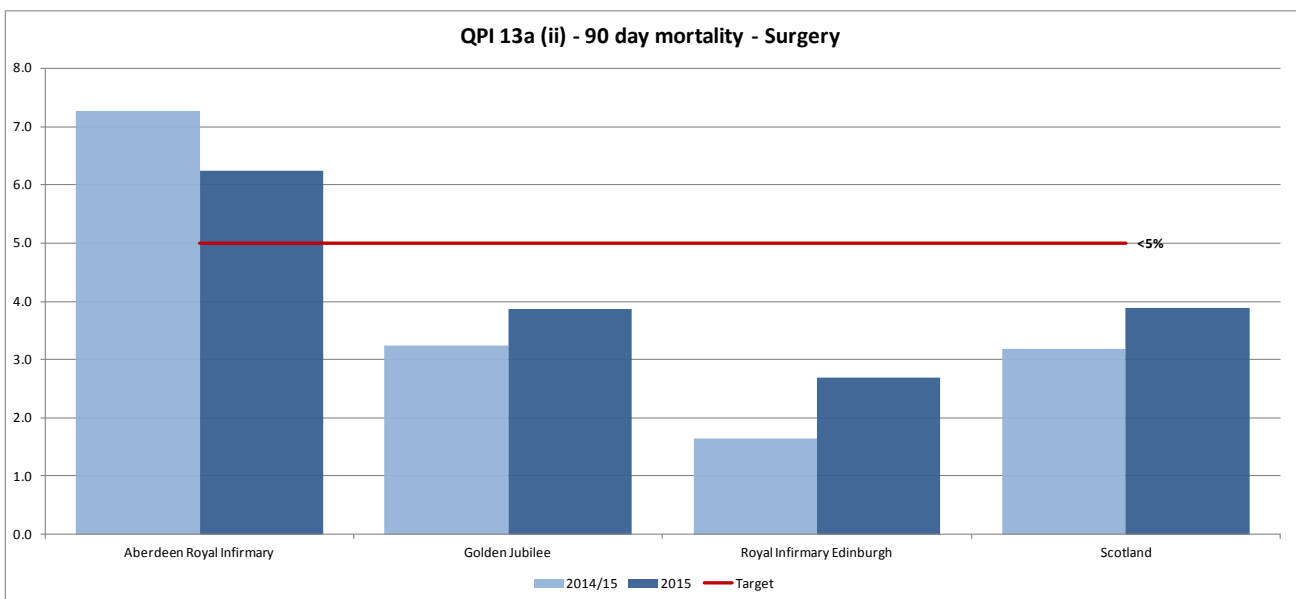
Targets:

<5% (Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy)

The 90 Day mortality indicators were only introduced after review of year 1 data therefore information is only available for years 2 and 3.

Surgery

This indicator is presented by hospital of surgery. Information by Board of diagnosis is available in the [data tables](#). The mortality rate within 90 days for those patients receiving surgery to treat lung cancer was just below 4% for Scotland as a whole in 2015. At regional level only patients treated in Aberdeen Royal Infirmary had mortality rates above 5% but that is likely due to the effect of small numbers.



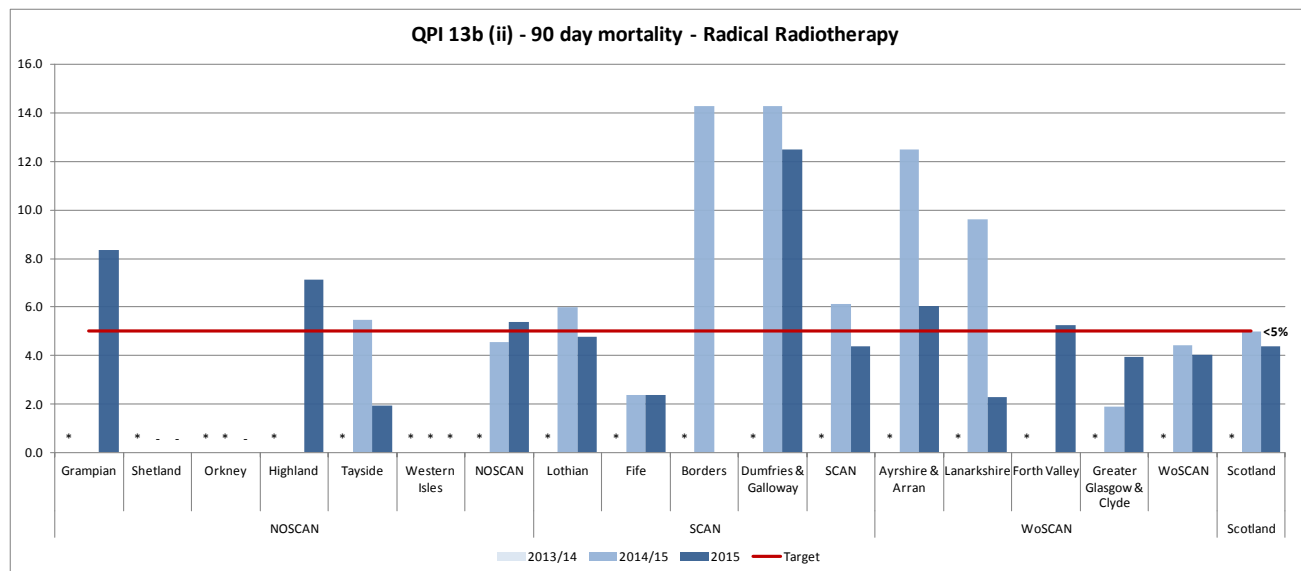
NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2014/15	2015/16
Aberdeen Royal Infirmary	6.3	4	64				7.3	
Golden Jubilee	3.9	17	440				3.2	
Royal Infirmary Edinburgh	2.7	4	149	1			1.6	
<b>Scotland</b>	<b>3.9</b>	<b>25</b>	<b>642</b>	<b>1</b>		<b>1</b>	<b>3.2</b>	

Source: Cancer audit

A detailed case review will be carried out within NHS Greater Glasgow & Clyde to establish if co-morbidity could have been identified or prevented.

### Radical Radiotherapy

For patients receiving radical radiotherapy in Scotland, the mortality rate has reduced from 5% in 2014/15 to 4.4% in 2015.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	8.3	2	24				*	0.0
Shetland	-	-	-				*	-
Orkney	-	-	-			2	*	*
Highland	7.1	1	14				*	0.0
Tayside	1.9	1	52				*	5.5
Western Isles	*	*	*				*	*
<b>NOSCAN</b>	<b>5.4</b>	<b>5</b>	<b>93</b>			<b>2</b>	*	4.5
Lothian	4.8	5	105				*	6.0
Fife	2.4	1	42				*	2.4
Borders	0.0	0	5				*	14.3
Dumfries & Galloway	12.5	1	8				*	14.3
<b>SCAN</b>	<b>4.4</b>	<b>7</b>	<b>160</b>				*	6.1
Ayrshire & Arran	6.1	2	33				*	12.5
Lanarkshire	2.3	1	44				*	9.6
Forth Valley	5.3	1	19				*	0.0
Greater Glasgow & Clyde	3.9	7	178	1		1	*	1.9
<b>WoSCAN</b>	<b>4.0</b>	<b>11</b>	<b>274</b>	<b>1</b>		<b>1</b>	*	4.4
<b>Scotland</b>	<b>4.4</b>	<b>23</b>	<b>527</b>	<b>1</b>		<b>3</b>	*	5.0

Source: Cancer audit

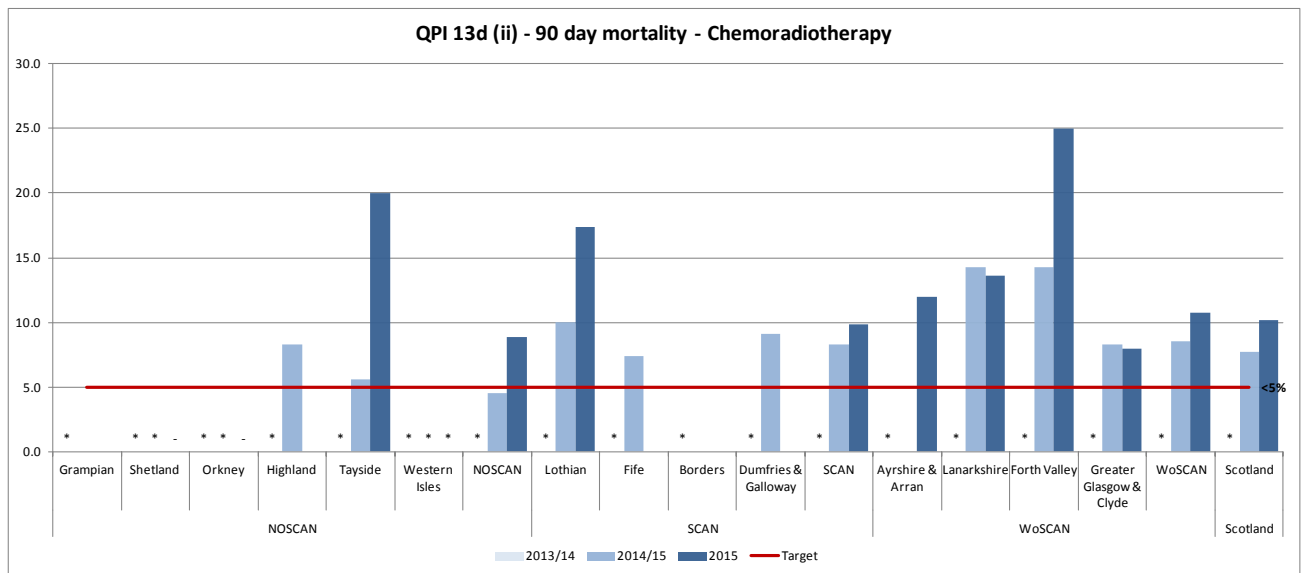
- Data not shown due to small numbers

\* No data matching QPI criteria

Small numbers impacted upon results in NHS Ayrshire & Arran and NHS Forth Valley however cases were reviewed and valid clinical details provided.

Radical Chemoradiotherapy

Just over 10% of patients receiving chemoradiotherapy in 2015 died within 90 days of receiving the treatment, an increase from the previous year.



NHS Board/Region	Most Recent Year - 2015						Past % Performance	
	% Performance	Numerator	Denominator	NR for Numerator	NR for Exclusion	NR for Denominator	2013/14	2014/15
Grampian	0.0	0	10				*	0.0
Shetland	-	-	-				*	*
Orkney	-	-	-	1		2	*	*
Highland	0.0	0	13				*	8.3
Tayside	20.0	4	20				*	5.6
Western Isles	*	*	*				*	*
<b>NOSCAN</b>	<b>8.9</b>	<b>4</b>	<b>45</b>	<b>1</b>		<b>2</b>	*	4.5
Lothian	17.4	8	46				*	10.0
Fife	0.0	0	19				*	7.4
Borders	0.0	0	6				*	0.0
Dumfries & Galloway	0.0	0	10			2	*	9.1
<b>SCAN</b>	<b>9.9</b>	<b>8</b>	<b>81</b>			<b>2</b>	*	8.3
Ayrshire & Arran	12.0	3	25				*	0.0
Lanarkshire	13.6	3	22				*	14.3
Forth Valley	25.0	2	8				*	14.3
Greater Glasgow & Clyde	8.0	6	75			1	*	8.3
<b>WoSCAN</b>	<b>10.8</b>	<b>14</b>	<b>130</b>			<b>1</b>	*	8.6
<b>Scotland</b>	<b>10.2</b>	<b>26</b>	<b>256</b>	<b>1</b>		<b>5</b>	*	7.8

Source: Cancer audit

- Data not shown due to small numbers

\* No data matching QPI criteria

For the 8 patients who died in NHS Lothian, all cases were reviewed and it was found that many of the patients had either progressive disease or had died of toxicity.

All cases within the west of Scotland not meeting the QPI were reviewed. It was noted that small numbers had impacted on percentages and was concluded that current working practice was appropriate.

## Clinical Trials

Access to Clinical Trials is a common issue for all cancer types; therefore, a generic QPI was developed to measure performance across the country. Further details on the development and definition of this QPI can be found [here](#). Specifically for Lung cancer, the QPI is defined as follows and Appendix A3 contains a list of Lung cancer trials into which patients have been recruited in Scotland during 2015. Information is shown by each Scottish Cancer Research Network (SCRN).

### **Clinical Trials Access: Proportion of patients with lung cancer who are enrolled in an interventional clinical trial or translational research.**

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

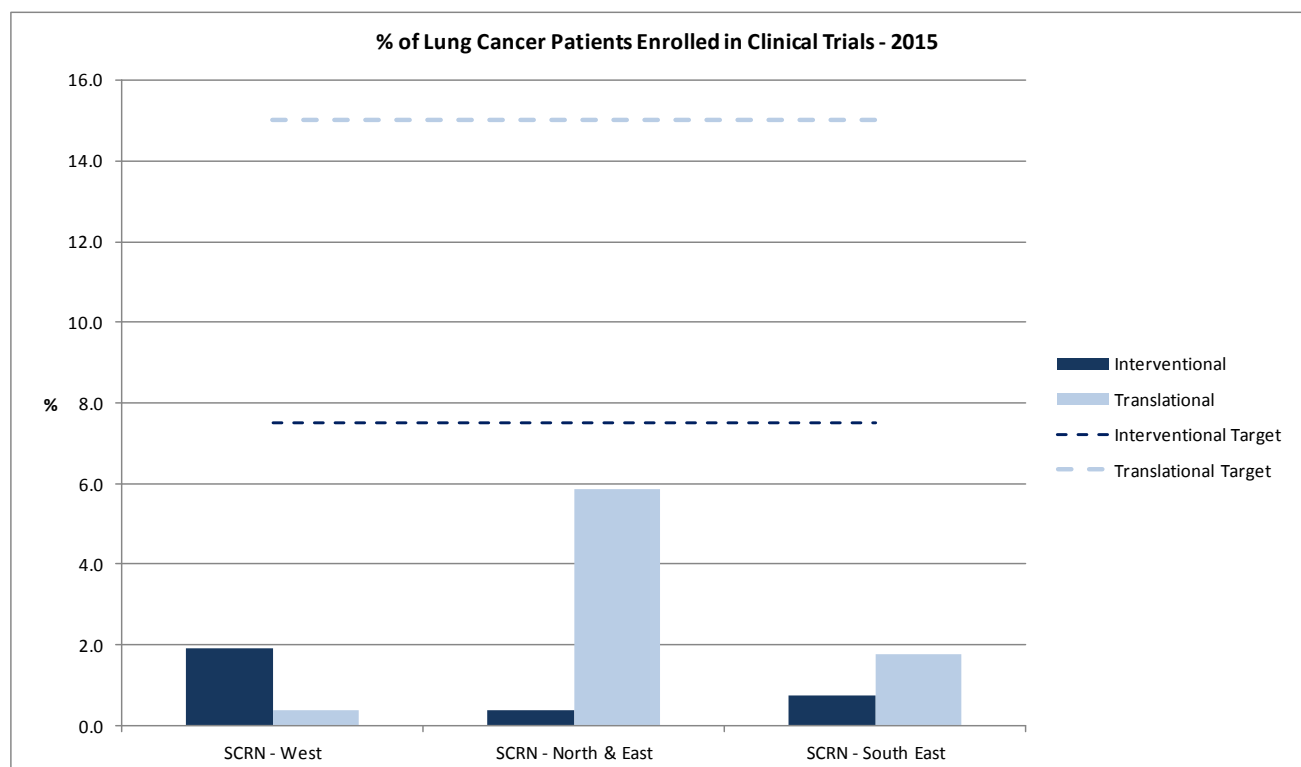
Numerator: Number of patients with lung cancer enrolled in an interventional clinical trial or translational research.

Denominator: All patients with lung cancer.

Exclusions: No exclusions.

Target: Interventional clinical trials – 7.5%  
 Translational research – 15%

The aspiration is to enrol a minimum of **7.5%** of patients into Interventional Clinical Trials and **15%** into Translational research.



		No. of patients enrolled in Interventional Trials	No. of patients enrolled in Translational Research	Average no. of Cancer Registrations
<b>SCRN - West</b>				
	No of patients	49	10	2556
	% enrolled	1.9%	0.4%	
<b>SCRN - North &amp; East</b>				
	No of patients	4	64	1090
	% enrolled	0.4%	5.9%	
<b>SCRN - South East</b>				
	No of patients	10	24	1353
	% enrolled	0.7%	1.8%	

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 ambitious, particularly with the move towards more targeted trials.

All cancer patients in Scotland 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 cancer trials that are currently open to recruitment in 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 cancer. 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 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 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.

## Survival Analysis

To support the national reporting of QPIs and to provide context in their interpretation, an analysis of lung cancer survival was undertaken. A cohort of patients diagnosed with lung cancer during 2012 to 2014, and registered on the Scottish Cancer Registry, was used and linked to deaths data (up to December 2015) to provide 3 years of follow up for all patients (and up to 4 years of follow up for some).

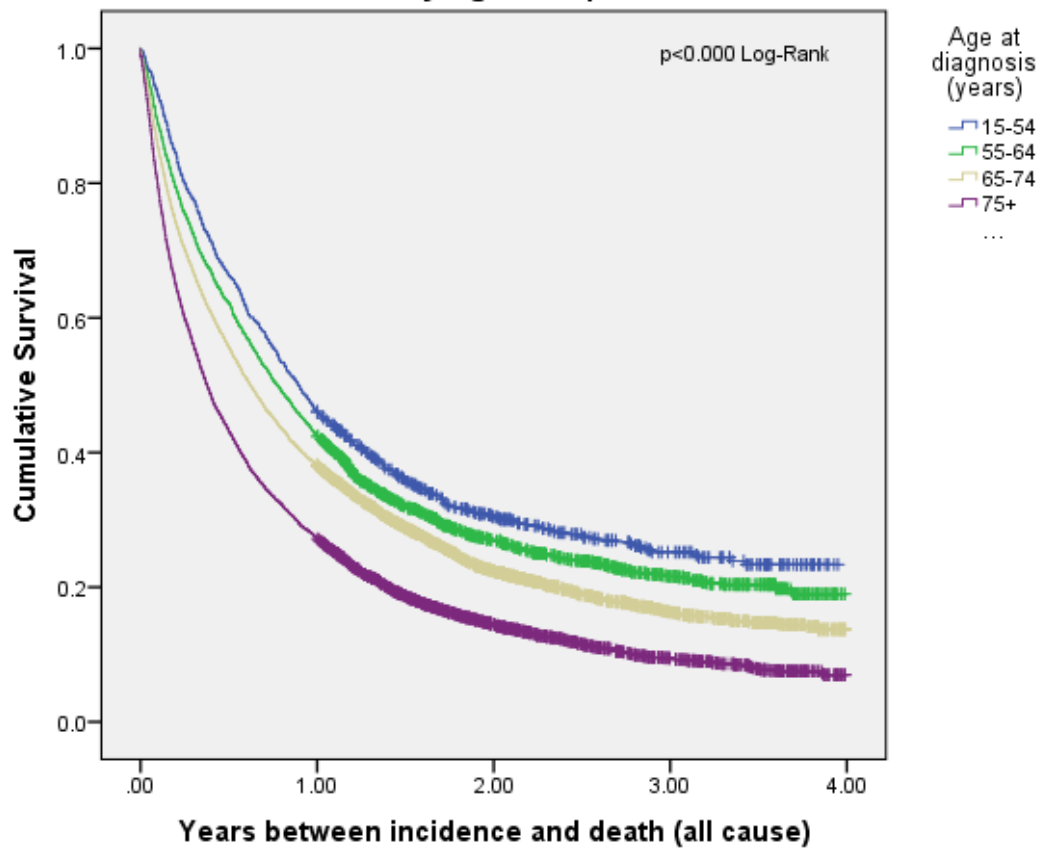
There follows a series of survival curves showing the variation in survival rates for this cohort of patients by the following key criteria:

- Age Group
- Gender
- Deprivation category (SIMD)
- Regional cancer network
- First Treatment Type
- Cancer Stage

Further details on this analysis, including patient characteristics, analysis criteria and additional survival curves are available in the [data tables](#).

1). Survival Rates by Age Group (age at diagnosis)

**Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by Age Group**



Source: ISD Scotland, Scottish Cancer Registry

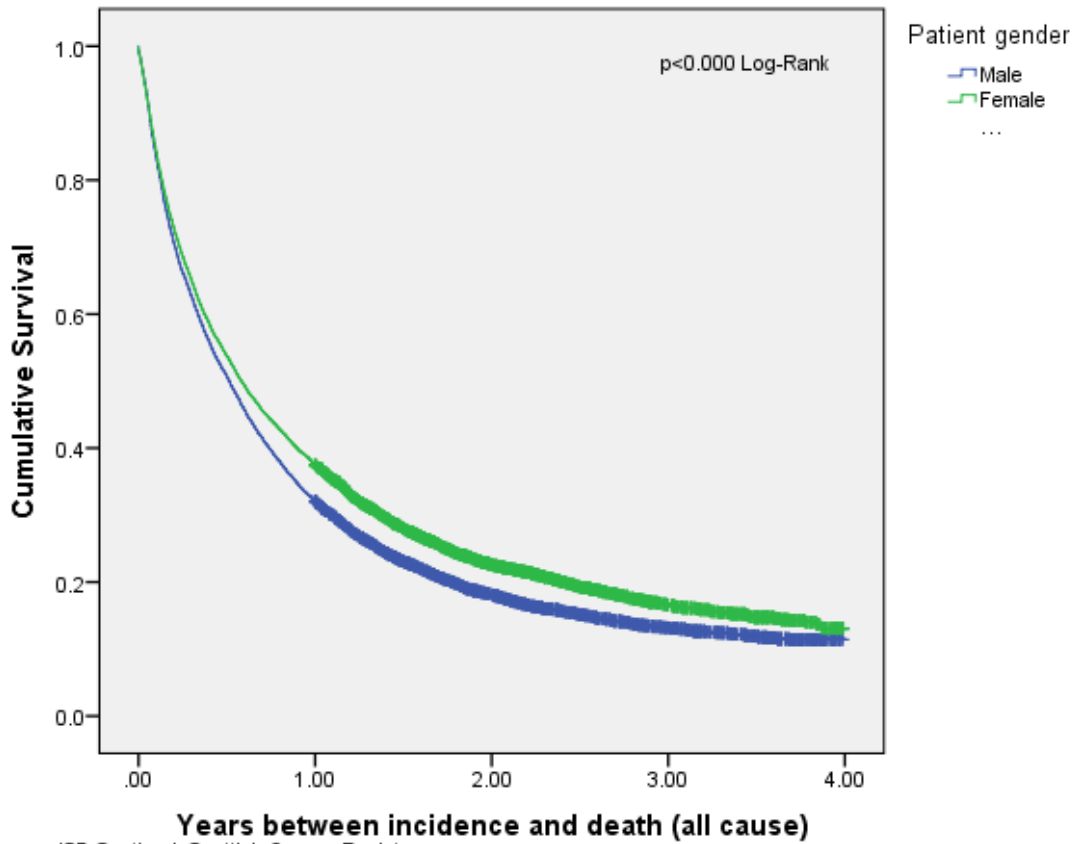
	Total Patients		Deaths		1-year Survival(%)	3-year Survival(%)	4-year Survival(%)
	No.	%	No.	%			
15-54	912	6%	644	5%	46.1	25.2	23.4
55-64	2,766	18%	2051	16%	42.5	21.6	19.0
65-74	5,382	34%	4244	34%	38.1	16.3	13.7
75+	6,546	42%	5695	45%	27.2	9.4	7.0

Figure 1 shows the survival rates for patients diagnosed with lung cancer across a range of age bands (age at diagnosis) at 1, 3 and 4 year intervals.



2). Survival Rates by Gender.

**Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by Gender**

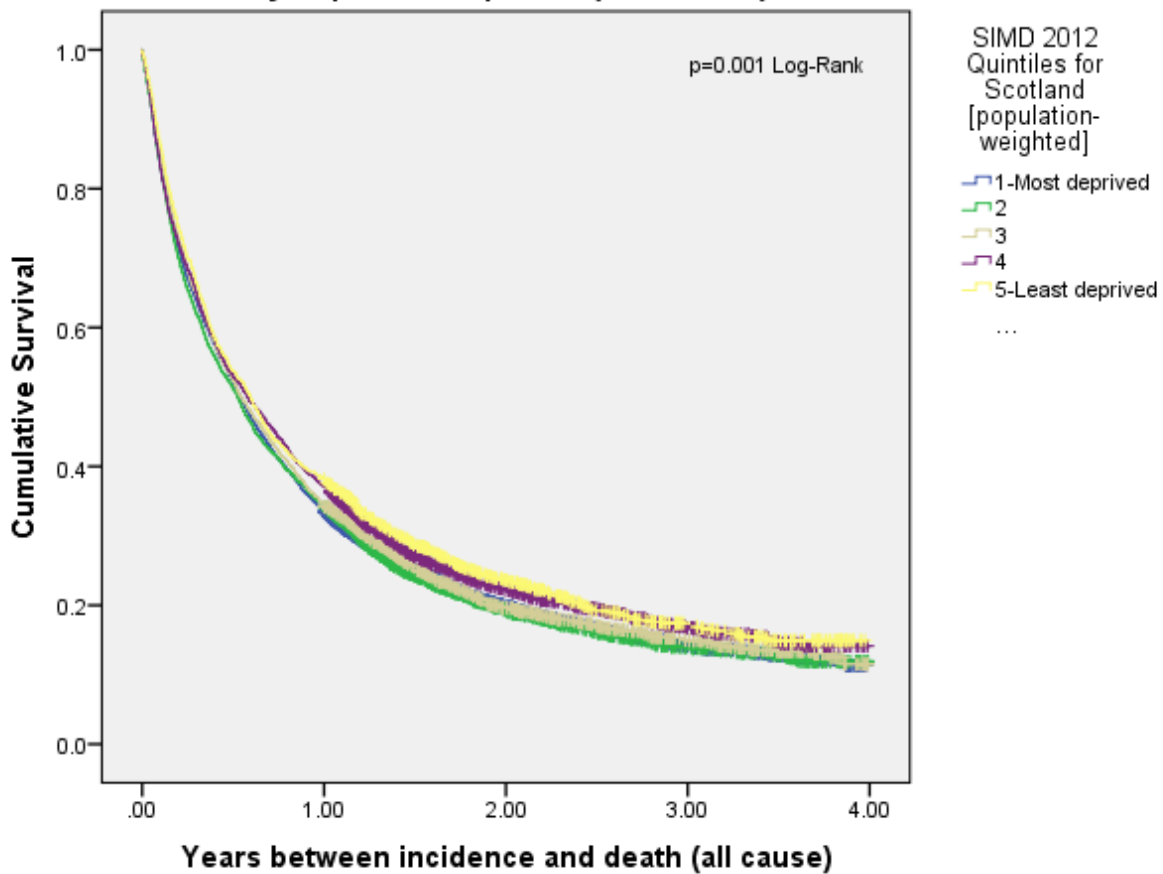


	Total Patients		Deaths		1-year Survival(%)	3-year Survival(%)	4-year Survival(%)
	No.	%	No.	%			
Male	7,868	50%	6,537	52%	32.1	13.2	11.4
Female	7,738	50%	6,097	48%	37.5	16.6	13.1

Figure 2 shows that the survival rates for men diagnosed with lung cancer is lower than for women.

3). Survival Rates by Deprivation Category (SIMD)

**Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by deprivation quintile (SIMD 2012)**



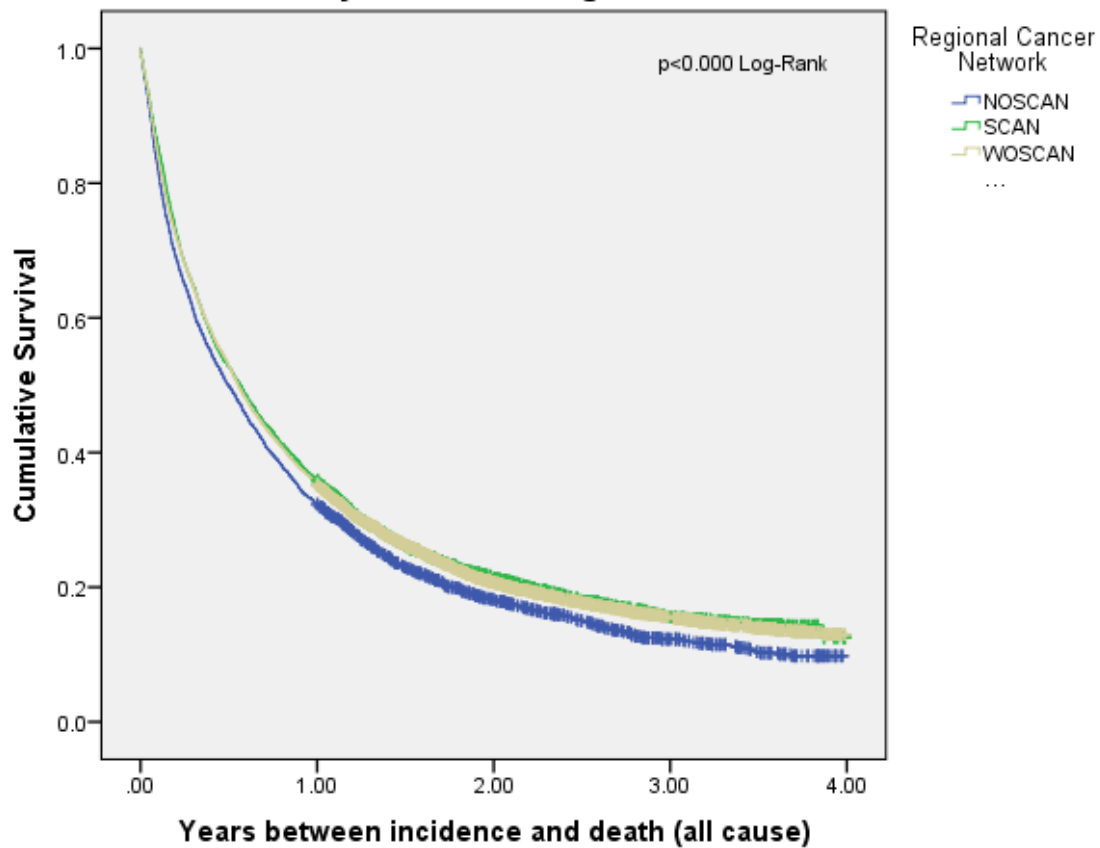
Source: ISD Scotland, Scottish Cancer Registry

	Total Patients		Deaths		1-year Survival(%)	3-year Survival(%)	4-year Survival(%)
	No.	%	No.	%			
1 - Most deprived	4,776	31%	3,892	31%	33.5	14.1	11.3
2	3,816	24%	3,118	25%	34.2	13.9	11.9
3	2,952	19%	2,400	19%	34.3	15.0	11.5
4	2,356	15%	1,869	15%	37.1	16.8	14.2
5 - Least deprived	1,734	11%	1,358	11%	38.2	17.2	14.9

The impact of deprivation on lung cancer survival rates is shown in Figure 3. Survival rates decrease with increasing deprivation.

4). Survival Rates by Regional Cancer Network

**Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by Network of Diagnosis**

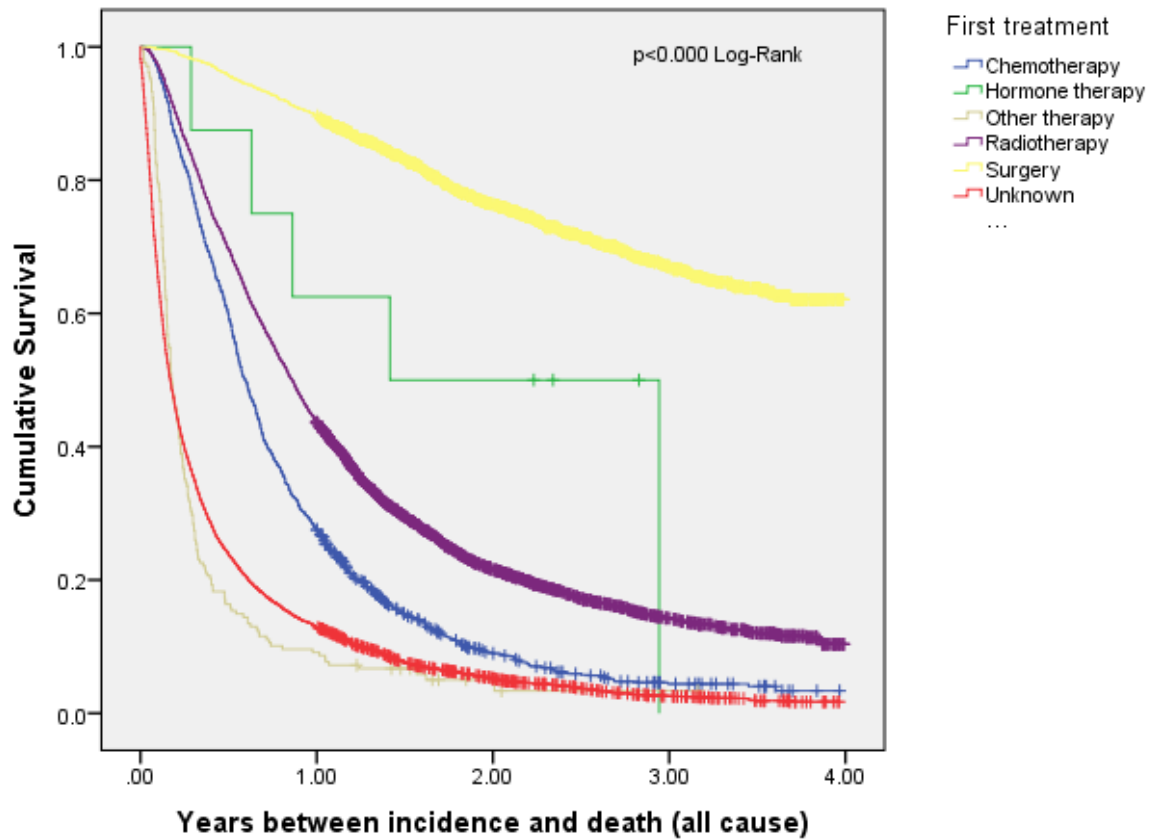


	Total Patients		Deaths		1-year Survival(%)	3-year Survival(%)	4-year Survival(%)
	No.	%	No.	%			
NOSCAN	3,294	21%	2,758	22%	32.3	12.3	9.8
SCAN	3,977	25%	3,174	25%	35.9	15.6	12.6
WOSCAN	8,335	53%	6,702	53%	35.2	15.6	13.0

Figure 4 shows the survival rates by regional network of residence. No adjustment for demographics, tumour staging, index tumour sites, deprivation scores, or any allowance for competing causes of death within regions was undertaken.

5). Survival Rates by First Treatment

**Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by First Treatment**



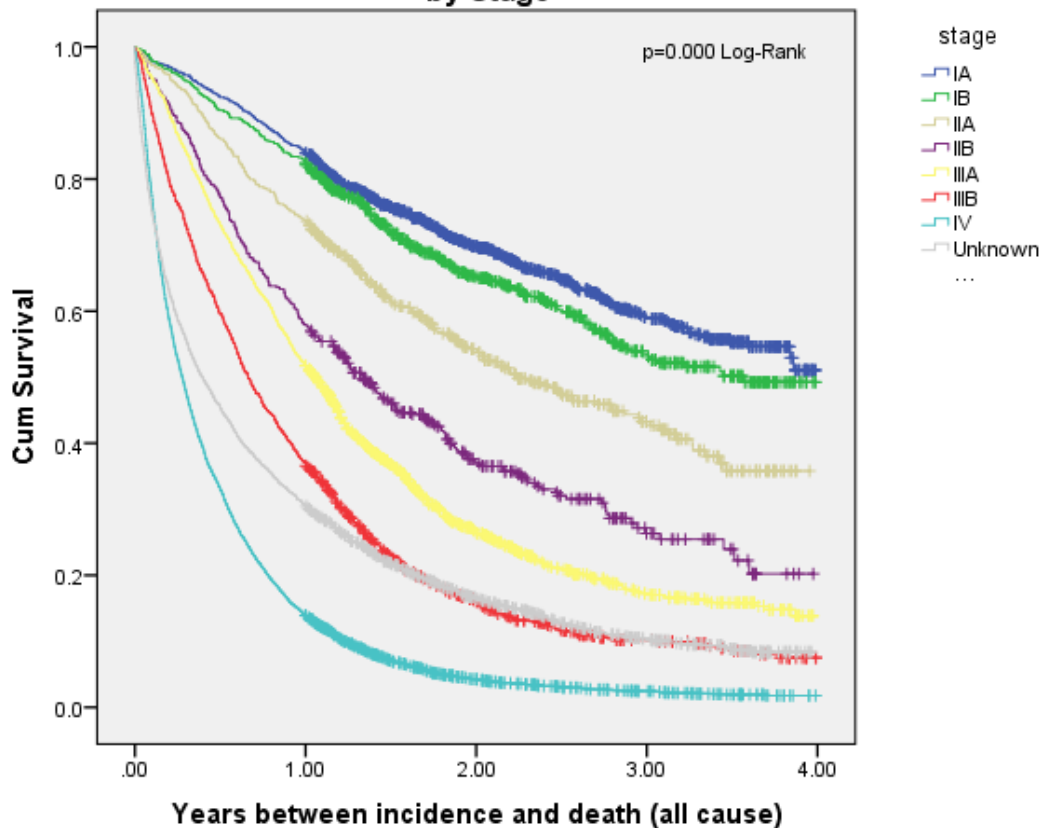
Source: ISD Scotland, Scottish Cancer Registry

	Total Patients		Deaths		1-year Survival(%)	3-year Survival(%)	4-year Survival(%)
	No.	%	No.	%			
Chemotherapy	1,377	9%	1,257	10%	27.5	4.4	3.4
Hormone Therapy	8	0%	5	0%	62.5	0.0	0.0
Other Therapy	208	1%	197	2%	9.1	3.3	0.0
Radiotherapy	5,513	35%	4,390	35%	43.7	14.2	10.4
Surgery	1,977	13%	533	4%	89.7	67.1	62.1
Unknown	6,523	42%	6,252	49%	12.9	2.6	1.7

Figure 5 shows the survival rate by first treatment type. It suggests that survival rates are significantly higher for patients receiving surgery as first treatment although no other relevant factors have been considered.

6). Survival Rates by Cancer Stage

Observed (KM) survival - Lung Cancers (All cause deaths), Scotland, by Stage



Source: ISD Scotland, Scottish Cancer Registry

	Total Patients		Deaths		1-year Survival (%)	3-year Survival (%)	4-year Survival (%)
	No	%	No	%			
IA	1,306	8%	443	4%	83.9	59.1	51.0
IB	752	5%	284	2%	82.4	53.5	49.2
IIA	538	3%	269	2%	73.8	43.3	35.8
IIB	442	3%	288	2%	57.9	26.4	20.2
IIIA	1,692	11%	1,267	10%	51.7	17.0	13.9
IIIB	1,323	8%	1,128	9%	36.8	10.2	7.5
IV	7,276	47%	6,969	55%	13.9	2.5	1.8
Unknown	2,291	15%	1,985	16%	30.5	10.4	8.4

Figure 6 shows the survival rates by cancer stage. As expected, survival rates decrease with increasing cancer stage.

List of abbreviations

QPI	-	Quality Performance Indicator
QIS	-	Quality Improvement Scotland
ISD	-	Information Services Division
HIS	-	Healthcare Improvement Scotland
NOSCAN	-	North of Scotland cancer network
WoSCAN	-	West of Scotland cancer network
SCAN	-	South East Scotland cancer network
MDT	-	Multidisciplinary team
NR	-	Not recorded
SCRN	-	Scottish Cancer Research Network
TNM	-	Tumour, Node & Metastases (a cancer staging classification)
EGFR	-	Epidermal Growth Factor Receptor
ALK	-	Anaplastic Lymphoma Kinase

## List of Tables

Table No.	Name	Time period	File & size
<a href="#">Data Tables</a>	Lung Cancer QPI Data Tables	April 2013 – December 2015	Excel [115kb]
<a href="#">Survival Analysis</a>	Lung Cancer Survival Analysis	2012 - 2014	Excel [514kb]

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## Further Information

Further information on Cancer Quality Performance Indicators can be found on the [Cancer QPI](#) section of the ISD website.

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## Appendix

**A1 – Background Information**

The purpose of the cancer quality work programme and the roles and responsibilities of each organisation are outlined in Chief Executives Letter ([CEL 06](#)). This document also provides details of the data collection, quality assurance and governance processes that are critical to the reporting of QPIs.

**A2 – Lung Cancer QPIs**

The table below shows the list of Lung Cancer QPIs applicable to this publication. Please note that revisions to these QPIs may have been made since the initial data collection – refer to the [Healthcare Improvement Scotland website](#) for the latest version of these QPIs.

QPI	Numerator	Denominator	Exclusions	Target
QPI 1 - Multi-Disciplinary Team (MDT) Meeting	Number of patients with lung cancer discussed at the MDT before definitive treatment.	All patients with lung cancer	Patients who died before first treatment.	95%
QPI 2(i): Pathological Diagnosis (All patients)	Number of patients with lung cancer who have a pathological diagnosis (including following surgical resection).	All patients with lung cancer	Patients who refuse investigations or surgical resection and patients receiving supportive care.	75%
QPI 2(ii): Pathological Diagnosis (NSCLC only)	Number of patients with a pathological diagnosis of NSCLC who have a tumour subtype identified.	All patients with a pathological diagnosis of stage IIIB or IV NSCLC.	No exclusions.	80%
QPI 2(iii): Pathological Diagnosis (Stage IIIB or IV NSCLC only)	Number of patients with a pathological diagnosis of stage IIIB or IV NSCLC who have analysis of predictive markers undertaken.	All patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC.	Patients with squamous cell NSCLC and patients with performance status 4	75%
QPI 3: Bronchoscopy	Number of patients with lung cancer undergoing bronchoscopy where CT thorax was performed prior to bronchoscopy.	All patients with lung cancer undergoing bronchoscopy.	No exclusions.	95%
QPI 4: PET CT in patients being treated with curative intent	Number of patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection) who undergo PET CT prior to start of treatment.	All patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection).	Patients receiving supportive care.	95%

QPI 5: Investigation of mediastinal malignancy	Number of patients with NSCLC who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/N3) that have nodes sampled.	All patients with NSCLC who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/N3).	Patients who refuse treatment and patients with stage IV (M1a or M1b) disease.	80%
QPI 6(i): Surgical resection in non small cell lung cancer	Number of patients with non small cell lung cancer (NSCLC) who undergo surgical resection.	All patients with non small cell lung cancer (NSCLC).	Patients who refuse surgery and patients who die before surgery.	17%
QPI 6(ii): Surgical resection in non small cell lung cancer (Stage I/II NSCLC)	Number of patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC who undergo surgical resection.	All patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC.	Patients who refuse surgery and patients who die before surgery.	50%
QPI 7: Lymph node assessment	Number of patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy that have 6 or more lymph nodes or stations (at least 3 nodes from N1 stations and 3 nodes from N2 stations) sampled at time of primary tumour resection.	All patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy.	No exclusions.	80%
QPI 8: Radiotherapy in inoperable lung cancer	Number of patients with lung cancer not undergoing surgery who receive radical radiotherapy (> 54Gy) ± chemotherapy.	All patients with lung cancer not undergoing surgery.	Patients with Small Cell Lung Cancer (SCLC), patients who refuse radiotherapy and patients who die prior to treatment.	15%
QPI 9: Chemoradiotherapy in locally advanced non small cell lung cancer	Number of patients with stage IIIA NSCLC a, with performance status 0-1, not undergoing surgery who receive chemoradiotherapy (radiotherapy > 54Gy and concurrent or sequential chemotherapy).	All patients with stage IIIA NSCLCa, with performance status 0-1, not undergoing surgery who receive radical radiotherapy > 54Gy.	<ul style="list-style-type: none"> <li>• Patients who refuse treatment.</li> <li>• Patients who die before treatment.</li> <li>• Patients receiving Continuous Hyperfractionated Radiotherapy.</li> <li>• Patients receiving Stereotactic radiotherapy.</li> </ul>	50%
QPI 10: Chemoradiotherapy in limited stage small cell lung cancer	Number of patients with T1-4, N0-3, M0 (stage I to IIIB)b SCLC, performance status 0 or 1 who receive chemoradiotherapy (radiotherapy > 40Gy and concurrent or sequential platinum-based chemotherapy).	All patients with T1-4, N0-3, M0 (stage I to IIIB)b SCLC, performance status 0 or 1.	<ul style="list-style-type: none"> <li>• Patients who refuse treatment.</li> <li>• Patients who die before treatment.</li> <li>• Patients who undergo surgical resection</li> </ul>	70%

QPI 11(i) - Systemic anti cancer therapy in non small cell lung cancer	Number of patients with NSCLC not undergoing surgery who receive systemic anti cancer therapy.	All patients with NSCLC not undergoing surgery.	<ul style="list-style-type: none"> <li>• Patients who refuse chemotherapy.</li> <li>• Patients who die before treatment.</li> <li>• Patients who are participating in clinical trials.</li> </ul>	35%
QPI 11(ii) - Systemic anti cancer therapy in non small cell lung cancer (Stage IIIB/IV NSCLC)	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.	All patients with stage IIIB or IV NSCLC, with performance status 0-1 not undergoing surgery.	<ul style="list-style-type: none"> <li>• Patients who refuse chemotherapy.</li> <li>• Patients who die before treatment.</li> <li>• Patients who are participating in clinical trials.</li> <li>• Patients with known EGFR mutation.</li> </ul>	60%
QPI 12(i) - Chemotherapy in small cell lung cancer	Number of patients with SCLC who are receiving chemotherapy ± radiotherapy	All patients with SCLC.	<ul style="list-style-type: none"> <li>• Patients who refuse chemotherapy.</li> <li>• Patients who die prior to treatment.</li> <li>• Patients who are participating in clinical trials.</li> </ul>	70%
QPI 12(ii) - Chemotherapy in small cell lung cancer – chemotherapy with palliative intent	Number of patients with SCLC, not undergoing treatment with curative intent, who receive palliative chemotherapy	All patients with SCLC not undergoing treatment with curative intent.	<ul style="list-style-type: none"> <li>• Patients who refuse chemotherapy.</li> <li>• Patients who die prior to treatment.</li> <li>• Patients who are participating in clinical trials.</li> </ul>	50%
QPI 13a(i) - 30 Day Mortality (Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy)	Number of patients with lung cancer who receive active treatment who die within 30 days of treatment.	All patients with lung cancer who receive active treatment.	Patients receiving palliative radiotherapy.	<5%
QPI 13a(ii) - 30 Day Mortality (Palliative Chemotherapy/Biological Therapy)	Number of patients with lung cancer who receive active treatment who die within 30 days of treatment.	All patients with lung cancer who receive active treatment.	Patients receiving palliative radiotherapy.	<10%
QPI 13b(i) - 90 Day Mortality (Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy)	Number of patients with lung cancer who receive active treatment who die within 30 days of treatment.	All patients with lung cancer who receive active treatment.	Patients receiving palliative radiotherapy.	<5%

### A3 – Lung Cancer Clinical Trials

The list of interventional and translational clinical trials open during the audit period for Lung cancer patients in Scotland across the Scottish Cancer Research Networks is shown below. Further details on these clinical trials are available from the relevant SCRNs.

Study Type	Study Title	SCRN - West	SCRN - South East	SCRN - North & East
Interventional	SPLENDOR (no pts recruited)			✓
	AZD9291 v chemotherapy in NSCLC, following EGFR TKI therapy (AURA3)	✓		
	CANC - 4122 PACIFIC	✓		
	Checkmate - 171	✓		
	IDEAL-CRT	✓		
	IND.215:Study of Selumetinib in Patients With Previously Treated or Untreated Advanced/Metastatic NSCLC	✓		
	Isotoxic IMRT Study	✓		
	Lung ART	✓		
	National Lung Matrix Trial	✓		
	NCRN - 2974 VESTA: Veliparib, carboplatin & paclitaxel in NSCLC	✓		
	NCRN636 - VS-6063 in mesothelioma	✓		
	TIMELY	✓		
	FIESTA	✓		
	TAX-TORC	✓		
	FLAURA1	✓		
	AURA3			✓
	MK-3475 KEYNOTE 024 (no pts recruited)			✓
	STOMP	✓		✓
	SELECT 1 (no pts recruited)			✓
	Translational	Bio-repository (lung)		
Luminist				✓
DIAPHRAGM				✓
CART		✓		
SPUtNik				✓
TRACERx				✓

## A4 – Publication Metadata (including revisions details)

Metadata Indicator	Description
Publication title	Lung Cancer Quality Performance Indicators
Description	This report shows the performance of NHS Boards against thirteen Lung Cancer QPIs for the period April 2013 to December 2015. Relevant commentary from NHS Boards is also included to provide local context to the data.
Theme	Health and Social Care
Topic	Cancer services
Format	PDF Document
Data source(s)	Cancer audit, Cancer registry, SMR01
Date that data are acquired	December 2016
Release date	February 28 <sup>th</sup> 2017
Frequency	Every 3 years
Timeframe of data and timeliness	Data covering patients diagnosed from April 2013 to December 2015
Continuity of data	First published in May 2015 for 2013/14 data.
Revisions statement	It is expected that QPI definitions and measurability documents will evolve and therefore future publications may contain revisions to previously published information.
Revisions relevant to this publication	Changes implemented after baseline review include addition of MDT indicator and 90 day mortality data.
Concepts and definitions	QPI definitions and measurability criteria are available from the <a href="#">Cancer Audit</a> section of the ISD website.
Relevance and key uses of the statistics	The reporting of performance against these national QPIs is underpinned by a national governance framework that aims to use these data to improve cancer services in Scotland.
Accuracy	Information on the accuracy of some of the national datasets used within this publication is available on the <a href="#">ISD website</a> .  ISD only receives aggregate data from each NHS Board to populate these indicators (with the exception of SMR based indicators and case ascertainment). Derivation of the figures and data accuracy are matters for individual NHS Boards.
Completeness	For the reporting period, information based on the SMR01 data completeness can be found <a href="#">here</a> . 100% of QPI aggregate data was returned.
Comparability	The national dataset and data definitions in conjunction with the final quality performance indicators and the accompanying measurability document were agreed in public engagement to ensure data collection is comparable across the country.
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to <a href="#">published guidelines</a> .
Coherence and clarity	Statistics for each QPI are presented consistently in chart

	and table format at NHS Board level, with national figures and performance targets included for comparison and clarity.
Value type and unit of measurement	The units of measure include numbers and percentages.
Disclosure	The <a href="#">ISD protocol on Statistical Disclosure Protocol</a> is followed.
Official Statistics designation	Official Statistics
UK Statistics Authority Assessment	Not currently put forward for assessment
Last published	19 <sup>th</sup> May 2015
Next published	February 2020
Date of first publication	19 <sup>th</sup> May 2015
Help email	<a href="mailto:johnconnor@nhs.net">johnconnor@nhs.net</a>
Date form completed	17 <sup>th</sup> January 2017

## **A5 – Early Access details (including Pre-Release Access)**

### **Pre-Release Access**

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", ISD are obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

### **Standard Pre-Release Access:**

Scottish Government Health Department  
NHS Board Chief Executives  
NHS Board Communication leads

### **Early Access for Management Information**

These statistics will also have been made available to those who needed access to 'management information', i.e. as part of the delivery of health and care:

Members of the National Cancer Quality Operational Group  
Members of the National Cancer Quality Steering Group

### **Early Access for Quality Assurance**

These statistics will also have been made available to those who needed access to help quality assure the publication:

Members of the National Cancer Quality Operational Group  
Members of the National Cancer Quality Steering Group  
Regional Lung Cancer Clinical Leads  
NHS Board Lung Cancer Clinical Leads  
Regional Lead Clinicians

## A6 – ISD and Official Statistics

### About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient based analysis and follow up. Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHSScotland and the Scottish Government and others, responsive to the needs of NHSScotland as the delivery of health and social care evolves.

**Purpose:** To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

**Mission:** Better Information, Better Decisions, Better Health

**Vision:** To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

### Official Statistics

Information Services Division (ISD) is the principal and authoritative source of statistics on health and care services in Scotland. ISD is designated by legislation as a producer of 'Official Statistics'. Our official statistics publications are produced to a high professional standard and comply with the Code of Practice for Official Statistics. The Code of Practice is produced and monitored by the UK Statistics Authority which is independent of Government. Under the Code of Practice, the format, content and timing of statistics publications are the responsibility of professional staff working within ISD. ISD's statistical publications are currently classified as one of the following:

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- National Statistics (i.e. legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (i.e. still to be assessed by the UK Statistics Authority)
- other (not Official Statistics)

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Find out how #NHSScotland performs against the Lung Cancer Quality Performance Indicators #ISD

**Template version history**

<b>Template Version</b>	<b>Current at</b>
V1.0	18 March 2011
V1.1	31 March 2011
V1.2	27 June 2011
V1.3	May 2012
V1.4	November 2013

NB This page will be removed from the final PDF version of the report.

**Approval for Release**

This publication must be given approval for release by the relevant Assistant Director, Head of Service, Service Manager, Information Consultant or Consultant in Public Health Medicine.

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Date: