

**West of Scotland Cancer Network
Lung Cancer
Managed Clinical Network**



Audit Report

Lung Quality Performance Indicators

**Clinical Audit Data:
01 January 2021 to 31 December 2021**

Dr Joris van der Horst
**Consultant Respiratory Physician
MCN Clinical Lead**

Gillian Petty
MCN Manager

Julie McMahon
Information Officer

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Lung Cancer Quality Performance Indicators

Patients Diagnosed: January 2021 - December 2021

Number Diagnosed:

2531

Case Ascertainment:

92.3%

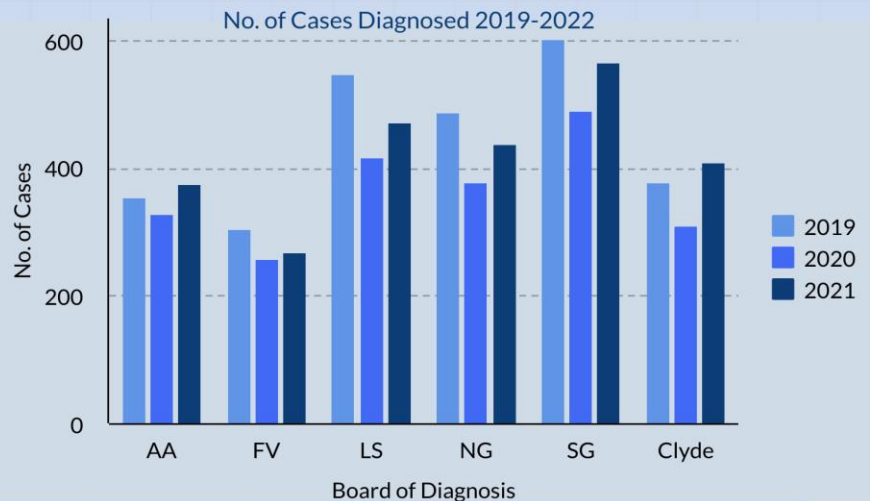
As measured against PHS ACaDMe comparative data:

Male

47.1%

Female

52.9%



QPI Target	QPI Results	
	WoS Result	Met/Not Met
QPI 1: MDT Discussion	95% 98.6%	✓
QPI 2i: Pathological Diagnosis	80% 79.4%	✗
QPI 2ii: NSCLC Subtype Identified	90% 93.1%	✓
QPI 2iii: Molecular Profiling	80% 94.5%	✓
QPI 2iv: PD_L1 Testing	80% 94.4%	✓
QPI 4: NSCLC PET CT	95% 18.2%	✗
QPI 5: Intrathoracic Nodal Staging	80% 69.1%	✗
QPI 6i: NSCLC Surgical Resection	20% 25.6%	✓
QPI 6ii: NSCLC Stage I-II Surgery	60% 72.1%	✓
QPI 7: Lymph Node Assessment	80% 90.8%	✓
QPI 8: RT in Inoperable Lung Cancer	35% 45.3%	✓
QPI 9: CRT in Locally Adv. NSCLC	50% 50.0%	✓
QPI 10: CRT in Limited Stage SCLC	70% 90.0%	✓
QPI 11i: SACT in NSCLC	35% 40.0%	✓
QPI 11ii: SACT in IIIB-IV NSCLC	80% 77.8%	✗
QPI 11iii: SACT in IIIB-IV PS 0-2 NSCLC	40% 44.1%	✓
QPI 12i: Chemotherapy in SCLC	70% 79.6%	✓
QPI 12ii: Palliative Chemotherapy in SCLC	50% 77.3%	✓
QPI 13: 30/90day Surgery Mortality	<5% 1.2% / 2.4%	✓
QPI 13: 30/90day Radical RT Mortality	<5% 1.1% / 2.9%	✓
QPI 13: 30/90day CRT Mortality	<5% 1.4% / 6.9%	✓✗
QPI 14: SABR	35% 37.2%	✓
QPI 15: PreTreat Diag - Surgery	75% 72%	✗
QPI 15: PreTreat Diag - Rad Radio	75% 61.6%	✗
QPI 16: Brain Imaging	95% 88.6%	✗

Areas for Improvement

MCN will coordinate further regional analysis to better understand variance in performance in relation to :-

- QPI 4: PET CT in Patients Being Treated with Curative Intent
- QPI 5: Invasive Investigation of Intrathoracic Nodal Staging
- QPI 11: SACT in NSCLC patients.
- QPI 15: Pre Treatment Diagnosis
- QPI 16: Brain Imaging

Key Achievements

QPI results indicate that overall the quality of lung cancer services across the WoS is good. Particular areas of note include:-

- 26% of patients with NSCLC undergo surgical resection with 72% of stage I-II NSCLC cases undergoing surgical resection.
- Over 90% of patients with NSCLC have a pathological subtype identified, oncogenic mutation profiling undertaken and PDL-1 testing undertaken.
- 91% of patients having adequate sampling of lymph nodes.
- 80% of SCLC patients received chemotherapy +/- radiotherapy and of the SCLC patients not receiving treatment with curative intent 77% received palliative chemotherapy

Executive Summary

Introduction

This report presents an assessment of performance of West of Scotland (WoS) Lung Cancer Services relating to patients diagnosed in the region between 01 January 2021 and 31 December 2021. Data was measured against v4.0 of the Lung Cancer Quality Performance Indicators (QPIs)¹. This was the ninth consecutive year of analysis following the initial Healthcare Improvement Scotland (HIS) publication of Lung cancer QPIs in 2012.

In order to ensure the success of the Cancer QPIs in driving quality improvement in cancer care, QPIs will continue to be assessed and amended to ensure they remain clinically effective and relevant. The initial formal review of the Lung Cancer QPIs took place in 2016. Following a second cycle of review v4.0 QPI definitions were published in February 2021. These clinically led reviews involve key clinicians from each of the Regional Cancer Networks.

Results

Results for each QPI are shown in detail in the main report and illustrate Board performance against each target and overall WoS performance for each performance indicator. Results are presented graphically and the accompanying tabular format also highlights any missing data and its possible effect on any of the measured outcomes. Additional narrative and clinical commentary is also provided in the main report to explain some of the apparent variances in performance.

A summary of the Lung Cancer Quality Performance Indicators for the patients diagnosed in 2021 is presented below. Data are analysed by location of diagnosis and illustrate Board performance against each target and overall regional performance for each performance indicator.

As patients within NHS Greater Glasgow and Clyde are managed by 4 MDTs, the NHSGGC figures are also shown broken down by analysis group - North Glasgow (Glasgow Royal Infirmary and Stobhill), South Glasgow (Queen Elizabeth University Hospital, New Victoria Hospital and Gartnavel General Hospital), and Clyde (Royal Alexandra Hospital, Vale of Leven Hospital, and Inverclyde Royal Hospital).

3 Year Summary of Lung Cancer QPI Results

Lung Cancer QPI Performance Summary Report

Clinical Leads:	
Date:	
Audit Reporting Period:	01/01/2021 – 31/12/2021

Key	
	Above Target Result
	Below Target Result
-	No comparable measure for previous years

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 1: Proportion of patients with lung cancer who are discussed at MDT meeting.	95%	2021	99.7% (375/376)	98% (264/269)	99.6% (470/472)	98% (430/438)	98% (555/566)	98% (401/410)	99% (2495/2531)
		2020	99.7%	99%	99.5%	100%	99%	98%	99%
		2019	94%	96%	97%	95%	97%	61%	91%
QPI 2(i): Proportion of patients with lung cancer who have a pathological diagnosis.	80%	2021	76% (197/259)	78% (132/169)	84% (246/294)	83% (228/275)	76% (282/372)	81% (210/261)	79% (1295/1630)
		2020	75%	80%	82%	82%	79%	79%	80%
		2019	69%	63%	72%	75%	69%	73%	71%
QPI 2(ii): Proportion of patients with a pathological diagnosis of non small cell lung cancer (NSCLC) who have tumour subtype identified.	90%	2021	95% (175/184)	93% (116/125)	95% (241/255)	92% (207/226)	91% (250/275)	95% (192/203)	93% (1181/1268)
		2020	97%	86%	95%	93%	93%	90%	93%
		2019	96%	91%	94%	91%	92%	91%	92%

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 2(iii): Proportion of patients with a pathological diagnosis of non-squamous non small cell lung cancer (NSCLC) who have oncogenic mutation profiling undertaken	80%	2021	94% (72/77)	89% (62/70)	94% (107/114)	100.0% (89/89)	95% (109/115)	95% (77/81)	95% (516/546)
		2020							
		2019							
QPI 2(iv): Proportion of patients with a pathological diagnosis of NSCLC who have PD-L1 testing undertaken.	80%	2021	92% (107/117)	91% (87/96)	95% (163/172)	99% (143/144)	94% (168/178)	94% (125/133)	94% (793/840)
		2020	98%	85%	93%	94%	92%	95%	93%
		2019							
QPI 4: Proportion of patients with non small cell lung cancer (NSCLC) who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment, where the report is available within 10 days of radiology request.	95%	2021	1% (1/70)	9% (4/46)	2% (2/88)	36% (38/107)	37% (42/115)	8% (7/91)	18% (94/517)
		2020							
		2019							
QPI 5: Proportion of patients with NSCLC undergoing treatment with curative intent who have a PET CT scan that shows enlarged or positive hilar / mediastinal / supraclavicular fossa (SCF) nodes, that have invasive nodal staging (assessment / sampling) performed and nodes sampled.	80%	2021	65% (11/17)	62% (8/13)	78% (21/27)	84% (31/37)	68% (28/41)	50% (15/30)	69% (114/165)
		2020							
		2019							
QPI 6(i): Proportion of patients with NSCLC who undergo surgical resection.	20%	2021	27% (49/184)	18% (23/125)	23% (58/255)	30% (67/225)	26% (70/275)	28% (57/201)	26% (324/1265)
		2020	27%	26%	31%	36%	25%	28%	29%
		2019	28%	31%	34%	35%	27%	22%	30%

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 6(ii): Proportion of patients with stage I – II NSCLC who undergo surgical resection.	60%	2021	80% (43/54)	70% (19/27)	65% (42/65)	76% (59/78)	69% (56/81)	73% (47/64)	72% (266/369)
		2020	75%	74%	75%	81%	73%	73%	76%
		2019	90%	77%	83%	79%	86%	73%	82%
QPI 7: Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes performed at time of surgical resection or at previous mediastinoscopy.	80%	2021	81% (29/36)	95% (19/20)	98% (47/48)	94% (51/54)	86% (51/59)	91% (39/43)	91% (236/260)
		2020	95%	92%	96%	86%	85%	93%	90%
		2019	86%	98%	94%	86%	88%	89%	90%
QPI 8: Proportion of patients with stage I-IIIa lung cancer not undergoing surgery who receive radiotherapy with radical intent (54Gy or greater) ± chemotherapy, or SABR.	35%	2021	44% (32/72)	53% (35/66)	39% (31/80)	42% (42/99)	45% (73/163)	50% (46/92)	45% (259/572)
		2020	49%	20%	49%	56%	56%	47%	49%
		2019	32%	24%	38%	42%	37%	38%	36%
QPI 9: Proportion of patients with stage IIIa PS 0-1 NSCLC not undergoing surgery who receive radical radiotherapy, to 54Gy or greater, and concurrent or sequential chemotherapy.	50%	2021	60% (3/5)	33% (3/9)	71% (5/7)	50% (5/10)	56% (5/9)	38% (3/8)	50% (24/48)
		2020	-	n/a	20%	50%	50%	-	38%
		2019	-	-	29%	67%	78%	50%	54%
QPI 10: Proportion of patients with limited stage SCLC treated with radical intent who receive both platinum-based chemotherapy, and radiotherapy to 40Gy or greater.	70%	2021	n/a	-	-	-	-	-	90% (9/10)
		2020	-	-	-	-	-	n/a	60%
		2019	-	-	50%	57%	64%	59%	57%

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 11(i): Proportion of patients with NSCLC who receive systemic anti cancer therapy (SACT)	35%	2021	36% (45/125)	49% (45/92)	43% (76/179)	43% (63/145)	40% (73/185)	31% (41/131)	40% (343/857)
		2020							
		2019							
QPI 11(ii): Proportion of patients with stage IIIB - IV NSCLC that have an oncogenic driver mutation who receive targeted therapy.	80%	2021	-	-	100% (7/7)	80% (4/5)	71% (5/7)	-	78% (21/27)
		2020							
		2019							
QPI 11(iii): Proportion of patients with stage IIIB – IV NSCLC with performance status 0-2 not undergoing surgery that are oncogene mutation negative who receive immunotherapy.	40%	2021	17% (8/48)	64% (21/33)	54% (27/50)	42% (22/53)	47% (26/55)	48% (19/40)	44% (123/279)
		2020							
		2019							
QPI 12(i): Proportion of patients with SCLC who receive chemotherapy ± radiotherapy.	70%	2021	78% (21/27)	100% (15/15)	81% (34/42)	77% (33/43)	88% (37/42)	63% (20/32)	80% (160/201)
		2020	85%	75%	82%	71%	83%	76%	79%
		2019	84%	86%	78%	75%	79%	79%	79%
QPI 12(ii): Proportion of patients with SCLC not undergoing treatment with curative intent who receive palliative chemotherapy.	50%	2021	76% (19/25)	100% (10/10)	80% (32/40)	74% (26/35)	87% (32/37)	59% (17/29)	77% (136/176)
		2020	76%	78%	79%	64%	77%	72%	74%
		2019	78%	86%	72%	69%	76%	69%	75%

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 13: 30 day mortality (surgery). Proportion of patients with lung cancer who die within 30 days of surgery for lung cancer.	< 5%	2021	2% (1/53)	0% (0/25)	0% (0/61)	3% (2/68)	0% (0/76)	2% (1/61)	1% (4/344)
		2020	0%	0%	2%	0%	2%	2%	1%
		2019	2%	0%	1%	0%	2%	2%	1%
QPI 13: 90 day mortality (surgery). Proportion of patients with lung cancer who die within 90 days of surgery for lung cancer.	< 5%	2021	4% (2/52)	4% (1/25)	2% (1/61)	3% (2/68)	1% (1/75)	2% (1/59)	2% (8/340)
		2020	0%	3%	2%	1%	2%	3%	2%
		2019	2%	2%	2%	1%	2%	2%	2%
QPI 13: 30 day mortality (radical radiotherapy). Proportion of patients with lung cancer who die within 30 days of radical radiotherapy for lung cancer.	< 5%	2021	0% (0/29)	3% (1/37)	3% (1/33)	0% (0/45)	0% (0/78)	2% (1/57)	1% (3/279)
		2020	0%	0%	2%	2%	0%	6%	2%
		2019	3%	0%	2%	0%	0%	2%	1%
QPI 13: 90 day mortality (radical radiotherapy). Proportion of patients with lung cancer who die within 90 days of radical radiotherapy for lung cancer	< 5%	2021	4% (1/28)	3% (1/36)	9% (3/33)	0% (0/44)	3% (2/75)	2% (1/57)	3% (8/273)
		2020	3%	7%	5%	4%	4%	9%	5%
		2019	7%	5%	9%	4%	6%	7%	6%
QPI 13: 30 day mortality (radical chemoradiotherapy). Proportion of patients with lung cancer who die within 30 days of radical chemoradiotherapy for lung cancer.	< 5%	2021	0% (0/6)	0% (0/9)	0% (0/13)	0% (0/22)	7% (1/15)	0% (0/8)	1% (1/73)
		2020	0%	-	10%	0%	4%	0%	3%
		2019							

Quality Performance Indicator (QPI)	Performance by NHS Board								
	Target	Year	AA	FV	Lan	NG	SG	Clyde	WoS
QPI 13: 90 day mortality (radical chemoradiotherapy). Proportion of patients lung cancer who die within 90 days of radical chemoradiotherapy for lung cancer.	< 5%	2021	0% (0/6)	0% (0/9)	8% (1/12)	5% (1/22)	7% (1/15)	25% (2/8)	7% (5/72)
		2020	0%	-	10%	0%	12%	13%	7%
		2019							
QPI 14: SABR in inoperable stage I lung cancer. Proportion of patients with stage I lung cancer not undergoing surgery who receive SABR.	35%	2021	47% (15/32)	36% (11/31)	24% (9/37)	35% (18/52)	40% (36/89)	38% (18/47)	37% (107/288)
		2020	50%	17%	35%	48%	45%	43%	42%
		2019	45%	23%	28%	38%	34%	41%	35%
QPI 15(i): Pre-treatment Diagnosis. Proportion of patients who receive curative treatment that have a histological/cytological diagnosis prior to surgery.	75%	2021	70% (37/53)	60% (15/25)	82% (50/61)	74% (50/68)	76% (57/75)	62% (38/61)	72% (247/343)
		2020	52%	60%	55%	55%	73%	54%	59%
		2019	46%	37%	56%	59%	67%	57%	56%
QPI 15(ii): Pre-treatment Diagnosis. Proportion of patients who receive curative treatment that have a histological/cytological diagnosis prior to radical radiotherapy.	75%	2021	55% (17/31)	62% (21/34)	79% (26/33)	66% (29/44)	52% (37/71)	64% (35/55)	62% (165/268)
		2020	60%	73%	76%	47%	52%	53%	58%
		2019	48%	90%	79%	62%	54%	82%	67%
QPI 16: Brain Imaging. Proportion of patients with N2 disease who receive curative treatment that undergo contrast enhanced CT or contrast enhanced MRI prior to start of definitive treatment.	95%	2021	50% (5/10)	75% (6/8)	100% (16/16)	93% (14/15)	91% (20/22)	100% (17/17)	89% (78/88)
		2020	43%	38%	100%	93%	91%	75%	82%
		2019	42%	46%	100%	81%	73%	60%	70%

(-) dash denotes a denominator of less than 5. Figures have been removed to ensure confidentiality.

Conclusions and Action Required

Cancer audit has underpinned much of the regional development and service improvement work of the MCN. Regular reporting of activity and performance have been fundamental in assuring the quality of care delivered across the region. Following the initial development of QPIs in 2012, it has now become a firmly established national programme which drives continuous improvement and ensures equity of care for patients across Scotland.

West of Scotland Boards' commitment to the improvement of the quality and completeness of audit data has provided continued support to the National Cancer Quality Programme. This on-going commitment from Boards has provided accurate data for the reporting of performance against the Lung Cancer QPIs, and enabled comparisons in service provision across WoS Boards to be made.

The Lung Cancer MCN is encouraged by the continued support and commitment of Network members to deliver a high quality service to lung cancer patients across the WoS. The results presented in this report demonstrate that patients with lung cancer receive a consistent standard of care across all geographical locations. Case ascertainment and data capture is of a high standard enabling robust assessment of performance against QPIs.

Some variance in performance was evident across the region, even if targets were met. As per the agreed regional governance process when performance is below the QPI target, NHS Boards were asked to review possible reasons for this and provide a detailed response. It is acknowledged that the covid-19 pandemic and the impact that it had on service provision will likely have had an impact on the ability of NHS boards to meet QPI targets.

Whilst the MCN will actively progress any regional actions identified, NHS Boards are asked to develop local Improvement Plans in response to the findings presented in this report, these are detailed within the appropriate NHS Board Action Plan templates in Appendix 3.

Action Required:

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

- MCN to explore increase in provision of pre-scheduled PET CT slots with rapid reporting turn around (PETiTe) across WoSCAN region to align with lung cancer clinics and MDT meetings.

QPI 5: Invasive Investigation of Intrathoracic Staging.

- MCN to propose an amendment to the wording of QPI 5 at the next Formal Review meeting to ensure that the indicator accurately reflects current practice nationally.
- MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the region and explore the potential for a second line service for difficult staging procedures, including provision of general anaesthetic or deep sedation.
- NHS AA to review current pathway pertaining to staging investigations, identifying any barriers and actions required to resolve these.

QPI 7: Lymph node assessment

- MCN to consider required amendments to this QPI ahead of the next national Formal Review and formulate a fully worked up proposal for national consideration.

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

- NHS AA to review the assignment of performance status at MDT to ensure this accurately reflects patient fitness.
- NHS AA to review local practice with regards to the documentation of chemo-immunotherapy to ensure accurate reporting of performance going forward.
- MCN to consider refinements required to the QPI to account for decline in performance status between MDT and oncology treatment decision.

QPI 15: Pre Treatment Diagnosis.

- MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the region and/or offering a regional additional capacity second line CT biopsy service for difficult or higher risk CT biopsy procedures.

QPI 16: Brain Imaging.

- NHS FV to review MDT process to help to ensure brain imaging is carried out prior to patients commencing definitive treatment. MCN will continue to monitor progress in this area.
- MCN to propose an amendment to the QPI at the next Formal Review meeting as it no longer adheres to clinical best practice. NICE guidelines now recommend that patients with stage 2 and 3 lung cancer receive brain imaging.
- All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.

Completed Action Plans should be returned to WoSCAN in a timely manner to allow the plans to be reviewed at the Regional Cancer Oversight Group.

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

1. Introduction

This report presents an assessment of performance of West of Scotland (WoS) Lung Cancer Services relating to patients diagnosed in the region between 01 January 2021 and 31 December 2021. These audit data underpin much of the regional development/service improvement work of the Managed Clinical Network (MCN) and regular reporting of activity and performance is a fundamental requirement of an MCN to assure the quality of care delivered across the region.

In order to ensure the success of the Cancer QPIs in driving quality improvement in cancer care, QPIs will continue to be assessed and amended to ensure they remain clinically effective and relevant. The initial formal review of the Lung Cancer QPIs took place in 2016. Following a second cycle of review v4.0 QPI definitions were published in February 2021 with changes implemented for patients diagnosed from January 2020. These clinically led reviews involve key clinicians from each of the Regional Cancer Networks.

2. Background

Lung cancer patients usually present to a respiratory physician, although a significant sub group are referred by other clinicians, e.g. care of the elderly, and increasingly there is cross referral to lung cancer Multidisciplinary Team (MDT) meetings.

There are 7 lung cancer MDTs which operate around 8 outpatient clinics serving 2.5 million people across four NHS Boards - NHS Ayrshire & Arran, NHS Forth Valley, NHS Greater Glasgow and Clyde (NHSGGC), and NHS Lanarkshire. Surgical services are provided centrally at the Golden Jubilee National Hospital (GJNH).

Table 1 lists the MDTs by NHS Board area, and includes the analysis group based on location of diagnosis, which has been used to present results throughout the report.

Table 1: Lung Cancer MDT Configuration in the WoS

MDT	Analysis Group (location of diagnosis)	NHS Board Area
Crosshouse & Ayr	Ayrshire & Arran (AA)	NHS Ayrshire & Arran
Forth Valley Royal Hospital	Forth Valley (FV)	NHS Forth Valley
Pan Lanarkshire	Lanarkshire (LS)	NHS Lanarkshire
Clyde	Clyde (Clyde)	NHS Greater Glasgow and Clyde
North East Glasgow	North Glasgow (NG)	
West Glasgow	South Glasgow (SG)	
South Glasgow		

2.1 National Context

Lung cancer continues to be the most common cancer (16.2% of all cancers) in Scotland, with approximately 5,000 new cases diagnosed each year⁽²⁾. Nationally lung cancer accounts for 15.9% of male cancer patients and 16.6% of female cancer patients⁽²⁾. Lung cancer incidence rates in females show a 5.9% decrease over the last ten years; and the long term decline in incidence of male lung cancer has continued with a significant fall in incidence of 22.8% over the same time period⁽¹⁾.

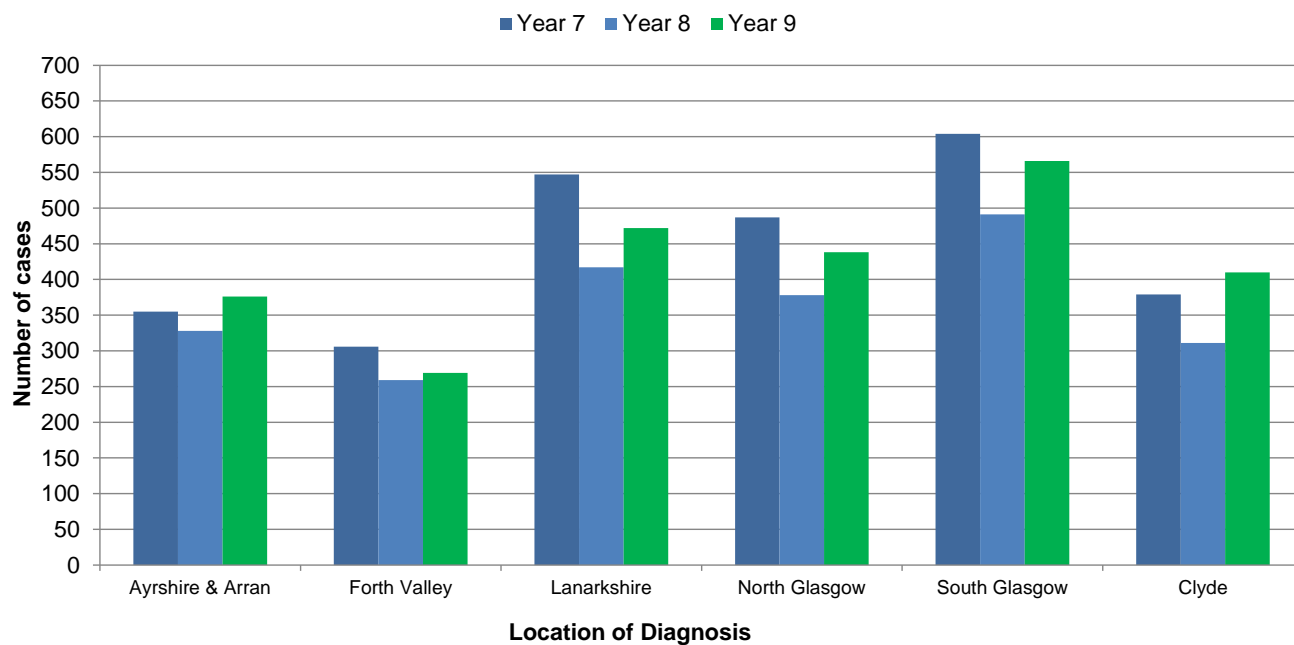
Overall cancer mortality rates have decreased in Scotland by 13.1% in males and 7% in females over the last 10 years. The mortality rate for females with lung cancer has decreased by 12% and by 25.7% for males, despite this, lung cancer continues to have the highest annual mortality rate of all cancers in Scotland⁽²⁾.

Regardless of more patients having opportunities for anti-cancer therapy beyond initial treatment, second and third line treatments are now available; the low survival rate is often attributed to advanced stage of disease at presentation. Data shows that for patients diagnosed between 2013 – 2017 1 year net survival was 35.2% in males and 41.7% in females, 5 year net survival drops to 11.1% and 16.3% for males and females respectively⁽³⁾.

2.2 West of Scotland Context

A total of 2531 cases of lung cancer were recorded through audit as diagnosed in the WoS in 2021. The number of patients diagnosed within each NHS Board is presented in Figure 1.

Figure 1: Distribution of Lung Cancer Cases in the WoS



	AA	FV	Lan	NG	SG	Clyde	WoS
Year 7_2019	355	306	547	487	604	379	2678
Year 8_2020	328	259	417	378	491	311	2184
Year 9_2021	376	269	472	438	566	410	2531

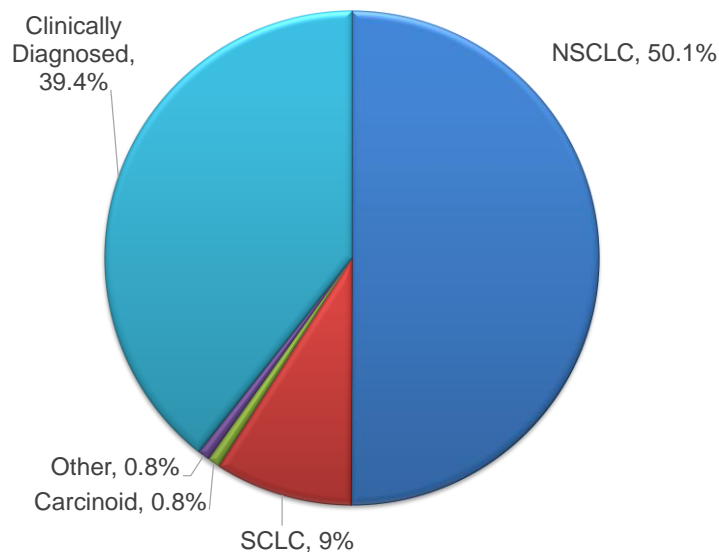
Age and Gender Distribution

As above there were 2,531 new diagnoses of cancer recorded in the WoS in 2021. Of these 1,191 (47%) diagnosed were male and 1,340 (53%) female. Lung cancer continues to be more prevalent in patients aged 60 years and over with 89% of the total cases occurring in patients within this group.

Types of Lung Cancer

Of the lung cancer cases diagnosed in 2021 around 50% were non-small cell lung cancers (NSCLC) and 9% were small cell lung cancers (SCLC). The remaining cases of lung cancer recorded were made up of classifications shown in Figure 2.

Figure 2: Types of Lung Cancer in the WoS



Stage at Diagnosis

Staging is the assessment of the extent of disease and is performed for prognostic and therapeutic purposes. TNM 8 staging was used to stage all lung cancers during 2021.

Figure 3: Stage at Diagnosis of Lung Cancer Patients

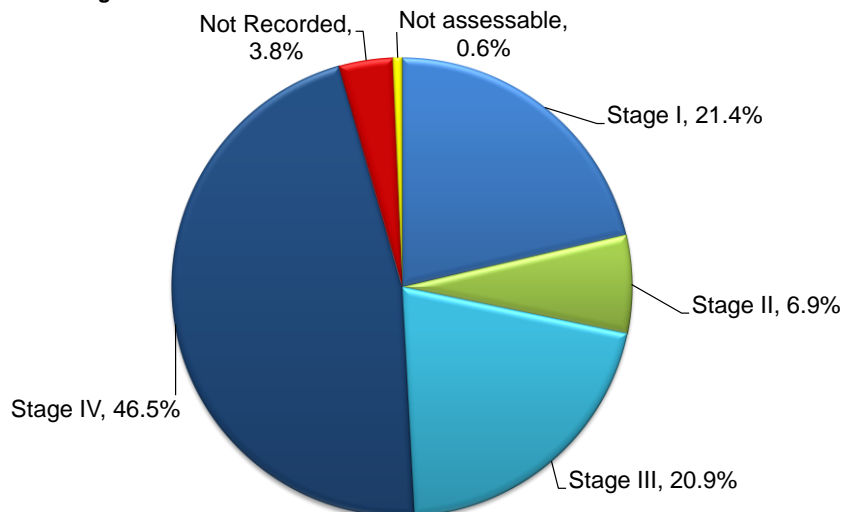
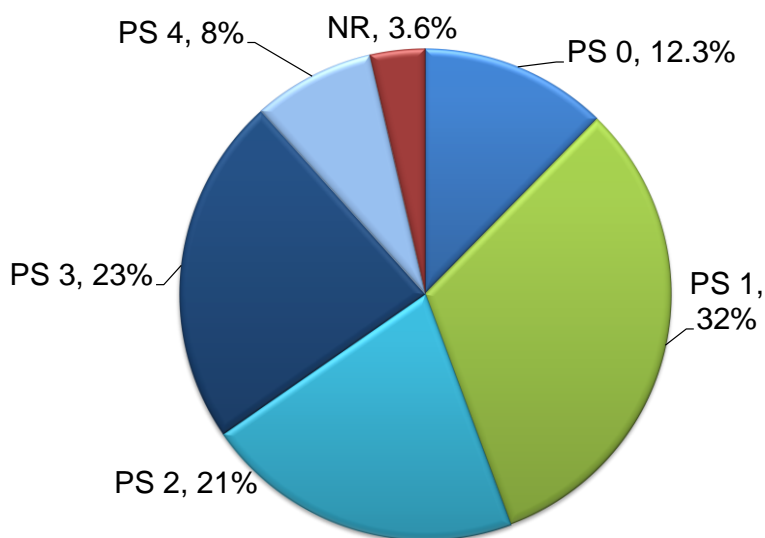


Figure 3 shows the presenting stage distribution of all lung cancer patients; 67.4% of patients in the WoS presented with advanced disease, stage III or IV.

Performance Status

Figure 4 shows the pre-treatment WHO/ECOG performance status distribution of all lung cancer patients; 31% of patients in the WoS presented with poor performance status, 3 or 4.

Figure 4: Performance Status of Lung Cancer Patients



3. Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within appendix 1.

4. Results and Action Required

4.1 Performance against Quality Performance Indicators (QPIs)

Results of the analysis of Lung Cancer QPIs are set out in the following sections. Graphs and charts have been provided where this aids interpretation and, where appropriate, numbers have also been included to provide context. Where possible, and with consideration given to any changes after formal review, results for patients diagnosed in Year 8 have been presented alongside the previous years' results to illustrate trends.

Data (both graphically and in tabular format) are presented by location of diagnosis or location of treatment with some criteria given as an overall WoS representation. Boards have already reviewed cases where targets have not been met, and the detailed clinical commentary provided by Boards is noted beside each measure along with details of any specific changes that have already been implemented to address issues highlighted through the analysis.

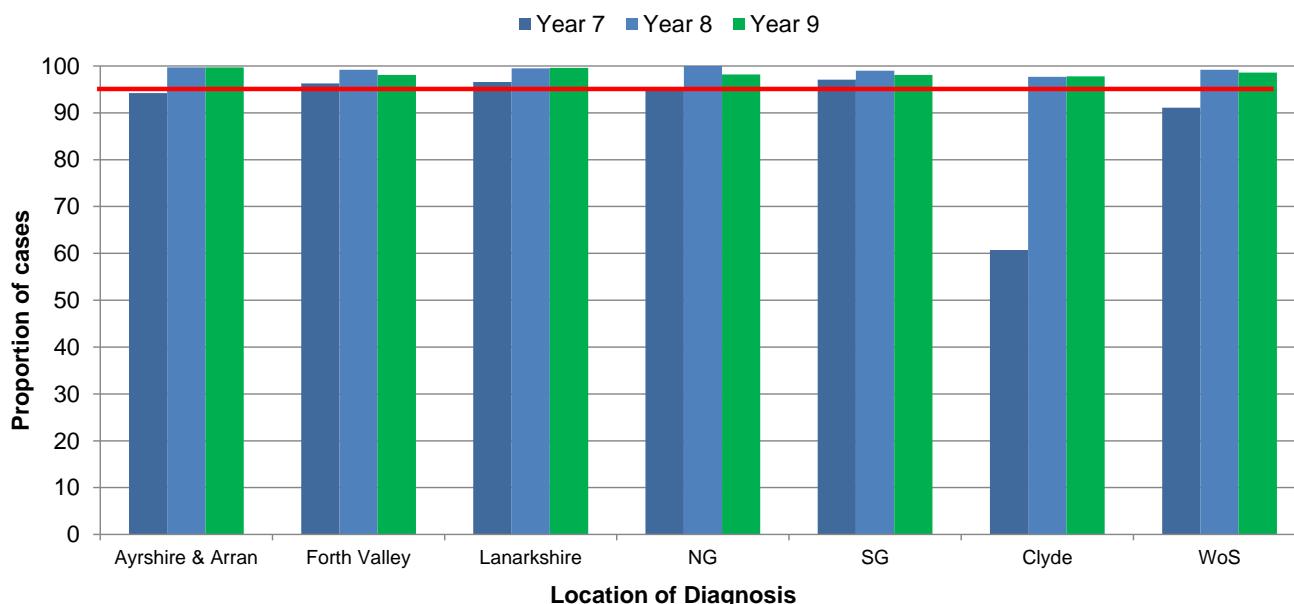
Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this are denoted with a dash (-). Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement. An asterisk (*) is applied to indicate a denominator of zero and to distinguish between this and a 0% performance.

QPI 1: Multi-Disciplinary (MDT) Meeting

Evidence suggests that patients with cancer managed by a multi-disciplinary team have a better outcome. There is also evidence that the multidisciplinary management of patients increases their overall satisfaction with their care. QPI 1 states that 95% of patients should be discussed at the MDT.

Title:	Patients with newly diagnosed lung cancer should be discussed by a MDT.
Numerator:	Number of patients with lung cancer discussed at the MDT.
Denominator:	All patients with diagnosed lung cancer.
Exclusions:	No exclusions.
Target:	95% or above

Figure 5: The proportion of patients discussed at MDT.



QPI 1 Target: 95%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	99.7%	98.1%	99.6%	98.2%	98.1%	97.8%	98.6%
Numerator	375	264	470	430	555	401	2495
Denominator	376	269	472	438	566	410	2531
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	0	0
NR denominator	0	0	0	0	0	0	0

The overall performance against QPI 1 for the WoS was 98.6%, with all Boards meeting the 95% target.

QPI 2 (i), (ii), (iii) & (iv): Pathological Diagnosis

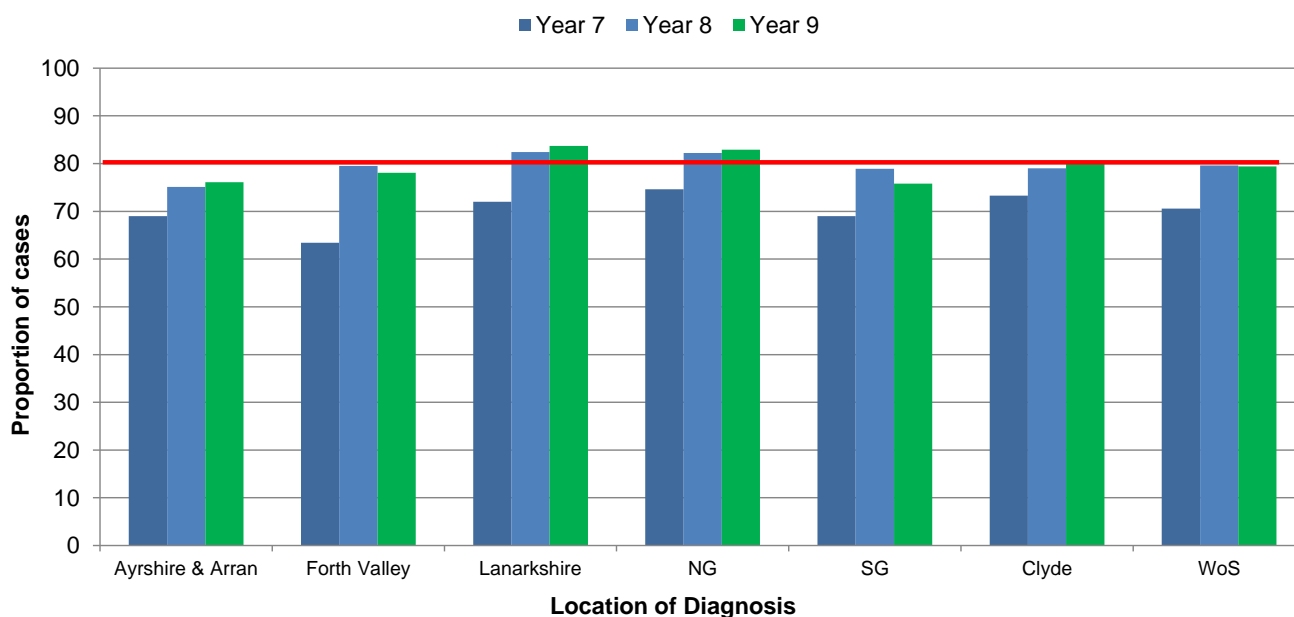
A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice¹.

Appropriate treatment of lung cancer depends on accurate diagnosis and distinction between histological types of lung cancer. Adequate tissue sampling should be undertaken, ensuring appropriate balance of risk to patients, to allow for pathological diagnosis including tumour sub-typing and molecular profiling. Newer drug treatments for Non Small Cell Lung Cancer (NSCLC) work best if they are targeted on the basis of histological sub-type and/or molecular profiling. These markers predict whether targeted treatments are likely to be effective and include, for example, epidermal growth factor receptor mutations¹.

QPI 2 is split into 4 sub-groups. The first group looks at all patients with lung cancer who have a pathological diagnosis. The target for this QPI is set at 80% and the tolerance within the target is designed to take account of the fact that it is not always appropriate, safe or possible to obtain a histological or cytological diagnosis due to the performance status of the patient or advanced nature of the disease. In patients where pathological diagnosis is appropriate this should be achieved wherever possible.

Title:	(i): Patients with lung cancer who have a pathological diagnosis.
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 decline investigations or surgical resection Patients with Performance status 3 or 4
Target:	80% or above

Figure 6: The proportion of patients who have a pathological diagnosis of lung cancer.



QPI 2(i) Target: 80%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	76.1%	78.1%	83.7%	82.9%	75.8%	80.5%	79.4%
Numerator	197	132	246	228	282	210	1295
Denominator	259	169	294	275	372	261	1630
NR numerator	0	0	0	0	0	0	0
NR exclusions	1	0	25	8	26	10	70
NR denominator	0	0	0	0	0	0	0

Overall in the WoS 79.4% of patients diagnosed with lung cancer had a pathological diagnosis, which is marginally below the 80% target. NHSLS, NHSGGC North and Clyde sectors all achieved the target with performance in all other boards above 75%

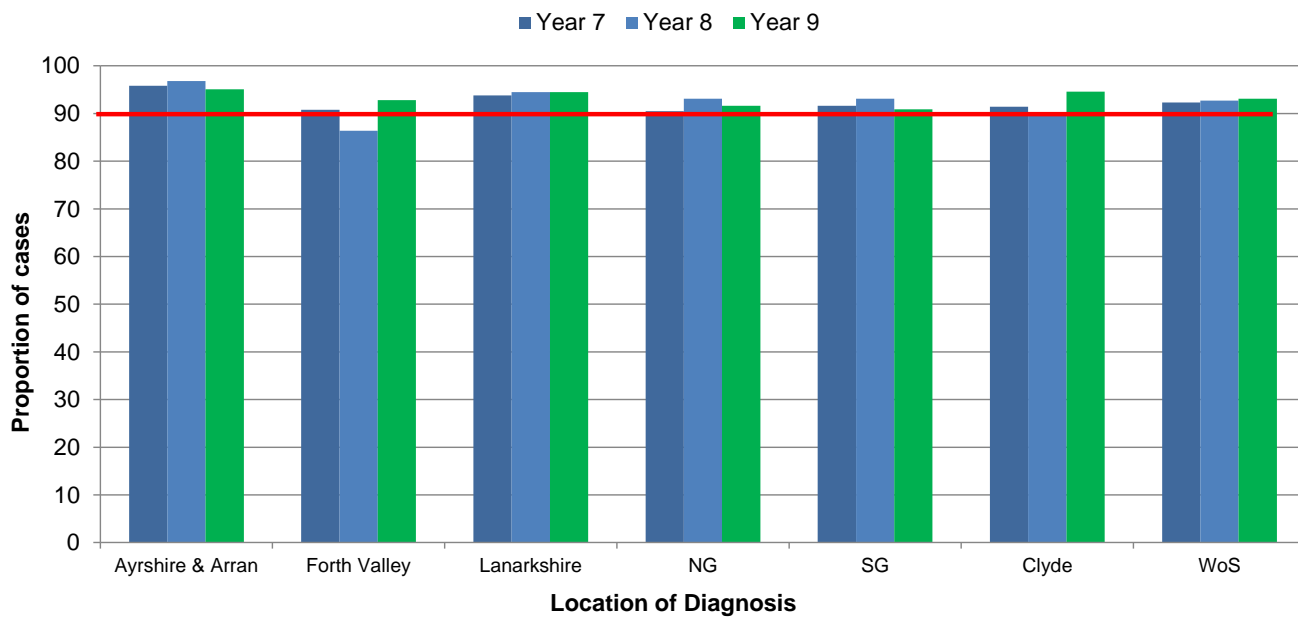
NHSAA commented that they continue to treat a large number of early stage cancers with SABR without tissue if radiologically strong evidence of malignancy. If pre-op biopsy is not possible they will endeavour to do frozen section but this is not always possible. Some of these patients will have had an attempted biopsy but non-diagnostic or technically not possible.

NHSFV reviewed all cases that missed the target noting that while performance is just below the target, improvement from 2018 & 2019 data is noted and the 2021 result is similar to 2020 data.

NHSGGC South sector commented that reasons for patients not meeting the QPI included patients that were contraindicated due to risk/comorbidity, patients that died before investigation, negative pathology, patients not fit for investigation, cases where biopsy was technically not possible and cases where tissue sampling would not have altered management.

Title:	(ii): Patients with a pathological diagnosis of non small cell lung cancer (NSCLC) who have tumour subtype identified
Numerator:	Number of patients with a pathological diagnosis of NSCLC who have a tumour subtype identified.
Denominator:	All patients with a pathological diagnosis of NSCLC.
Exclusions:	No exclusions
Target:	90% or above

Figure 7: The proportion of patients with a pathological diagnosis of NSCLC who have tumour subtype identified.

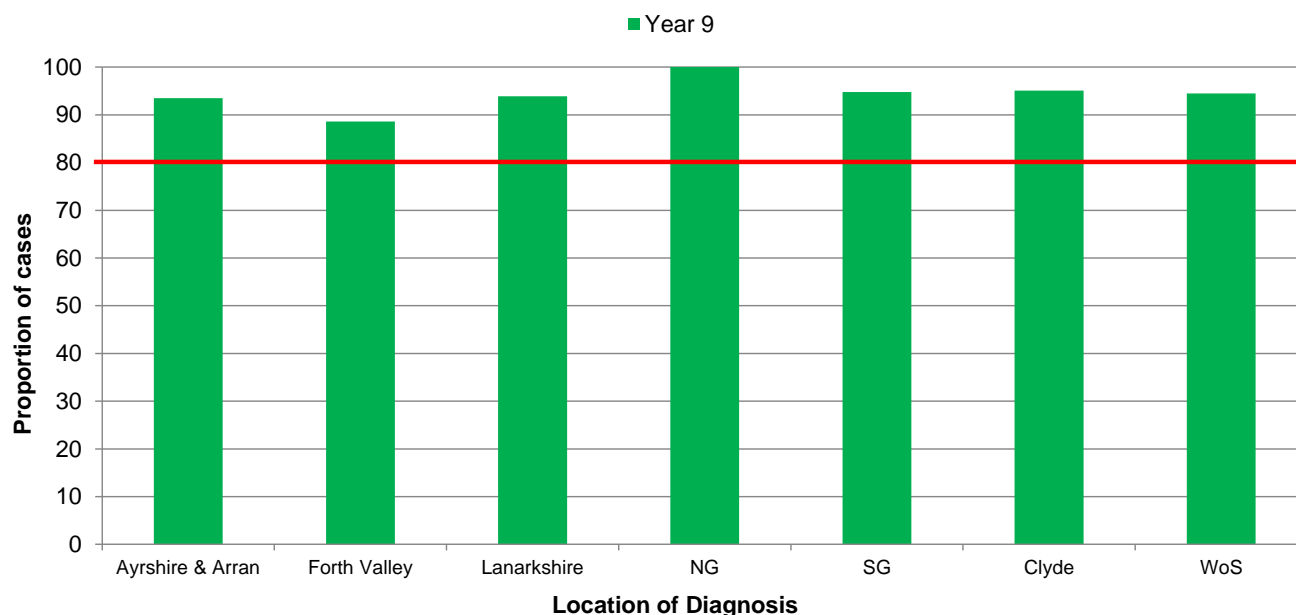


QPI 2(ii) Target: 90%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	95.1%	92.8%	94.5%	91.6%	90.9%	94.6%	93.1%
Numerator	175	116	241	207	250	192	1181
Denominator	184	125	255	226	275	203	1268
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	0	0
NR denominator	1	0	0	0	0	0	0

Of the 1268 patients with a pathological diagnosis of NSCLC, 1181 patients are recorded as having a tumour subtype identified resulting in a WoS performance of 93.1% against the 90% QPI target. All units met the QPI target.

Title:	(iii): Patients with a pathological diagnosis of non-squamous non-small cell lung cancer (NSCLC) who have oncogenic mutation profiling undertaken.
Numerator:	Number of patients with a pathological diagnosis of non-squamous non-small cell lung cancer (NSCLC) who have oncogenic mutation profiling undertaken.
Denominator:	All patients with a pathological diagnosis of stage III-IV non-squamous NSCLC.
Exclusions:	Patients with performance status 4.
Target:	80% or above

Figure 8: The proportion of patients with a pathological diagnosis of non-squamous NSCLC who have oncogenic mutation profiling undertaken.



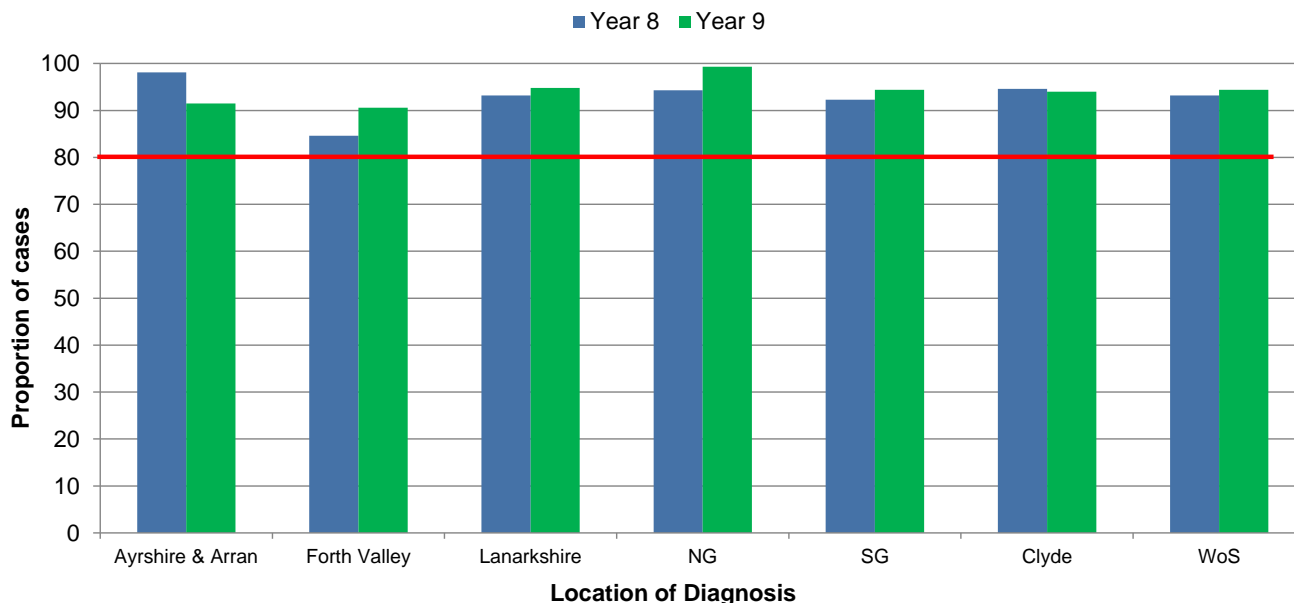
QPI 2(iii) Target: 80%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	93.5%	88.6%	93.9%	100%	94.8%	95.1%	94.5%
Numerator	72	62	107	89	109	77	516
Denominator	77	70	114	89	115	81	546
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	1	0	4	2	7
NR denominator	7	0	8	2	7	0	24

Specification 2(iii) previously looked at the number of patients with a pathological diagnosis of stage IIIB - IV non-squamous NSCLC who had molecular profiling undertaken. Following discussion at formal review the clinical cohort was updated to include stage IIIA cases and also to include those who have broad oncogenic mutation profiling undertaken (includes EGFR, ALK, ROS-1). As this update required new fields to be added to the dataset results for this QPI this is the first year that this QPI can be reported.

Overall, 516 of the 546 patients with a pathological diagnosis of non-squamous non-small cell lung cancer (NSCLC) had oncogenic mutation profiling undertaken, resulting in a performance of 94.5% which meets the 90% target. All units met the QPI target.

Title:	(iv): Patients with a pathological diagnosis of stage III or IV NSCLC who have PDL-1 testing undertaken.
Numerator:	Number of patients with a pathological diagnosis of stage III or IV NSCLC who have PDL-1 testing undertaken.
Denominator:	All patients with a pathological diagnosis of stage III or IV NSCLC.
Exclusions:	Patients with performance status 4.
Target:	80% or above

Figure 9: The proportion of patients with a pathological diagnosis of stage III or IV NSCLC who have PDL-1 testing undertaken.



QPI 2(iv) Target: 80%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	91.5%	90.6%	94.8%	99.3%	94.4%	94.0%	94.4%
Numerator	107	87	163	143	168	125	793
Denominator	117	96	172	144	178	133	840
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	1	0	5	3	9
NR denominator	10	0	11	2	9	0	32

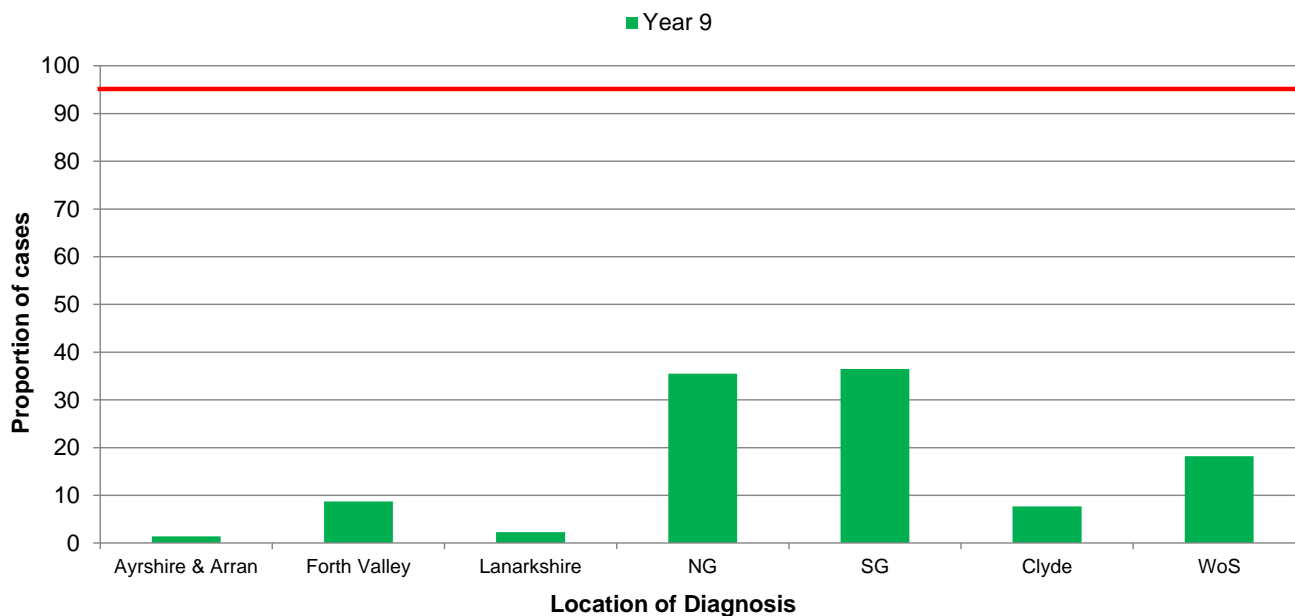
Performance across the WoS was 94.4% against the 80% target with 793 of 840 patients with a pathological diagnosis of stage IIIB or IV NSCLC having PDL-1 profiling undertaken, with all units exceeding the QPI target for the second consecutive year.

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

Accurate staging is important to ensure appropriate treatment is delivered to patients with lung cancer. All patients being considered for radical treatment with curative intent should have a PET CT scan completed and reported before treatment¹.

Title:	Proportion of patients with non small cell lung cancer (NSCLC) who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment, where the report is available within 10 days of radiology request.
Numerator:	Number of patients with NSCLC who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment where the report is available within 10 days of radiology request.
Denominator:	All patients with NSCLC who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment.
Exclusions:	No exclusions.
Target:	95% or above.

Figure 10: The proportion patients with NSCLC who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo PET CT prior to start of treatment, where the report is available within 10 days of radiology request.



QPI 4 Target: 95%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	1.4%	8.7%	2.3%	35.5%	36.5%	7.7%	18.2%
Numerator	1	4	2	38	42	7	94
Denominator	70	46	88	107	115	91	517
NR numerator	2	0	7	0	0	0	9
NR exclusions	0	0	0	0	0	0	0
NR denominator	0	0	0	0	0	1	1

Overall in the WoS 18.2% of patients with NSCLC who were treated with curative intent (radical radiotherapy, chemoradiotherapy or surgical resection) underwent PET CT prior to start of treatment, where the report was available within 10 days of radiology request. This is significantly under the 95% target set for this QPI.

NHSAA commented that all patients received a PET scan, however there was a reporting delay due to service issues at the PET scanning centre.

NHSFV stated that the clinical lead has reviewed all cases that missed the target. The majority of patients did not receive a PET report within 10 days. Of those who failed the QPI criteria, the median reporting time was 18 days ranging between 11-32 days.

NHSLS reviewed all cases not meeting the QPI and reported that pressures within the PET service has caused delays from request to reporting. The Board added that provision needs to be made for patients getting PET scans within this time scale.

NHSGGC commented that poor performance was expected for this QPI and it was outside the control of lung cancer leads. The Board added that better performance in the North and South sectors may reflect availability of 2 weekly PETiTe slots (within a week from request and presence of PET report at MDT), as the Clyde sector only has 1 slot.

Action Required:-

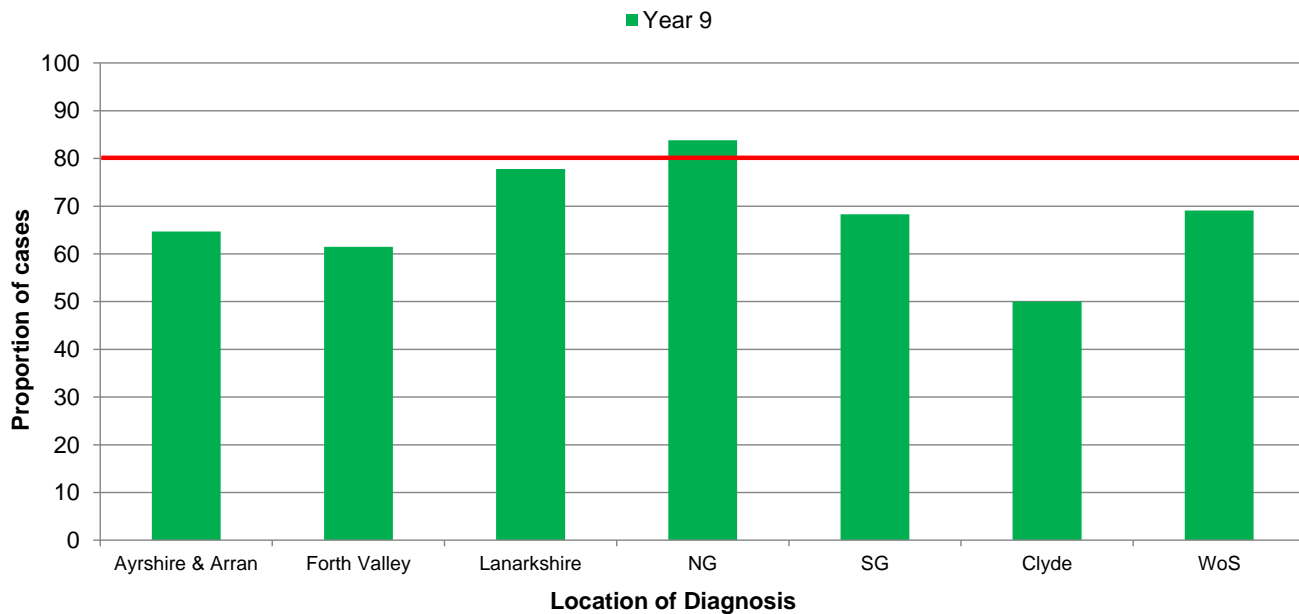
- MCN to explore increase in provision of pre-scheduled PET CT slots with rapid reporting turn around (PETiTe) across WoSCAN region to align with lung cancer clinics and MDT meetings.

QPI 5: Invasive Investigation of Intrathoracic Staging.

Intrathoracic lymph nodes which are positive or enlarged (lymph nodes greater than or equal to 10 mm short axis on CT) should be further evaluated by mediastinal node sampling, where potential curative treatment may be an option. 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. Some patients with PET-CT positive mediastinal nodes may also have PET-CT positive SCF nodes where definite nodal staging could be effectively and safely achieved by SCF node fine needle aspiration or biopsy, and mediastinal nodal sampling would not be required¹.

Title:	Proportion of patients with NSCLC undergoing treatment with curative intent who have a PET CT scan that shows enlarged or positive hilar / mediastinal / supraclavicular fossa (SCF) nodes, that have invasive nodal staging (assessment / sampling) performed and nodes sampled.
Numerator:	Number of patients with NSCLC undergoing treatment with curative intent who have a PET CT scan that shows enlarged or positive hilar / mediastinal / supraclavicular fossa (SCF) nodes, that have invasive nodal staging (assessment / sampling) performed and nodes sampled.
Denominator:	All patients with NSCLC undergoing treatment with curative intent who have a PET CT scan that shows enlarged or positive hilar (N1/N3), mediastinal (N2/N3) or SCF nodes (N3).
Exclusions:	Patients with stage IV (M1, M1a, M1b or M1c) disease. Patients who decline investigation.
Target:	80% or above.

Figure 11: The proportion of patients with NSCLC undergoing treatment with curative intent who have a PET CT scan that shows enlarged or positive hilar / mediastinal / supraclavicular fossa (SCF) nodes, that have invasive nodal staging (assessment / sampling) performed and nodes sampled.



QPI 5 Target: 80%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	64.7%	61.5%	77.8%	83.8%	68.3%	50.0%	69.1%
Numerator	11	8	21	31	28	15	114
Denominator	17	13	27	37	41	30	165
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	2	0	2
NR denominator	0	0	0	0	0	1	1

Overall in the WoS 69.1% of patients with NSCLC who underwent treatment with curative intent who had a PET CT scan that showed enlarged or positive hilar / mediastinal / supraclavicular fossa (SCF) nodes, had invasive nodal staging performed and nodes sampled. Only NHSGGC North sector met the 80% QPI target with performance of 83.8%.

NHSAA reported that two of the six cases had valid reasons not to have mediastinal staging, including one who was initially referred for palliative treatment however was fitter than expected. The remaining four patients should have had mediastinal staging, and plans to ensure patients receive appropriate staging going forward will be discussed with the respiratory team at the upcoming business meeting.

NHSFV reviewed cases and provided detailed reasons for those not meeting the QPI criteria, including cases with equivocal or a single hilar node proceeding direct to surgery, with negative pathology at surgery, nil to sample at neck ultrasound and a single local data recording issue which resulted in one case failing that should have passed the QPI.

NHSLs commented that reasons for patients not meeting the QPI included; cases that were deemed too difficult to reach by EBUS and would be included in radiotherapy field so therefore not sampled, cases who had N1 node very close to tumour and therefore included in radiotherapy field so not sampled and cases that were felt to be unfit for sampling. The Board concluded that all cases were treated appropriately.

NHSGGC commented that all patients were investigated and treated appropriately as dictated by the clinical circumstances.

The QPI results and Board responses (NHSFV, NHSLs) highlight an unmet need in training to provide better EBUS staging. Therefore, the MCN will explore the potential to provide a regional second line service for difficult EBUS / staging EBUS / EBUS in general anaesthetic or deep sedation.

Work to improve training in bronchoscopy and EBUS through development and national delivery of a simulator based training curriculum is underway; 5 bronchoscopy and 3 EBUS simulators will be provided nationally and expert faculty will be recruited to deliver this training regionally in 5 centres, with EBUS training initially delivered centrally at NHS Academy (respiratory trainees and training the trainers), supplemented by biannual courses with combined simulator training and cadaver procedures.

Action Required:

- MCN to propose an amendment to the wording of QPI 5 at the next Formal Review meeting to ensure that the indicator accurately reflects current practice nationally.
- MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the region and explore the potential for a second line service for difficult staging procedures, including provision of general anaesthetic or deep sedation.
- NHS AA to review current pathway pertaining to staging investigations, identifying any barriers and actions required to resolve these.

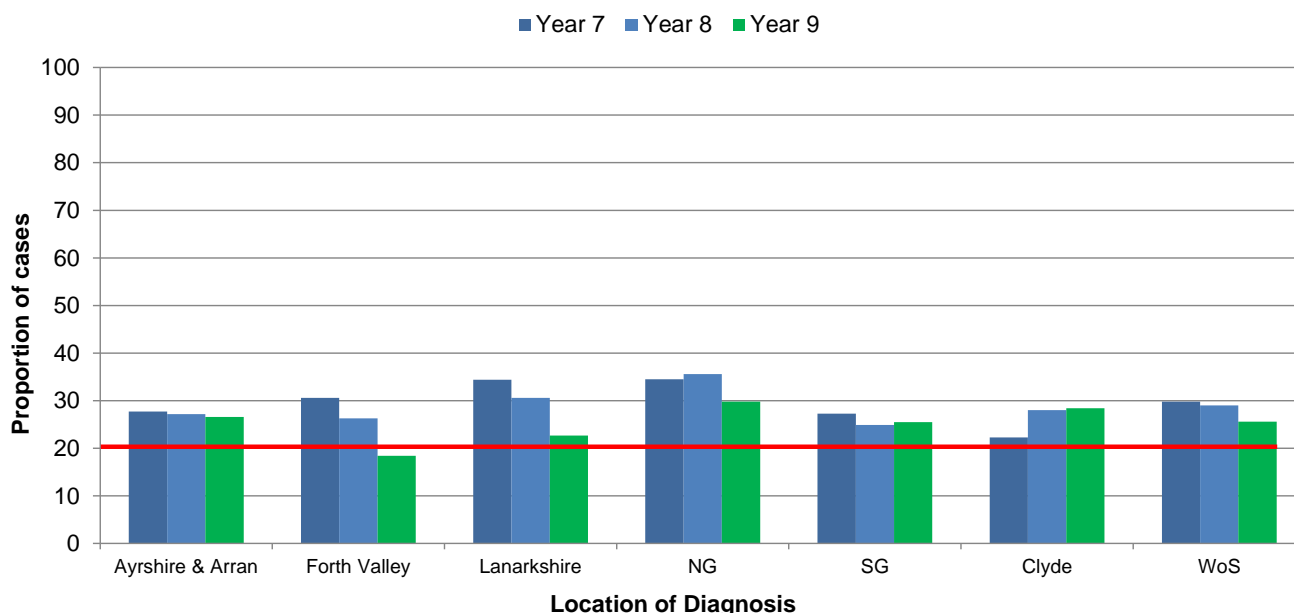
QPI 6: Surgical resection in NSCLC

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 best chance of cure to patients with localised NSCLC¹.

Following formal review the following exclusion categories were removed from both QPI 6 specifications: Patients who refuse surgery and patients who undergo stereotactic ablative radiotherapy (SABR), The QPI tolerance been updated to include patient choice.

Title:	(i) Patients with non small cell lung cancer (NSCLC) should undergo surgical resection
Numerator:	Number of patients with NSCLC who undergo surgical resection.
Denominator:	All patients with NSCLC.
Exclusions:	Patients who die before surgery.
Target:	20% or above.

Figure 12: The proportion of patients with NSCLC who undergo surgical resection.



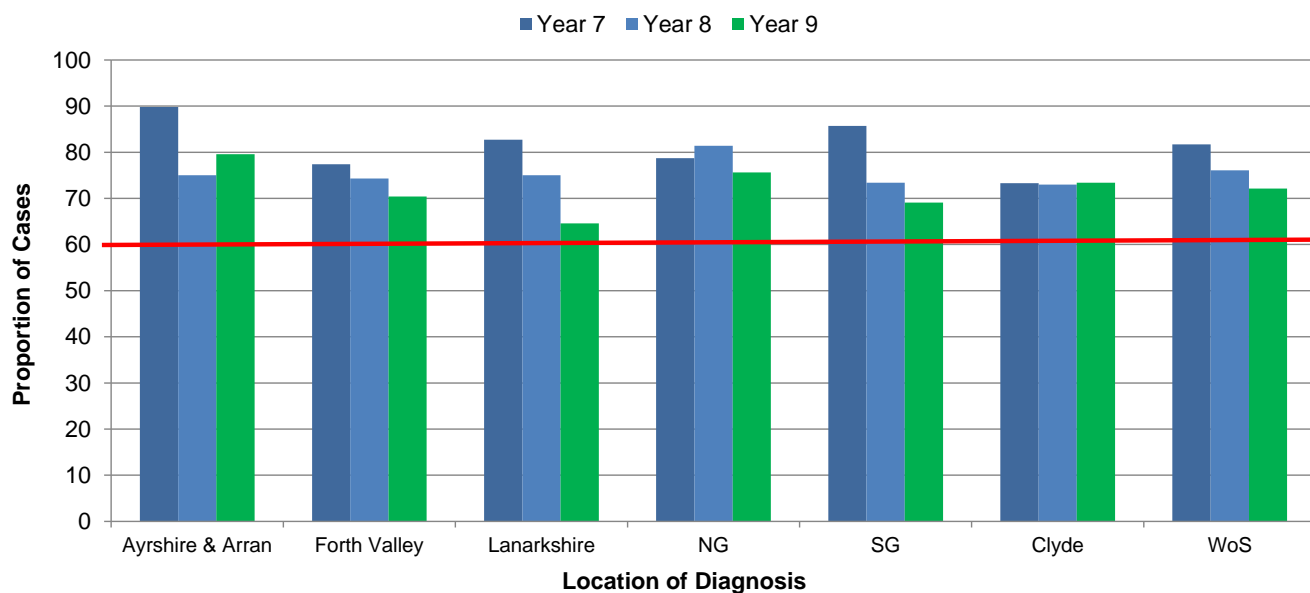
QPI 6(i) Target: 20%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	26.6%	18.4%	22.7%	29.8%	25.5%	28.4%	25.6%
Numerator	49	23	58	67	70	57	324
Denominator	184	125	255	225	275	201	1265
NR exclusions	0	0	0	0	0	0	0
NR denominator	1	0	0	0	0	0	1

Performance across the WoS was 25.6% against the 20% target with 324 of 1265 patients with NSCLC undergoing surgical resection. All units achieved the target with the exception of NHSFV who achieved 18.4%; a decrease of 7.9 percentage points on Year 8 performance.

NHSFV reviewed all cases that missed the target, noting that year to year variability is observed depending on patient cohort e.g. 26% and 31% was achieved in previous years.

Title:	(ii) Patients with stage I-II NSCLC who undergo 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:	All patients who die before surgery.
Target:	60% or above

Figure 13: The proportion of patients with stage I-II NSCLC who undergo surgical resection.



QPI 6(ii) Target: 60%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	79.6%	70.4%	64.6%	75.6%	69.1%	73.4%	72.1%
Numerator	43	19	42	59	56	47	266
Denominator	54	27	65	78	81	64	369
NR exclusions	0	0	0	0	0	0	0
NR denominator	5	0	9	2	9	0	25

Overall in the WoS, 72.1% of patients with stage I-II NSCLC underwent surgical resection, successfully achieving the 60% target. All units achieved the QPI target with performance ranging from 64.6% in NHSLS to 79.6% in NHSAA. However there is a degree variation not explained by stage or deprivation which reflects preference for SABR or radiotherapy over surgery.

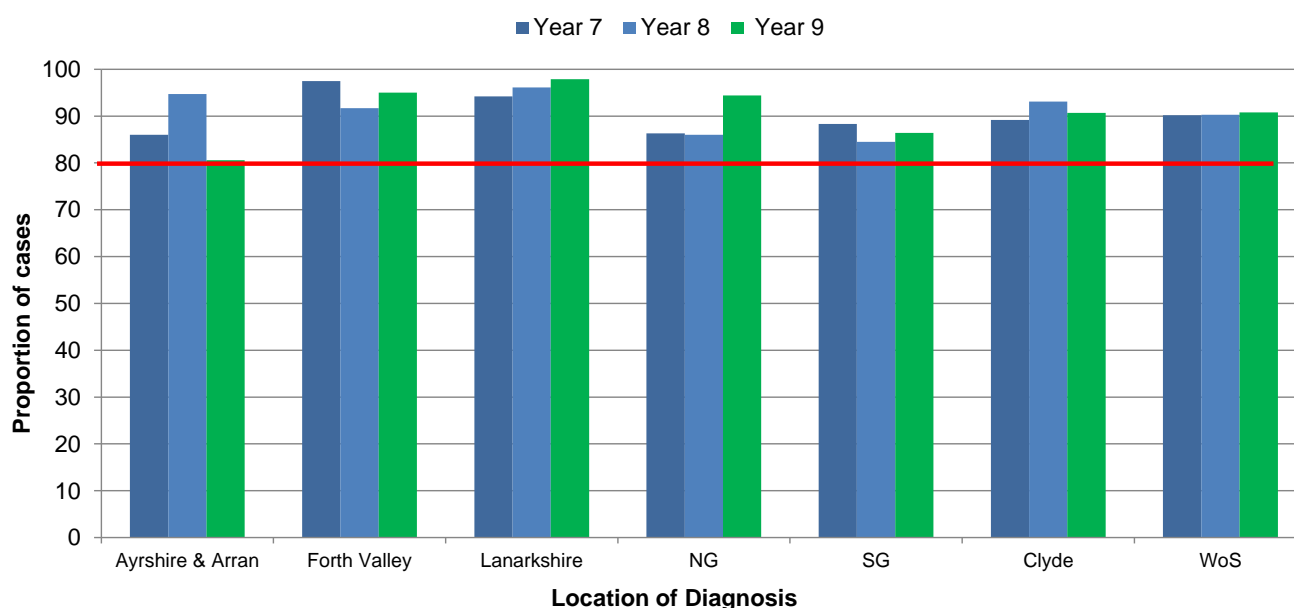
An additional sub QPI examining overall radical treatment (radical radiotherapy, SABR, surgery) rates for stage 1-2 disease should be considered as part of the next QPI Formal Review, to facilitate comparison between Boards across the country.

QPI 7: Lymph node assessment

Adequate assessment of lymph nodes for accurate staging helps guide prognosis and further treatment management¹.

Title:	In patients with NSCLC undergoing surgery adequate assessment of lymph nodes should be made.
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%

Figure 14: The proportion of patients with NSCLC undergoing surgical resection by lobectomy or pneumonectomy that have at least 1 node from at least 3 N2 stations sampled.



QPI 7 Target: 80%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	80.6%	95.0%	97.9%	94.4%	86.4%	90.7%	90.8%
Numerator	29	19	47	51	51	39	236
Denominator	36	20	48	54	59	43	260
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	0	0
NR denominator	0	0	0	0	0	0	0

Overall WoS results show that 90.8% of patients with NSCLC undergoing lobectomy or pneumonectomy had a least 1 node from at least 3 separate N2 stations sampled at time of resection or previous mediastinoscopy, this exceeds the 80% QPI target. All units met the 80% target. It should be noted that performance remains consistently high across all years of reporting against this measure.

All lung cancer surgery in the WoS is centralised and performed at the Golden Jubilee National Hospital (GJNH), regardless of hospital or Board of diagnosis. Patients are also referred there for surgery from other Scottish Regional Cancer Networks. During 2021 a total of 295 patients with NSCLC underwent surgical resection by lobectomy or pneumonectomy in the GJNH. This is broken down across the Regional Cancer Networks as follows:

- 261 WoSCAN (includes one patient diagnosed in the private sector)
- 21 North Cancer Alliance (NCA)
- 13 South East Scotland Cancer Network (SCAN)

Of these, 91.2% (269 patients) had adequate sampling of lymph nodes as per the QPI. This QPI is now consistently fulfilled year on year. It would therefore be appropriate to shift the focus of this measure to documenting appropriate systematic lymph node resection by drainage.

Action Required:

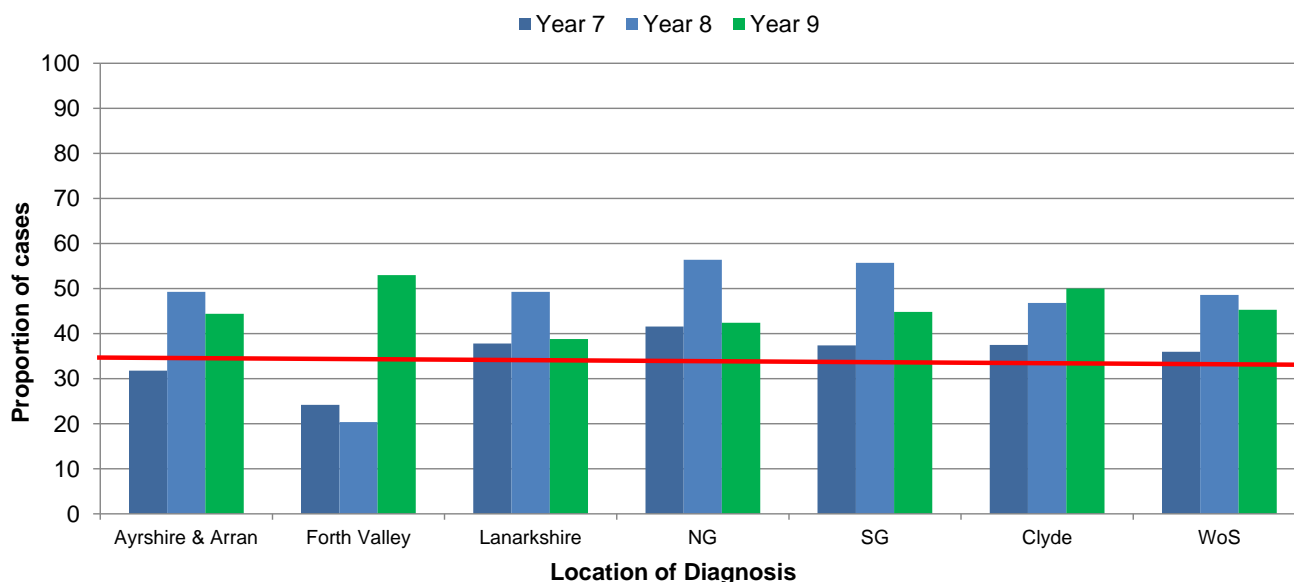
- MCN to consider required amendments to this QPI ahead of the next national Formal Review and formulate a fully worked up proposal for national consideration.

QPI 8: Radiotherapy in inoperable lung cancer.

Radiotherapy is an important treatment option as it has a proven survival benefit for patients with lung cancer. The target for this QPI is set at 35% with the tolerance level designed to account for the fact that due to co-morbidities and age not all patients will be suitable for radiotherapy. In addition, patients may not have disease that can be encompassed within a radical radiotherapy field without excess toxicity¹.

Title:	Patients with inoperable lung cancer should receive radiotherapy ± chemotherapy, or SABR.
Numerator:	Number of patients with stage I-IIIa lung cancer not undergoing surgery who received radical radiotherapy (≥54Gy) ± chemotherapy, or SABR.
Denominator:	All patients with stage I-IIIa lung cancer not undergoing surgery
Exclusions:	Patients with SCLC Patients who refuse radiotherapy. Patients who die prior to treatment.
Target:	35%

Figure 15: The proportion of patients with stage I-IIIa lung cancer not undergoing surgery who received radical radiotherapy ± chemotherapy, or SABR.



QPI 8 Target: 35%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	44.4%	53.0%	38.8%	42.4%	44.8%	50.0%	45.3%
Numerator	32	35	31	42	73	46	259
Denominator	72	66	80	99	163	92	572
NR numerator	1	0	0	1	0	0	2
NR exclusions	1	0	0	1	0	0	2
NR denominator	8	0	15	3	11	1	38

Following formal review the clinical cohort is now restricted to stage I - IIIa lung cancer patients who do not undergo surgery rather than all patients. These updates may contribute to the improved performance noted across some of the Boards.

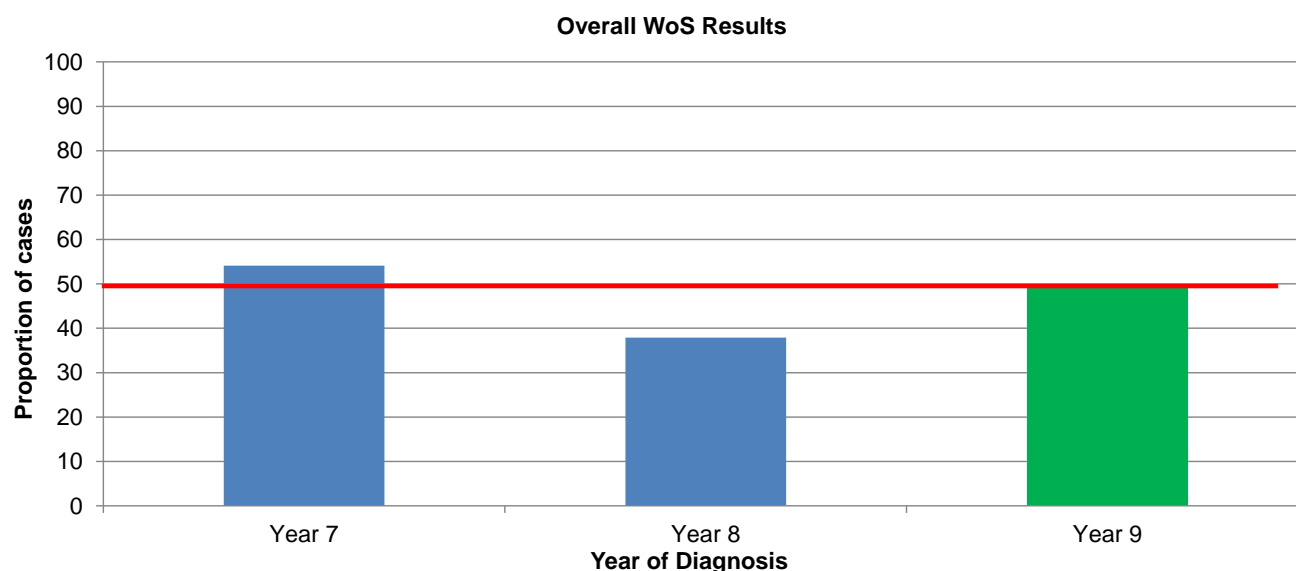
Performance across the WoS was 45.3% against the 35% QPI target with 259 of 572 patients with inoperable lung cancer receiving radical radiotherapy ± chemotherapy or SABR. All units achieved the target with NHSFV showing improvement on previous years.

QPI 9: Chemoradiotherapy in locally advanced NSCLC

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 treatment¹.

Title:	Patients with locally advanced non small cell lung cancer (NSCLC) not undergoing surgery should receive potentially curative radiotherapy and concurrent or sequential chemotherapy
Numerator:	All patients with stage IIIa NSCLC with performance status 0-1 not undergoing surgery who receive chemoradiotherapy (radical 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 decline chemotherapy treatment. Patients who die prior to treatment. Patients receiving Continuous Hyperfractionated Radiotherapy.
Target:	50%

Figure 16: The proportion of patients with stage IIIa NSCLC with PS 0-1 not undergoing surgery who receive chemoradiotherapy.



QPI 9 Target: 50%	Year 7	Year 8	Year 9
Performance (%)	54.1%	37.9%	50.0%
Numerator	20	11	24
Denominator	37	29	48
NR numerator	0	0	0
NR exclusions	0	0	0
NR denominator	2	1	0

Due to the smaller numbers included within this QPI cumulative WoS results are presented in Figure 16. Overall in the WoS, 50% of patients with stage IIIa NSCLC, PS 0-1 not undergoing surgery received chemoradiotherapy, achieving the 50% target. Four of the six units achieved the QPI target.

NHSFV reviewed all cases that missed the target noting that year to year variability is observed depending on patient cohort.

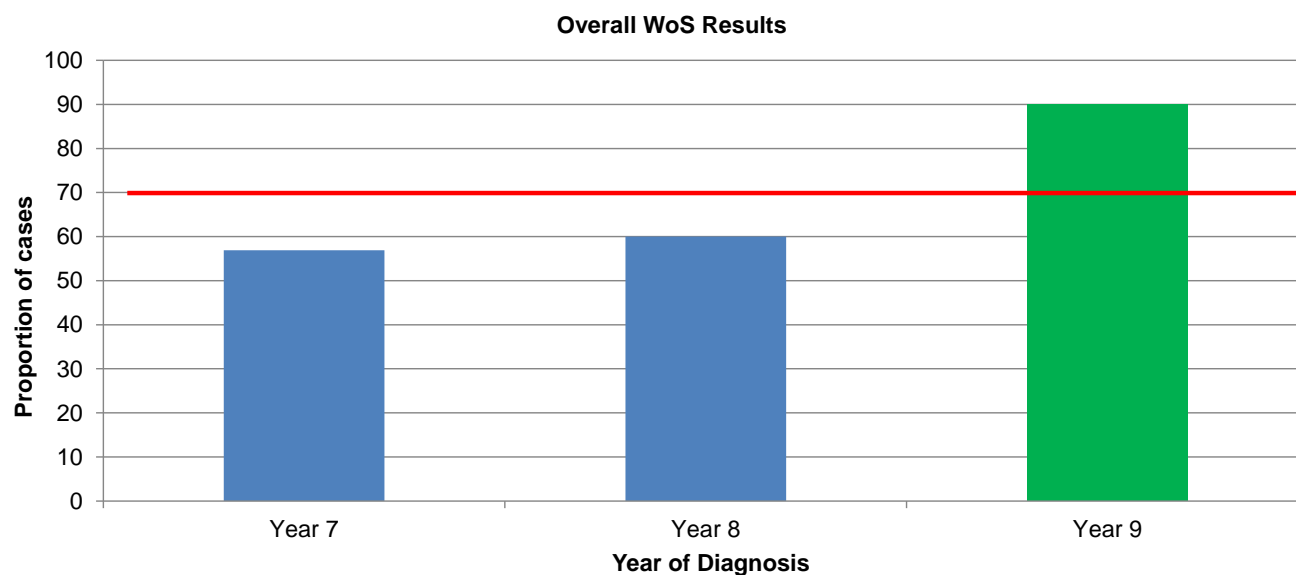
NHSGGC Clyde sector commented that all patients not meeting the QPI received radical radiotherapy as risks outweighed the benefit of SACT.

QPI 10: Chemoradiotherapy in limited stage SCLC

Patients with limited stage disease Small Cell Lung Cancer (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 treatment¹.

Title:	Patients with limited stage SCLC should receive platinum based chemotherapy and (concurrent or sequential) radiotherapy.
Numerator:	All patients with stage I-IIIa SCLC with PS 0-1 who receive chemoradiotherapy
Denominator:	All patients with stage I-IIIa SCLC with PS 0-1.
Exclusions:	Patients who refuse treatment. Patients who die prior to treatment. Patients who undergo surgical resection.
Target:	70%

Figure 17: The proportion of patients with limited stage SCLC receiving platinum based chemotherapy and radiotherapy.



QPI 10 Target: 70%	Year 7	Year 8	Year 9
Performance (%)	56.9%	60.0%	90.0%
Numerator	29	6	9
Denominator	51	10	10
NR numerator	0	0	0
NR exclusions	0	0	0
NR denominator	10	4	2

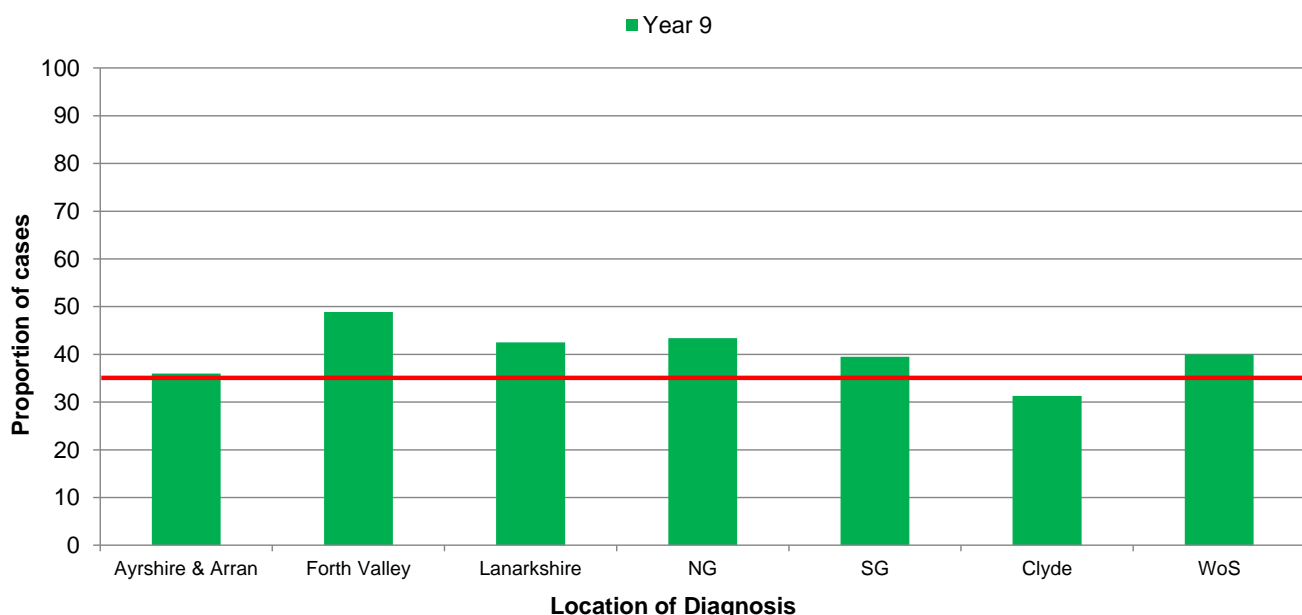
Again, due to the smaller numbers included within this QPI cumulative WoS results are presented. Overall in the WoS, 9 of 10 patients with limited stage SCLC received chemoradiotherapy, resulting in a WoS performance of 90% against the 70% target.

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

Systemic anti-cancer therapy should be offered to all patients with NSCLC and good performance status, to improve survival, disease control and quality of life¹.

Title:	(i) Patients with NSCLC should receive systemic anti-cancer therapy.
Numerator:	Number of patients with NSCLC not undergoing surgery who receive SACT.
Denominator:	All patients with NSCLC not undergoing surgery.
Exclusions:	Patients who decline SACT. Patients who die prior to treatment.
Target:	35%

Figure 18: The proportion of patients with NSCLC not undergoing surgery who receive SACT.



QPI 11(i) Target: 35%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	36.0%	48.9%	42.5%	43.4%	39.5%	31.3%	40.0%
Numerator	45	45	76	63	73	41	343
Denominator	125	92	179	145	185	131	857
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	1	1
NR denominator	1	0	0	0	0	0	1

Overall, 343 of the 857 patients with NSCLC not undergoing surgery in the WoS, received systemic anti-cancer therapy, resulting in a performance of 40% against the 35% QPI target. Only NHSGGC Clyde sector did not meet the QPI.

NHSGGC Clyde sector review concluded that those patients not meeting the QPI criteria were not fit for SACT.

Title:	(ii) Patients with stage IIIB - IV NSCLC that have an oncogenic driver mutation should receive targeted therapy.
Numerator:	Number of patients with stage IIIB – IV NSCLC, with performance status 0-2 not undergoing surgery that have an oncogenic driver mutation who receive targeted therapy.
Denominator:	All patients with stage IIIB – IV NSCLC, with performance status 0-2 not undergoing surgery that have an oncogenic driver mutation.
Exclusions:	Patients who decline SACT. Patients who die prior to treatment. Patients who are participating in clinical trials.
Target:	80%

Due to the small numbers meeting the denominator criteria, individual unit results cannot be presented.

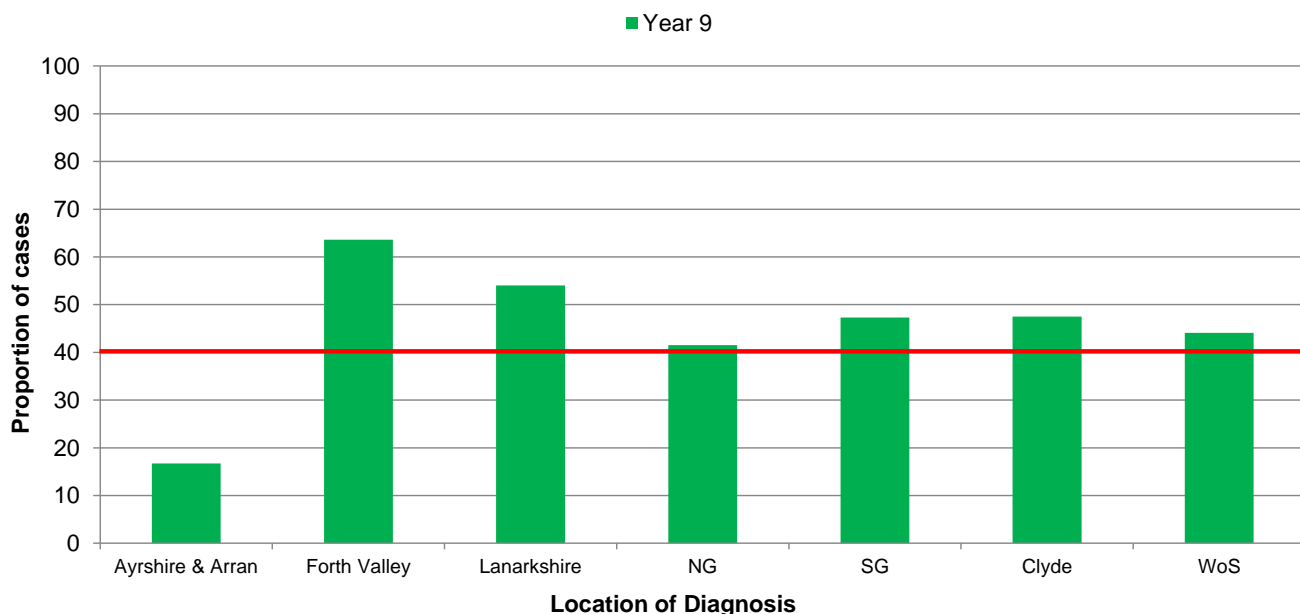
Overall WoS performance was 77.8% with 21 out of 27 patients, who met the denominator criteria, receiving biological therapy. Four of the six units met the target.

NHSAA commented that reasons for cases not meeting the QPI included patients with resistance EGFR mutation and not appropriate for targeted therapy and one had rare mutation of uncertain significance where due to a second biopsy being required PS was no longer 0-2. The third patient died before treatment and was discussed at the lung team 30-day mortality meeting. The Board also proposed that resistance mutations should be added as an exclusion to this QPI.

NHSGGC South sector review concluded that those patients not meeting the QPI were not fit for targeted therapy or were strongly PDL1 positive and were therefore treated with immunotherapy.

Title:	(iii) Patients with stage IIIB – IV NSCLC with performance status 0-2 not undergoing surgery that are oncogene mutation negative who receive immunotherapy.
Numerator:	Number of patients with stage IIIB – IV NSCLC, with performance status 0-2 not undergoing surgery that are oncogene mutation negative who receive immunotherapy.
Denominator:	All patients with stage IIIB – IV NSCLC, with performance status 0-2 not undergoing surgery that are oncogene mutation negative.
Exclusions:	Patients who decline SACT. Patients who die prior to treatment. Patients who are participating in clinical trials.
Target:	40%

Figure 19: The proportion of patients with stage IIIB – IV NSCLC, with performance status 0-2 not undergoing surgery that are oncogene mutation negative who receive immunotherapy.



QPI 11(iii) Target: 40%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	16.7%	63.6%	54.0%	41.5%	47.3%	47.5%	44.1%
Numerator	8	21	27	22	26	19	123
Denominator	48	33	50	53	55	40	279
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	5	3	0	8
NR denominator	3	0	0	0	2	1	6

Overall WoS performance was 44.1% with 123 out of 279 patients with stage IIIB – IV NSCLC, performance status 0-2 not undergoing surgery that are oncogene mutation negative, receiving immunotherapy. All units met the target with the exception of NHSAA.

NHSAA review concluded that despite the documented performance status, many patients were not fit for any oncological treatment. Some patients declined treatment, died before treatment or were on large doses of steroid which would preclude immunotherapy.

NHSAA commented that due to a local data recording error, patients receiving chemo-immunotherapy triplet failed to meet the QPI criteria due to the patients being classed as not having immunotherapy. The data has since been updated, increasing the NHSAA performance to 24%.

It is recognised that performance status can decline between MDT date and patients being seen by the oncologist (with all relevant markers assessed). The delay can be in excess of three weeks in some cases. It would therefore be helpful to build in the updated performance status (at time of treatment decision making) to any future iteration of this QPI.

Action Required:

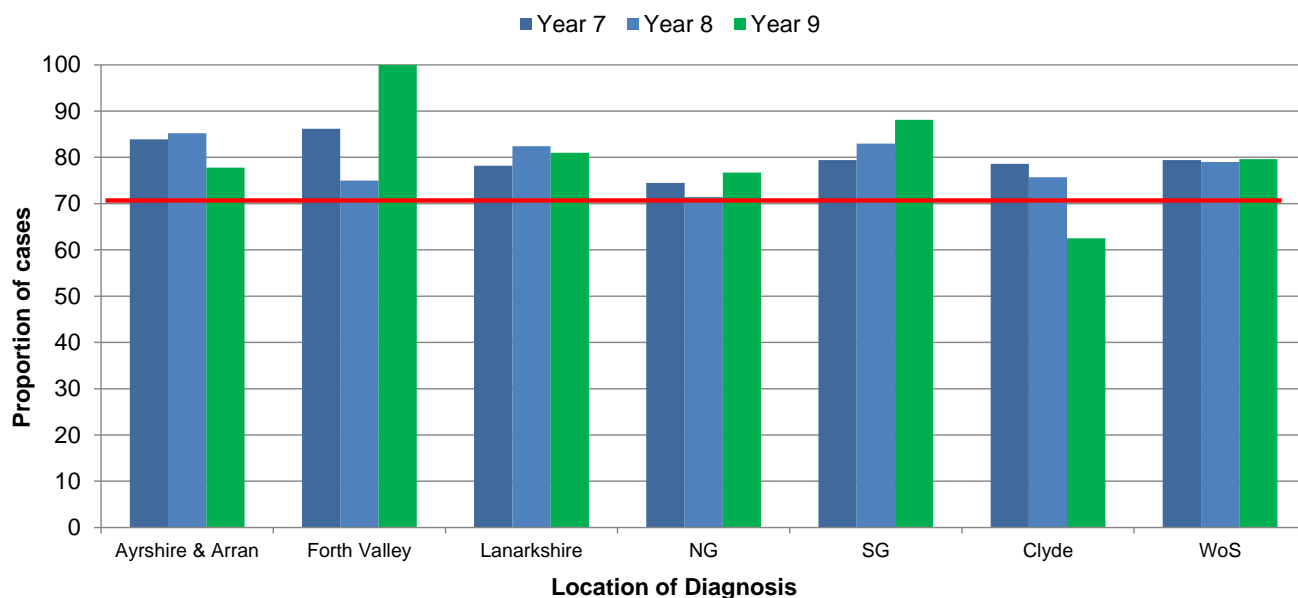
- NHSAA to review the assignment of performance status at MDT to ensure this accurately reflects patient fitness.
- NHSAA to review local practice with regards to the documentation of chemo-immunotherapy to ensure accurate reporting of performance going forward.
- MCN to consider refinements required to the QPI to account for decline in performance status between MDT and oncology treatment decision.

QPI 12: Chemotherapy in SCLC

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 tumour¹.

Title:	(i) Patients SCLC should receive chemotherapy.
Numerator:	All patients with SCLC who receive first line 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%

Figure 20: The proportion of patients with SCLC who receive first line chemotherapy ± radiotherapy.



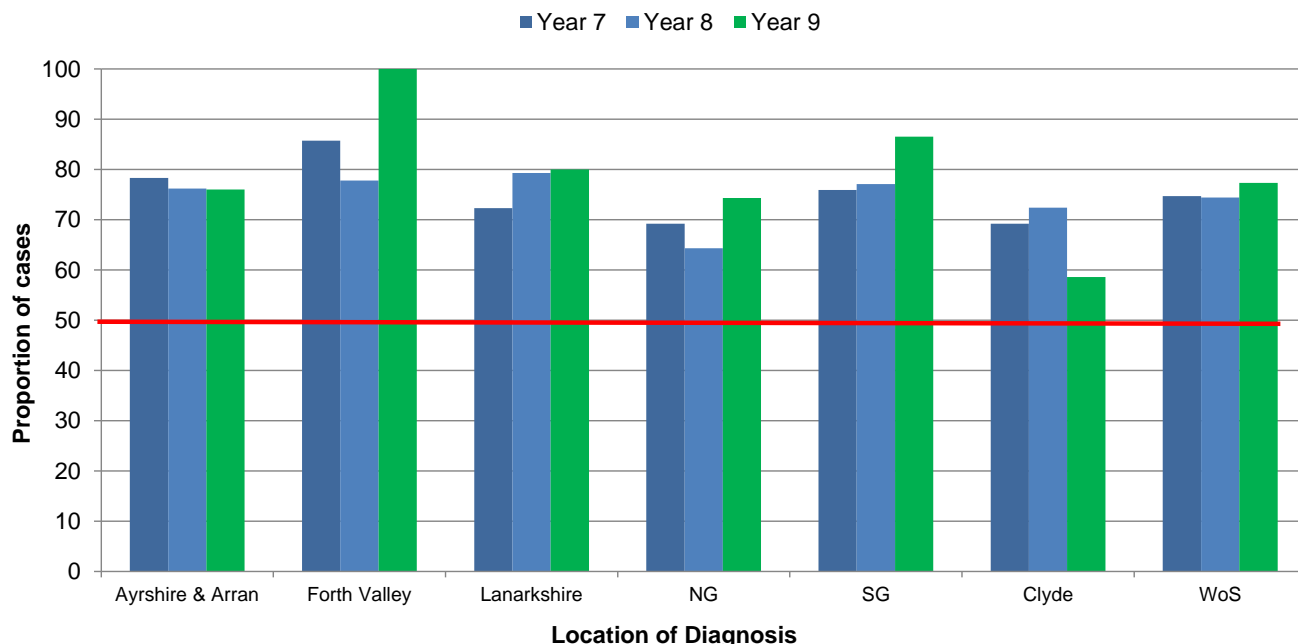
QPI 12(i) Target: 70%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	77.8%	100%	81.0%	76.7%	88.1%	62.5%	79.6%
Numerator	21	15	34	33	37	20	160
Denominator	27	15	42	43	42	32	201
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	9	4	0	13
NR denominator	1	0	0	0	0	0	1

Overall in WoS, of the 201 patients diagnosed with SCLC, 160 received first line chemotherapy ± radiotherapy, resulting in a performance of 79.6% which exceeds the 70% QPI target. All units with the exception of NHSGGC Clyde sector met the QPI target.

NHSGGC Clyde sector reviewed cases not meeting the QPI criteria, concluding that all were not fit for SACT by the time of assessment.

Title:	(ii) Patients SCLC should receive chemotherapy.
Numerator:	All 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%

Figure 21: The proportion of patients with SCLC not undergoing treatment with curative intent who receive palliative chemotherapy.



QPI 12(ii) Target: 50%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	76.0%	100%	80%	74.3%	86.5%	58.6%	77.3%
Numerator	19	10	32	26	32	17	136
Denominator	25	10	40	35	37	29	176
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	7	4	0	11
NR denominator	1	0	0	0	0	0	1

Across WoS, 77.3% of patients with SCLC not undergoing treatment with curative intent received palliative chemotherapy. All units exceeded the 50% target with performance ranging from 58.6% in NHSGGC Clyde sector to 100% in NHSFV. It should be noted that performance remains consistently high across all years of reporting against this measure.

QPI 13: 30/90 Day Mortality: 30/90 day mortality following treatment for lung cancer

Thirty-day mortality following treatment for lung cancer for all patients diagnosed in WoS is shown in Table 3 against the evidence-based targets of less than 5%.

With regards to mortality following SACT, a decision has been taken nationally to move to a new generic QPI (30-day mortality for SACT) applicable across all tumour types. This new QPI will use CEPAS (Chemotherapy ePrescribing and Administration System) data to measure SACT mortality to ensure that the QPI focuses on the prevalent population rather than the incident population. The measurability for this QPI is still under development to ensure consistency across the country and it is anticipated that performance against this measure will be reported in the next audit cycle. In the meantime all deaths within 30 days of SACT will continue to be reviewed at a NHS Board level.

Title:	30 day Mortality following treatment for lung cancer.
Numerator:	All 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.
Target:	<5% (or <10% for palliative chemotherapy and biological therapy)

Table 2: The proportion of patients with lung cancer who receive active treatment who die within 30 days of treatment.

	QPI Target	WoS Result (Year 7)	WoS Result (Year 8)	WoS Result (Year 9)
Surgery	<5 %	1.1% (5/452)	0.9% (3/332)	1.2% (4/344)
Radical Radiotherapy	<5 %	1.2% (3/257)	1.6% (4/256)	1.1% (3/279)
Radical Chemoradiotherapy	<5%	-	2.8% (2/71)	1.4% (1/73)

The target was achieved at Board and regional level for all surgery, radical radiotherapy and radical chemoradiotherapy.

With regards to surgery, the 30 day mortality rate for all patients receiving surgery at the GJNH, regardless of region of diagnosis, was 1% (4/390 patients).

Title:	90 day Mortality following treatment for lung cancer.
Numerator:	All patients with lung cancer who receive active treatment who die within 90 days of treatment.
Denominator:	All patients with lung cancer who receive active treatment.
Exclusions:	No exclusions.
Target:	<5%

Table 3: The proportion of patients with lung cancer who receive active treatment who die within 90 days of treatment.

	QPI Target	WoS Result (Year 7)	WoS Result (Year 8)	WoS Result (Year 9)
Surgery	< 5%	1.8% (8/451)	1.5% (5/331)	2.4% (8/340)
Radical Radiotherapy	< 5%	6.3% (16/255)	4.9% (12/247)	2.9% (8/273)
Radical Chemoradiotherapy	< 5%	-	7.1% (5/70)	6.9% (5/72)

Table 3 highlights that the WoS met the <5% target for surgical and radical radiotherapy 90 day mortality. There were 5 deaths recorded within 90 days of radical chemoradiotherapy treatment in the WoS during the reporting period resulting in a 6.9% (5/72) mortality rate.

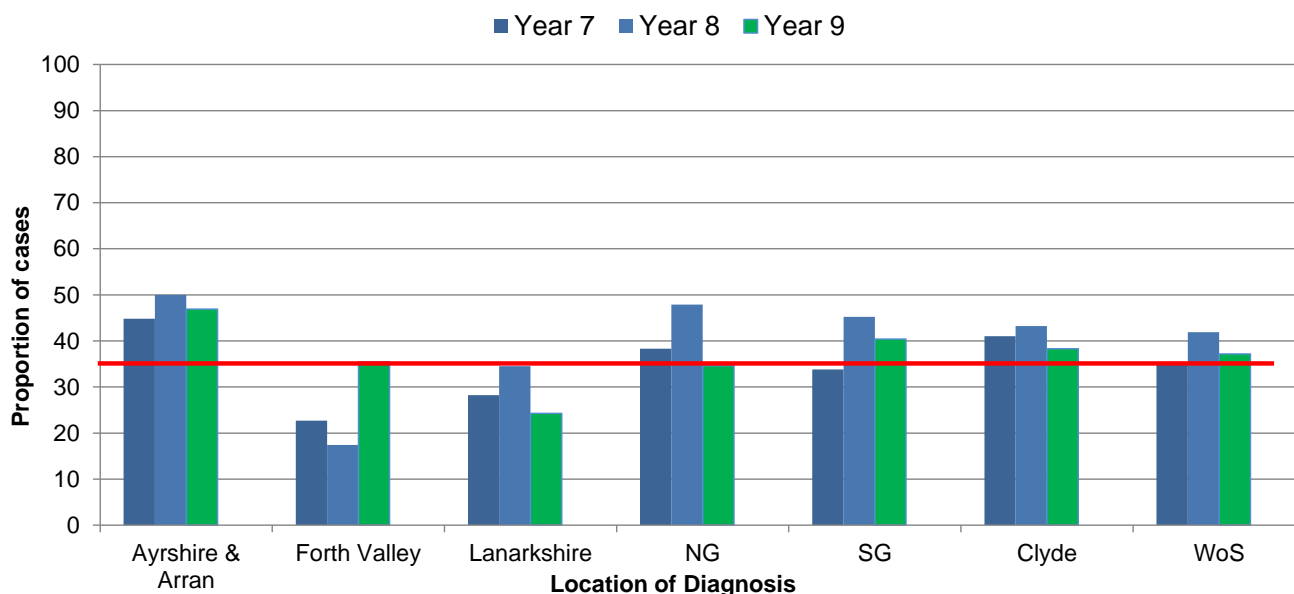
With regards to surgery, the 90 day mortality rate for all patients receiving surgery at the GJNH, regardless of region of diagnosis, was 2.1% (8/385 patients).

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

SABR is now a recognised treatment option for patients with medically inoperable early stage lung cancer. Patients with stage I lung cancer who are not suitable for surgery should receive SABR as this has a proven survival benefit¹.

Title:	Patients with inoperable stage I lung cancer should receive SABR.
Numerator:	Number of patients with stage I lung cancer not undergoing surgery who receive SABR.
Denominator:	All patients with stage I lung cancer not undergoing surgery.
Exclusions:	Patients with SCLC, Patients who refuse SABR, Patients who die prior to treatment.
Target:	35%

Figure 22: The proportion of patients with stage I lung cancer not undergoing surgery who receive SABR.



QPI 14 Target: 35%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	46.9%	35.5%	24.3%	34.6%	40.4%	38.3%	37.2%
Numerator	15	11	9	18	36	18	107
Denominator	32	31	37	52	89	47	288
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	1	1
NR denominator	4	0	10	4	13	2	33

Of the 288 patients with stage I lung cancer not undergoing surgery, 107 received SABR which equates to 37.2% and successfully meets the QPI target.

NHSLs achieved 24.3% against the 35% target. The Board commented that the majority of cases were not fit for treatment and received BSC or were watch and wait for slow growing lesions. The Board concluded that these patients were treated clinically appropriately and compliance will be monitored through local reports.

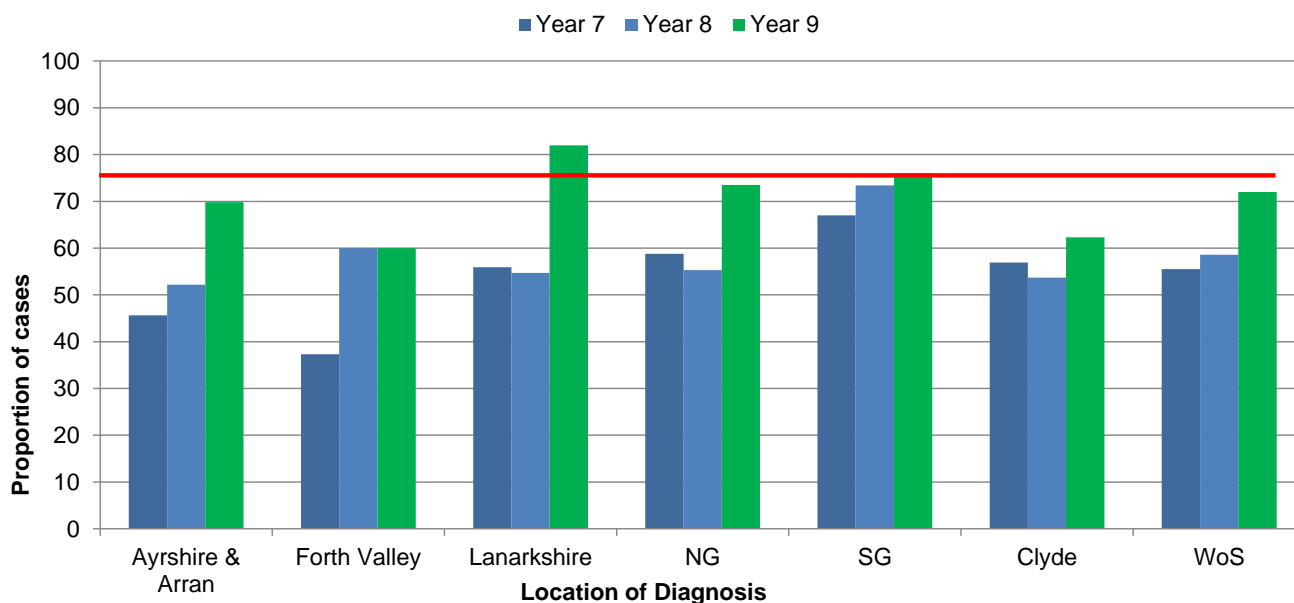
QPI 15: Pre Treatment Diagnosis.

A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice¹.

Following discussion at formal review the QPI was updated from 'first treatment' to 'definitive treatment' to ensure cytological / histological diagnosis prior to the correct treatment option. Frozen section is also now included within the definition of pre-operative histology.

Title:	Where possible patients should have a cytological/histological diagnosis prior to definitive treatment.
Numerator:	Number of patients who received curative treatment that have a cytological/histological diagnosis prior to starting definitive treatment. (surgery, radiotherapy, chemoradiotherapy)
Denominator:	All patients with lung cancer who receive curative treatment.
Exclusions:	Patients who refuse investigation.
Target:	75%

Figure 23: The proportion of patients who received curative treatment that have a cytological /histological diagnosis prior to surgery.



QPI 15(i) Target: 75%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	69.8%	60.0%	82.0%	73.5%	76.0%	62.3%	72.0%
Numerator	37	15	50	50	57	38	247
Denominator	53	25	61	68	75	61	343
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	0	0
NR denominator	0	0	0	0	0	0	0

Performance across WoS was lower than the 75% target at 72%. Overall 247 of 343 patients who received curative treatment had a cytological or histological diagnosis prior to starting treatment. Only NHSLS and NHSGGC South sector met the QPI target.

NHSAA noted that reasons for not meeting the QPI included patients with a negative EBUS, patients with two negative biopsies and cases where the lesion was considered too small or unreachable for biopsy. The Board added that a pathological diagnosis is always sought if thought practical/appropriate.

NHSFV reported that biopsy is considered in all patients but when biopsy was not taken the reasons included patients where the lesion was not accessible, negative biopsy and cases where biopsy performed but the lesion was too small.

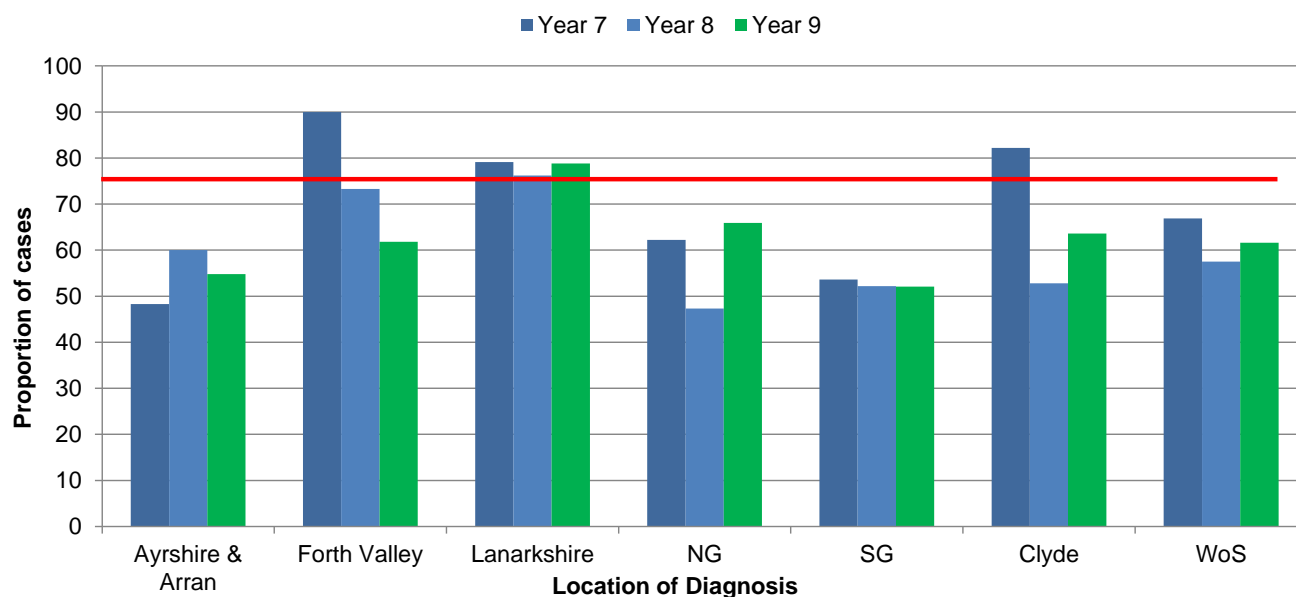
NHSGGC Clyde sector commented that reasons for patients not meeting the QPI included cases where the consensus diagnosis was on suspicious pathology & radiology, cases which were contraindicated due to risk/comorbidity, negative pathology, cases where biopsy was technically not possible and cases where tissue sampling would not have altered management.

NHSGGC North sector stated that they recognised the lower biopsy rate in previous years as an issue and tried to rectify this, resulting in almost 20% increase on the previous year. Some of the improvement may reflect stage migration and increased use of EBUS transbronchial needle aspiration (TBNA) over CT biopsy or transbronchial lung biopsy (TBLB). All 18 cases not meeting the QPI were N0 stage 1 patients with peripheral lesions who if not suitable for TBLB then a CT biopsy is required. Eight patients had attempt but negative pathology, 5 were contraindicated due to comorbidity and 5 were deemed technically not possible.

Action Required:-

- MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the region and/or offering a regional additional capacity second line CT biopsy service for difficult or higher risk CT biopsy procedures.

Figure 24: The proportion of patients who received curative treatment that have a cytological /histological diagnosis prior to starting radical radiotherapy.



QPI 15(ii) Target: 75%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	54.8%	61.8%	78.8%	65.9%	52.1%	63.6%	61.6%
Numerator	17	21	26	29	37	35	165
Denominator	31	34	33	44	71	55	268
NR numerator	0	0	0	0	0	1	1
NR exclusions	0	0	0	0	0	0	0
NR denominator	1	0	1	1	0	0	3

Performance across the WoS was 61.6% against the 75% target with 165 of 268 patients having a histological or cytological diagnosis prior to starting radical radiotherapy. NHSLS were the only unit to meet the target with performance of 78.8%. Performance in the other units ranged from 52.1% in NHSGGC South sector to 65.9% in NHSGGC North sector.

It is acknowledged that the variation across the region in the QPI performance is due to a variety of factors including: differences in practice in relation to performing CT guided biopsies for peripheral lesions and an increase in the proportion of patients receiving curative treatments despite being medically unwell.

Feedback from Boards not meeting the QPI reflects the comments made previously for QPI 15 (i).

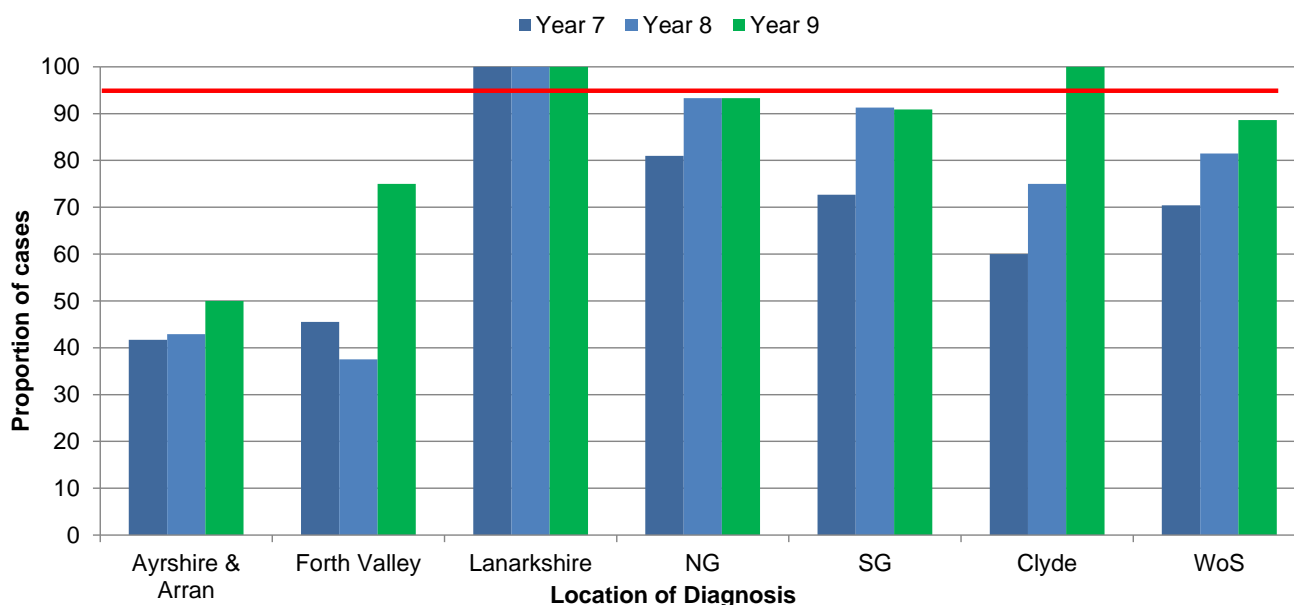
QPI 16: Brain Imaging.

Brain metastases are an important prognostic factor in lung cancer patients and the detection of these can influence decisions on appropriate treatment¹.

Following formal review the QPI was updated from 'first treatment' to 'definitive treatment' to ensure CT / MRI prior to the correct treatment option. Patients with SCLC were also added to the exclusion category.

Title:	Patients with N2 disease who are undergoing curative treatment should have brain imaging performed prior to commencing definitive treatment.
Numerator:	Number of patients with N2 disease who receive curative treatment that undergo contrast enhanced CT or contrast enhanced MRI prior to start of definitive treatment.
Denominator:	All patients with N2 disease who receive curative treatment.
Exclusions:	Patients who decline brain imaging, patients with small cell lung cancer (SCLC).
Target:	95%

Figure 25: The proportion of patients with N2 disease who receive curative treatment that undergo contrast enhanced CT or contrast enhanced MRI prior to start of treatment.



QPI 16 Target: 95%	AA	FV	Lan	NG	SG	Clyde	WoS
Performance (%)	50.0%	75.0%	100%	93.3%	90.9%	100%	88.6%
Numerator	5	6	16	14	20	17	78
Denominator	10	8	16	15	22	17	88
NR numerator	0	0	0	0	0	0	0
NR exclusions	0	0	0	0	0	0	0
NR denominator	2	0	10	0	2	0	14

Overall, 78 of the 88 patients diagnosed with N2 disease who received curative treatment in WoS underwent contrast enhanced CT or contrast enhanced MRI prior to the start of definitive treatment, resulting in a performance of 88.6% against the 95% QPI target. Individual unit performance ranged from 50% in NHSAA to 100% in NHSLS and NHSGGC Clyde sector. Improvement is noted in Year 9, particularly across NHSGGC Clyde sector and NHSFV.

NHSAA commented that of the cases not meeting four had no brain imaging and one patient had brain imaging but after first treatment. The Board added that the MDT form has been updated to include a brain imaging prompt therefore it is anticipated that results will continue to improve.

NHSFV stated that small numbers represent large percentages. Of the two patients not meeting the QPI, one patient's pre-op PET scan did not suggest N2 disease.

NHSGGC commented that reasons provided for cases not meeting the QPI included patient choice and one patient who had imaging the day after first treatment.

Action required:

- NHS FV to review MDT process to help to ensure brain imaging is carried out prior to patients commencing definitive treatment. MCN will continue to monitor progress in this area.
- MCN to propose an amendment to the QPI at the next Formal Review meeting as it no longer adheres to clinical best practice. NICE guidelines now recommend that patients with stage 2 and 3 lung cancer receive brain imaging.
- All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.

5. Next Steps

The MCN will actively take forward regional actions identified and NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report. A summary of actions for each NHS Board has been included within the Action Plan templates in Appendix III.

Acknowledgement

This report has been prepared using clinical audit data provided by the following NHS Boards in the WoSCAN area:

NHS Ayrshire & Arran
NHS Forth Valley
NHS Greater Glasgow and Clyde
NHS Lanarkshire

We would like to thank all members and active participants in the cancer network for their continued support of the MCN, and the many hospitals that are committed to making the audit succeed. We also acknowledge the efforts of the clinical effectiveness staff, nurses, and other service users for their work in ensuring the data are available to enable analysis to take place each year. Without their considerable efforts this level of progress would not be possible.

Abbreviations

CT	Computed Tomography
eCASE	Electronic Cancer Audit Support Environment
EGFR	Epidermal Growth Factor Receptor
GJNH	Golden Jubilee National Hospital
HIS	Healthcare Improvement Scotland
MCN	Managed Clinical Network
MDT	Multidisciplinary Team
NCQSG	National Cancer Quality Steering Group
NCA	North Cancer Alliance
NSCLC	Non Small Cell Lung Cancer
PS	Performance Status
PET	Positron Emission Tomography
QPIs	Quality Performance Indicators
RCAG	Regional Cancer Advisory Group
SABR	Stereotactic Ablative Radiotherapy
SCAN	South East Scotland Cancer Network
SCLC	Small Cell Lung Cancer
TBLB	Transbronchial lung biopsy
TBNA	Transbronchial needle aspiration
WoS	West of Scotland
WoSCAN	West of Scotland Cancer Network

List of references and useful websites for further information

1. Lung Cancer. Clinical Quality Performance Indicators. Available at:
http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/cancer_qpis/quality_performance_indicators.aspx [Accessed on: 10th March 2022]
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<https://beta.isdscotland.org/find-publications-and-data/conditions-and-diseases/cancer/cancer-incidence-in-scotland/> [Accessed on: 10th March 2022]

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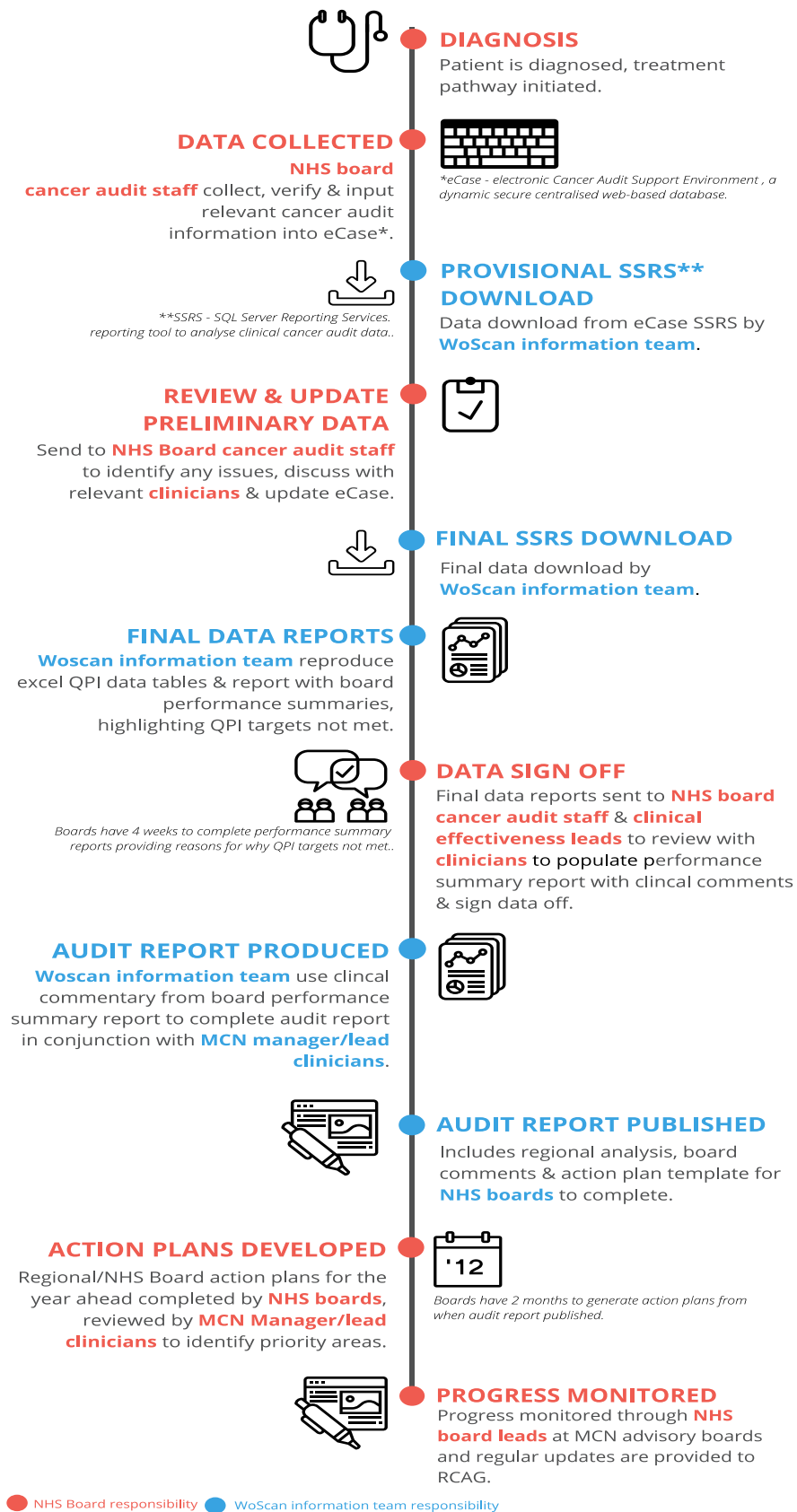
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Appendix 1: Meta Data

Report Title	Cancer Audit Report: Lung Cancer Quality Performance Indicators																										
Time Period	Patients diagnosed between 01 January 2020 and 31 December 2020																										
Data Source	Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.																										
Data extraction date	2200 hrs on 15 September 2021																										
Methodology	<p>Analysis was performed centrally for the region by the WoSCAN Information Team. The timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for the majority of patients.</p> <p>Initial results were provided to Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.</p> <p>The final data analysis was disseminated for NHS Board verification in line with the regional audit governance process to ensure that the data was an accurate representation of service in each area. Please see info graphic in appendix 2 for a more detailed look at the reporting process.</p>																										
Data Quality	<p>Audit data completeness can be assessed by estimating the proportion of expected patients that have been identified through audit compared to the number reported by the National Cancer registry (provided by PHS); this is known as case ascertainment. Figures should only be used as a guide as it is not possible to compare the same exact cohort from each data source. Note that a 5 year average is taken for cancer registry cases to take account of annual fluctuations in incidence within NHS Boards.</p> <p>Lung Cancer</p> <table border="1"> <thead> <tr> <th>Health Board of diagnosis</th> <th>(01/01/2020-31/12/2020) Audit</th> <th>Cancer Reg 2015-19*</th> <th>Case Ascertainment</th> </tr> </thead> <tbody> <tr> <td>Ayrshire & Arran</td> <td>328</td> <td>395</td> <td>83.0%</td> </tr> <tr> <td>GGC</td> <td>1180</td> <td>1505</td> <td>78.4%</td> </tr> <tr> <td>Forth Valley</td> <td>259</td> <td>289</td> <td>89.6%</td> </tr> <tr> <td>Lanarkshire</td> <td>417</td> <td>588</td> <td>70.9%</td> </tr> <tr> <td>WoS Total</td> <td>2184</td> <td>2777</td> <td>78.6%</td> </tr> </tbody> </table>			Health Board of diagnosis	(01/01/2020-31/12/2020) Audit	Cancer Reg 2015-19*	Case Ascertainment	Ayrshire & Arran	328	395	83.0%	GGC	1180	1505	78.4%	Forth Valley	259	289	89.6%	Lanarkshire	417	588	70.9%	WoS Total	2184	2777	78.6%
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Appendix 2: Cancer Audit Timeline



Appendix 3: Action / Improvement Plan – Lung Cancer

NHS Ayrshire & Arran

Lung Cancer QPI Action / Improvement Plan

NHS Board:	NHS Ayrshire & Arran
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	<i>Ensure actions mirror those detailed in Audit Report.</i>	Provide detailed outcome of clinical review, details of specific improvement action taken, or reasons why no action taken.	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each action.</i>	<i>Insert No. from key above</i>
1.	QPI 5: Invasive Investigation of Intrathoracic Staging. NHS AA to review current pathway pertaining to staging investigations, identifying any barriers and actions required to resolve these.					
2.	QPI 11: Systemic anti-cancer therapy in non-small cell lung cancer. NHS AA to review the assignment of performance status at MDT to ensure this accurately reflects patient fitness.					

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
3.	<p>QPI 11: Systemic anti-cancer therapy in non-small cell lung cancer. NHS AA to review local practice with regards to the documentation of chemo-immunotherapy to ensure accurate reporting of performance going forward.</p>					
4.	<p>QPI 16: Brain Imaging. All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.</p>					

NHS Forth Valley
Lung Cancer QPI Action / Improvement Plan

NHS Board:	NHS Forth Valley
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	<i>Ensure actions mirror those detailed in Audit Report.</i>	Provide detailed outcome of clinical review, details of specific improvement action taken, or reasons why no action taken.	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each action.</i>	<i>Insert No. from key above</i>
1.	QPI 16: Brain Imaging. NHS FV to review MDT process to help to ensure brain imaging is carried out prior to patients commencing definitive treatment. MCN will continue to monitor progress in this area.					
2.	QPI 16: Brain Imaging. All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.					

NHS Greater Glasgow and Clyde
Lung Cancer QPI Action / Improvement Plan

NHS Board:	NHSGGC
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	<i>Ensure actions mirror those detailed in Audit Report.</i>	Provide detailed outcome of clinical review, details of specific improvement action taken, or reasons why no action taken.	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each action.</i>	<i>Insert No. from key above</i>
1.	QPI 16: Brain Imaging. All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.					

NHS Lanarkshire
Lung Cancer QPI Action / Improvement Plan

NHS Board:	NHS Lanarkshire
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	<i>Ensure actions mirror those detailed in Audit Report.</i>	Provide detailed outcome of clinical review, details of specific improvement action taken, or reasons why no action taken.	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each action.</i>	<i>Insert No. from key above</i>
1.	QPI 16: Brain Imaging. All Boards to investigate the option of prompts in the regional MDT form to remind clinicians to refer patients for brain imaging.					

WoSCAN

Lung Cancer QPI Action / Improvement Plan

NHS Board:	WoSCAN
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
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3	No action taken (please state reason)

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
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1.	QPI 4: PET CT in patients being treated with curative intent. MCN to explore increase in provision of pre-scheduled PET CT slots with rapid reporting turn around (PETiTe) across WoSCAN region to align with lung cancer clinics and MDT meetings.					
2.	QPI 5: Invasive Investigation of Intrathoracic Staging. MCN to propose an amendment to the wording of QPI 5 at the next Formal Review meeting to ensure that the indicator accurately reflects current practice nationally.					
3.	QPI 5: Invasive Investigation of Intrathoracic Staging. MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the					

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	region and explore the potential for a second line service for difficult staging procedures, including provision of general anaesthetic or deep sedation.					
4.	QPI 7: Lymph node assessment MCN to consider required amendments to this QPI ahead of the next national Formal Review and formulate a fully worked up proposal for national consideration.					
	QPI 11: Systemic anti-cancer therapy in non-small cell lung cancer. MCN to consider refinements required to the QPI to account for decline in performance status between MDT and oncology treatment decision.					
5.	QPI 15: Pre Treatment Diagnosis. MCN to take forward the ongoing work to explore the possibility of a single diagnostic centre for the region and/or offering a regional additional capacity second line CT biopsy service for difficult or higher risk CT biopsy procedures.					
6.	QPI 16: Brain Imaging. MCN to propose an amendment to the QPI at the next Formal Review meeting as it no longer adheres to clinical best practice. NICE guidelines now recommend that					

No	Action Required	NHS Board Action Taken	Timescales		Lead	Status (see key)
			Start	End		
	patients with stage 2 and 3 lung cancer received brain imaging.					