

Quality Performance Indicators Audit Report



Tumour Area:	Lung Cancer
Patients Diagnosed:	1 st January – 31 st December 2018
Published Date:	12th December 2019
Clinical Commentary:	Dr. Richard Stretton North Cancer Lung Clinical Director

1. Lung Cancer in Scotland

Latest available cancer registration figures indicate that with 5331 cases recorded during 2017, lung cancer is the most common cancer diagnosed in Scotland, although incidence rates have reduced nearly 10% in the last 10 years¹. The single largest risk factor for lung cancer is cigarette smoking and the large decrease in lung cancer in men reflects decreases in smoking prevalence over several decades.

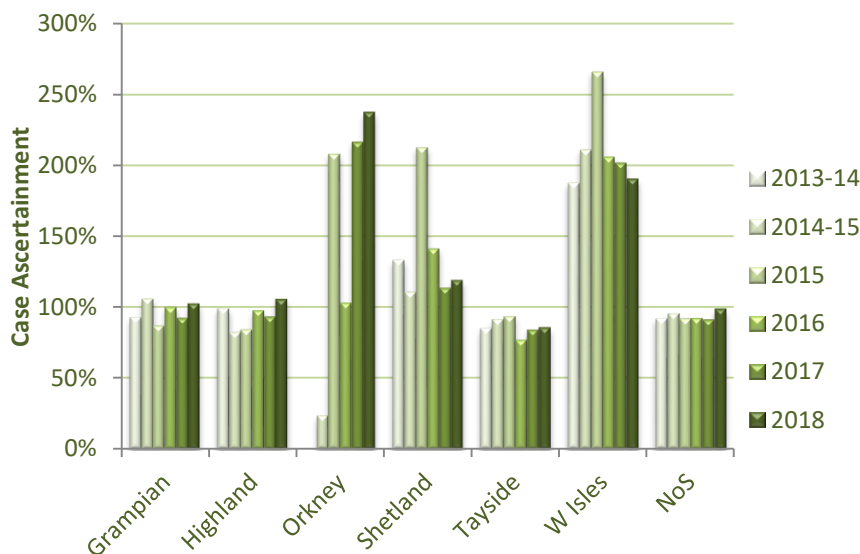
Relative survival for lung cancer is increasing². The table below shows the percentage change in one-year and five-year age-standardised survival rates for patients diagnosed in 1987-1991 compared to those diagnosed in 2007-2011.

Relative age-standardised survival for lung cancer in Scotland at 1 year and 5 years showing percentage change from 1987-1991 to 2007-2011².

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

2. Patient Numbers and Case Ascertainment in the North of Scotland

Between 1st January and 31st December 2018 a total of 1130 cases of lung cancer were diagnosed in the North of Scotland and recorded through audit. Overall case ascertainment was high at 98.9% which indicates excellent data capture through audit. As such QPIs based on data captured are considered to be representative of all patients diagnosed with lung cancer during the audit period.



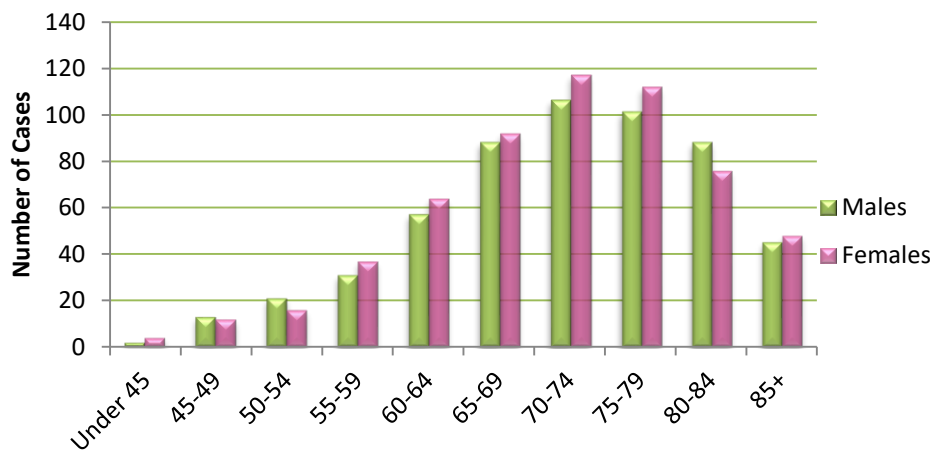
Case ascertainment by NHS Board for patients diagnosed with lung cancer in 2013-2018.

	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
No. of Patients 2018	463	240	19	15	369	24	1130
% of NoS total	41.0%	21.2%	1.7%	1.3%	32.7%	2.1%	100%
Mean ISD Cases 2013-17	451.8	227.2	8.0	12.6	430.0	12.6	1142.2
% Case ascertainment 2018	102.5%	105.6%	237.5%	119.0%	85.8%	190.5%	98.9%

The number of instances of data not being recorded was generally low, with the only notable gaps being the absence of recording of the stage of disease, most notably whether the patient had metastatic disease, for some patients in Grampian and Highland. The effects of this on the QPI results are minimal.

3. Age Distribution

The figure below shows the age distribution of patients diagnosed with lung cancer in the North of Scotland in 2018, with numbers of patients diagnosed highest in the 70-74 year age bracket for men and women.



Age distribution of patients diagnosed with lung cancer in the North of Scotland 2018.

4. Performance against Quality Performance Indicators (QPIs)

Definitions for the QPIs reported in this section are published by Health Improvement Scotland³, while further information on datasets and measurability used are available from Information Services Division⁴. Data for most QPIs are presented by Board of diagnosis; however QPIs 7 and 13 (surgical mortality) are presented by Hospital of Surgery. Further QPI 17, clinical trials and research access, is reported by patients' NHS Board of residence. Please note that where QPI definitions have been amended, results are not compared with those from previous years.

5. Governance and Risk

Governance is defined as the combination of structures and processes at all levels to lead on North quality performance including:

- Ensuring accountability for quality and required standards
- Investigating and taking action on sub-standard performance
- Identifying, sharing and ensuring delivery of best-practice
- Identifying and managing risks to ensure quality of care
- Driving continuous improvement

Our current governance structure provides assurance to the boards that risks associated QPIs are being addressed as an alliance. Clinical risks are discussed at the North Cancer Lung Pathway Board (NCLPB) and North Cancer Clinical Leadership Group (NCCLG). Risk levels are jointly agreed. The NCCLG are presented with all available evidence and actions so they have all the information to define the risk in a collaborative way.

- **Tolerate** - Accept the risk at its current level
- **Mitigate** - Reduce or mitigate the risk, in terms of reducing the likelihood of its occurrence or reducing the severity of impact if it does occur. This can be assessed through the action plans provided or the information provided is appropriate to prevent reoccurrence.
- **Escalate** - Escalate the risk to the appropriate committee and/or take further action as the mitigations were not suitable or there are no actions identified to mitigate the risk. This will be revisited by the NCCLG for further risk discussion.
- **Immediate** - Immediate action is required to prevent the risk reoccurring. This risk will have major impact on patient care delivery and the consequences thereafter. Very few risks should occur in this level.

The full governance document on risk should be referred to in conjunction with this summary, which is available on the NCA website⁵.

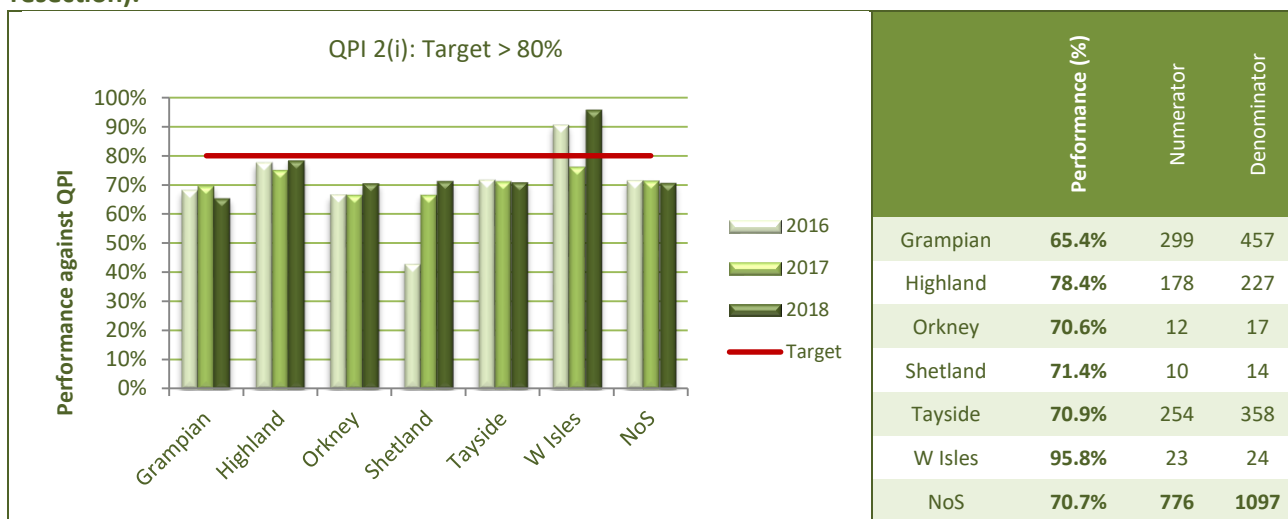
QPI 1	Multi-Disciplinary Team (MDT) Meeting
Proportion of patients with lung cancer who are discussed at MDT meeting before definitive treatment.	



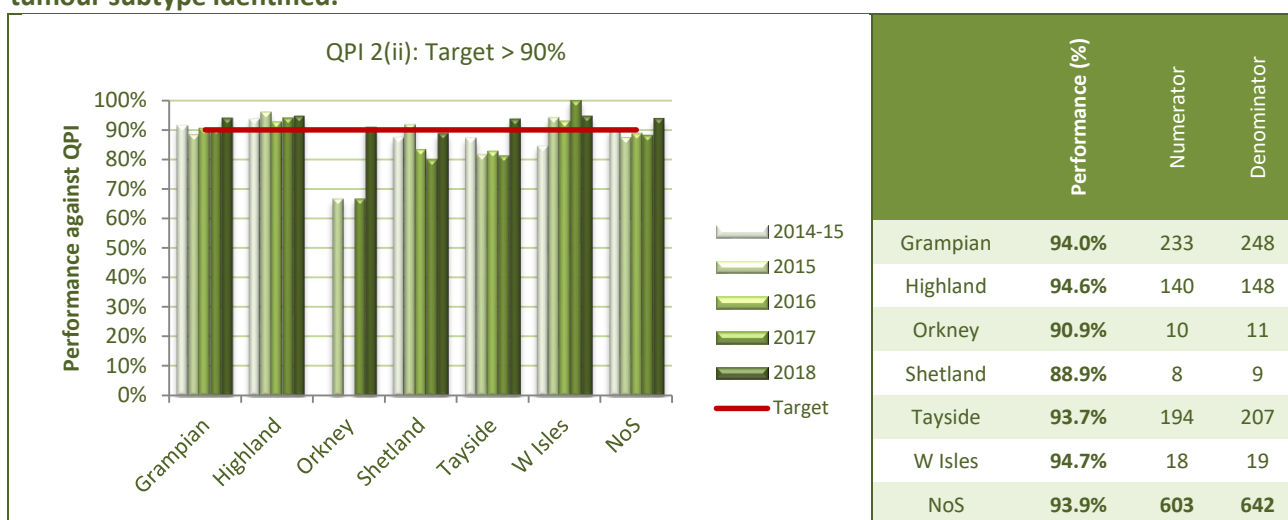
Clinical Commentary	<p>The North of Scotland achieved this QPI target with almost 96% of patients being discussed at MDT prior to definitive treatment.</p> <p>While NHS Highland results are lower than the other North of Scotland boards, all patients have been reviewed and only three patients from North Highland were not discussed at MDT at all. Others were discussed at MDT after definitive treatment – some of these patients had small cell disease and were given palliative radiotherapy for pain control prior to MDT discussion.</p> <p>Furthermore, an additional seven patients diagnosed in Argyll and Bute were not discussed at MDT and are included in the results for NHS Highland and were managed by NHS Greater Glasgow & Clyde MDT, and therefore due to data collection processes, information can't be assessed for this audit.</p> <p>The 96% result for the North of Scotland is ahead of the Scottish average of 92%.</p>
Actions	No action required
Risk Status	Tolerate

QPI 2	Pathological diagnosis
Proportion of patients who have a pathological diagnosis of lung cancer.	

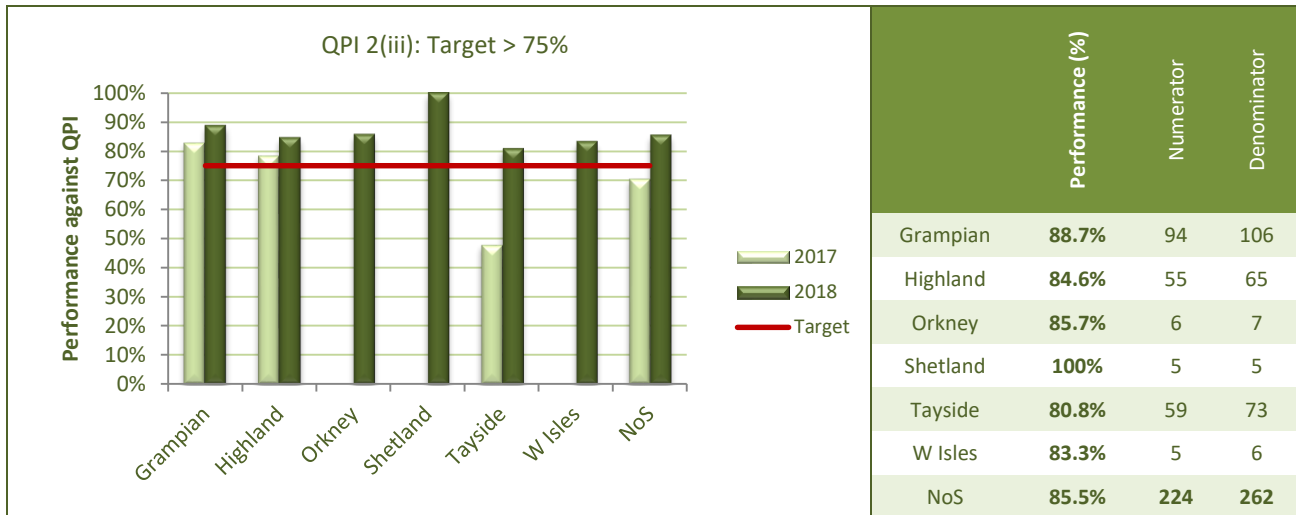
Specification (i) Patients with lung cancer who have a pathological diagnosis (including following surgical resection).



Specification (ii) Patients with a pathological diagnosis of non small cell lung cancer (NSCLC) who have tumour subtype identified.



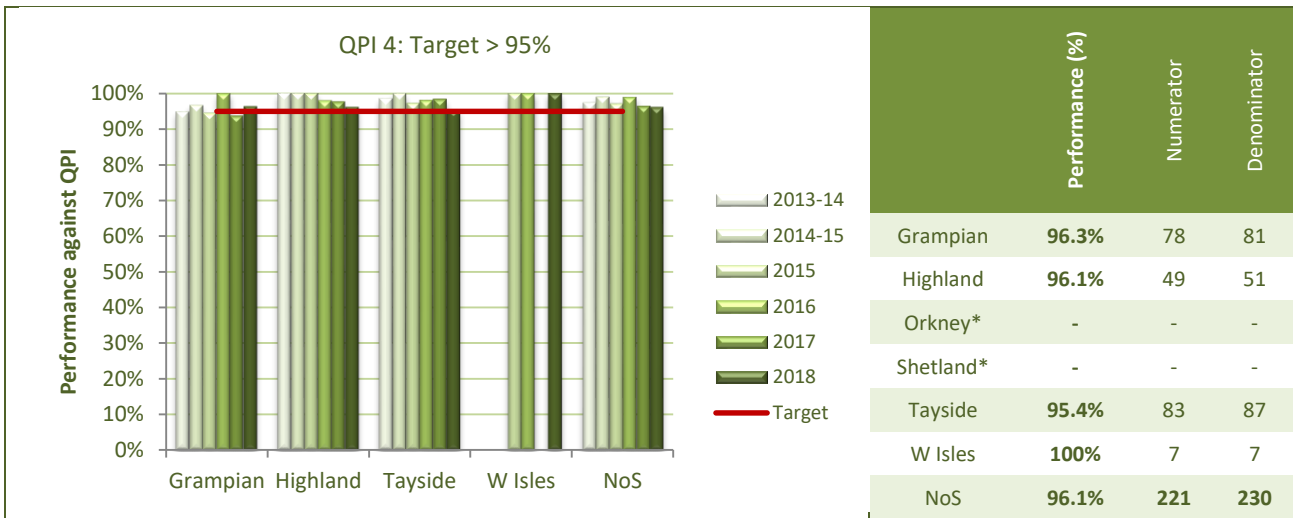
Specification (iii) Patients with a pathological diagnosis of NSCLC who have molecular profiling undertaken.



	Performance (%)	Numerator	Denominator
Grampian	88.7%	94	106
Highland	84.6%	55	65
Orkney	85.7%	6	7
Shetland	100%	5	5
Tayside	80.8%	59	73
W Isles	83.3%	5	6
NoS	85.5%	224	262

<p>Clinical Commentary</p>	<p>Where patients do not have a pathological diagnosis, this is usually due to the fitness of the patient for biopsy, failed attempts at sampling tissue or clinical decisions that a pathological diagnosis will not alter the treatment offered to patients.</p> <p>Specification (i) - the North result of 71% compares to the Scottish average of 69%, with all three regions failing to achieve the 80% target.</p> <p>Specification (ii) - 94% in the North, above the 90% target and 93% Scottish average.</p> <p>Specification (iii) - the North again did well with 85% performance matching the Scottish average and surpassing the 75% target.</p> <p>The 80% target for specification (i) is to be reviewed as part of the formal review of QPIs currently progressing.</p>
<p>Actions</p>	<p>1. NCA to ask the QPI review panel to consider a 70% target for pathological diagnosis of lung cancer, based on the evidence of the first three years of QPI reporting.</p>
<p>Risk Status</p>	<p>Mitigate</p>

QPI 4	PET CT in patients being treated with curative intent
Proportion of patients with non small cell lung cancer (NSCLC) who are being treated with curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) who undergo PET CT prior to start of treatment.	

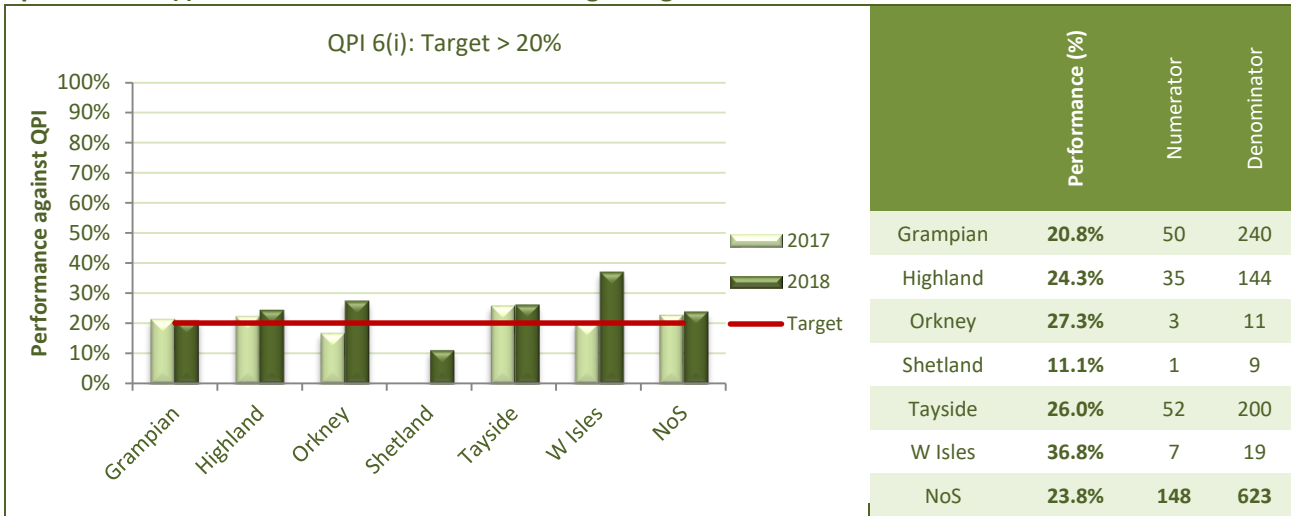


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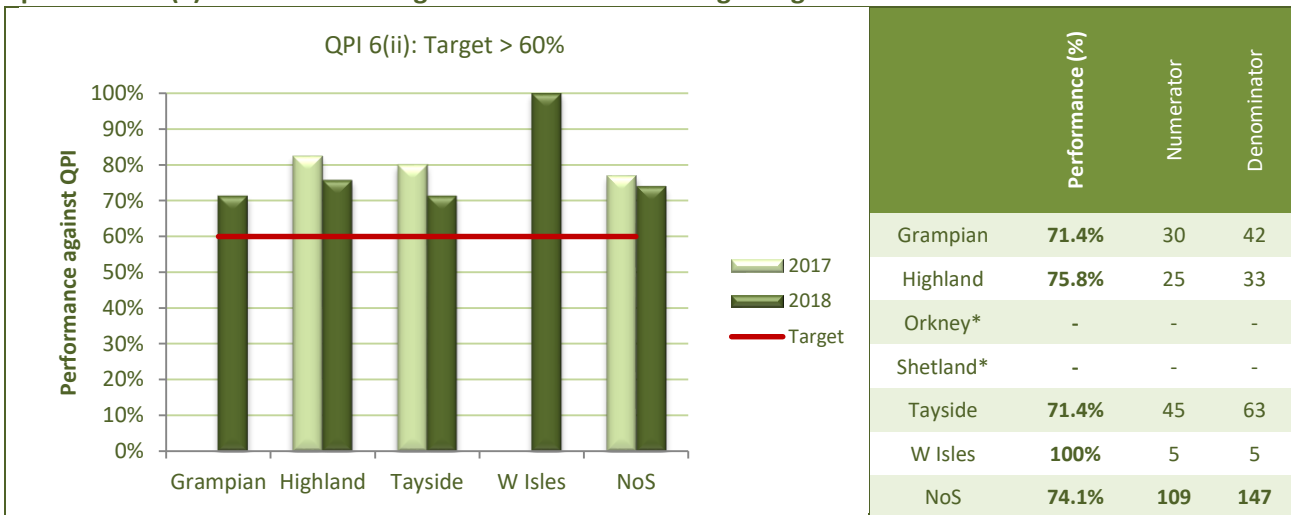
Clinical Commentary	The North of Scotland achieved this QPI for patients diagnosed in 2018. As part of the formal review of QPIs, the NCA has suggested that this QPI be adapted to measure the timescales in undertaking and reporting a PET-CT, to ensure equitable access to PET-CT scanning to all patients. Currently, there is a lag time for NHS Highland patients in obtaining a PET-CT due to the requirement to refer to other North of Scotland boards for this imaging.
Actions	1. NCA has proposed measuring time to PET-CT as a change to this QPI as part of the formal review.
Risk Status	Tolerate

QPI 6	Surgical resection in non small cell lung cancer
Proportion of patients who undergo surgical resection for NSCLC.	

Specification (i) Patients with NSCLC who undergo surgical resection.



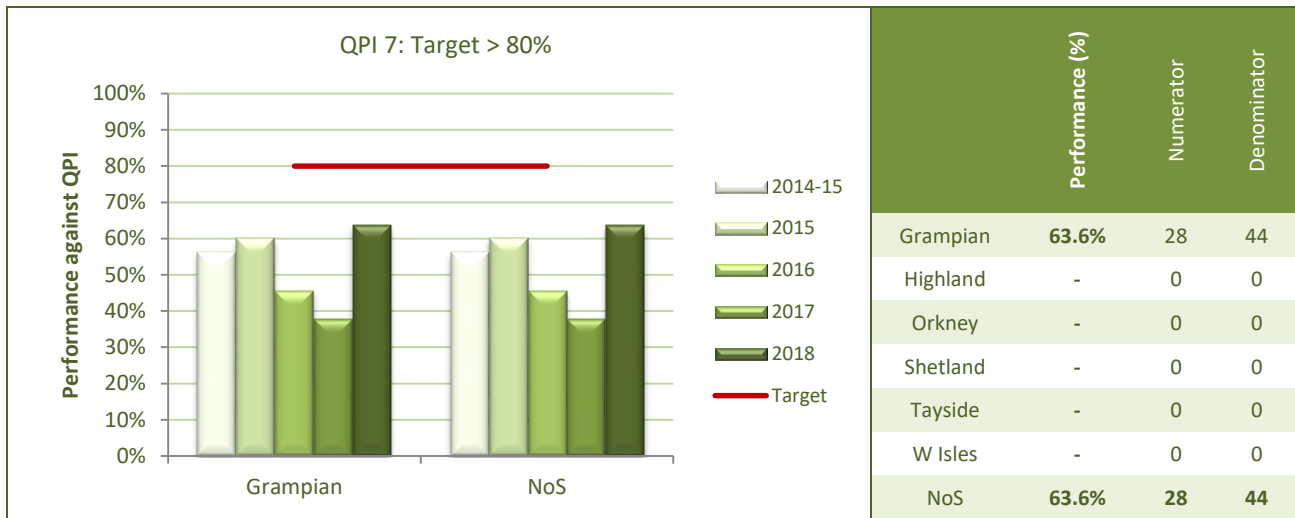
Specification (ii) Patients with stage I - II NSCLC who undergo surgical resection.



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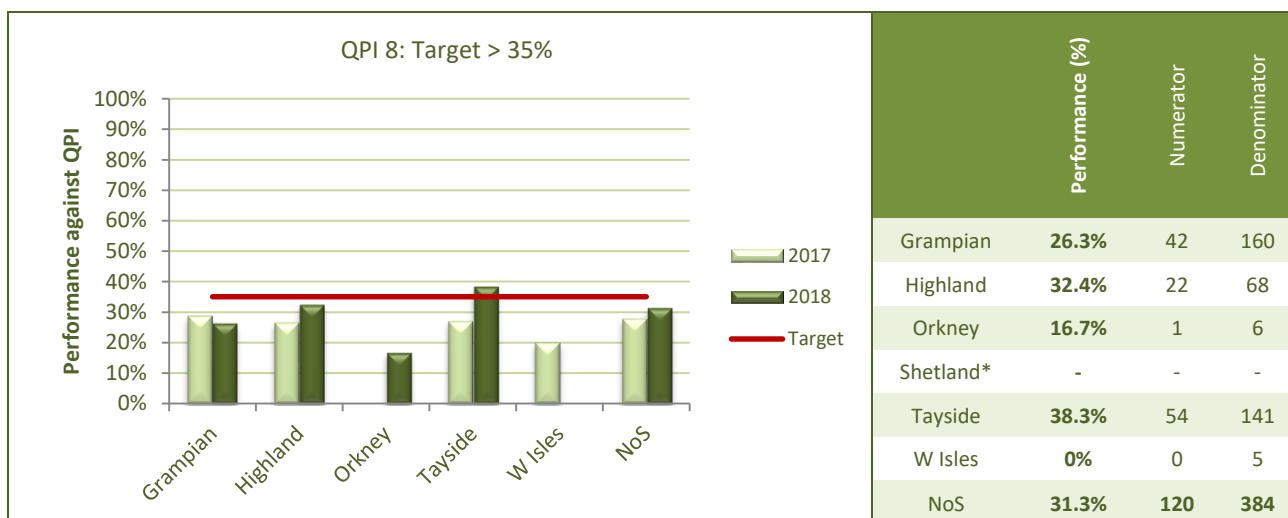
Clinical Commentary	Resection rates for North of Scotland patients continue to improve with nearly 24% of NSCLC patients having surgery, surpassing the 20% target for the second year in a row. Surgery guidelines are being developed in the North of Scotland which agree the decision-making criteria for patients to be considered for thoracic surgery; once ratified, this will ensure all patients in the North of Scotland are considered for surgery against the same criteria, regardless of where they are referred for thoracic surgery.
Actions	No action required.
Risk Status	Tolerate

QPI 7	Lymph node assessment
Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes (at least 1 node from at least 3 N2 stations) performed at time of surgical resection or at previous mediastinoscopy.	



Clinical Commentary	<p>This QPI assesses the performance of thoracic surgery undertaken at Aberdeen Royal Infirmary.</p> <p>Action was taken from the middle of 2018 to ensure compliance with this criteria, and from the second half of 2018, there has been a large improvement in compliance with only 1 case not meeting this criteria.</p> <p>Action has been taken to improve lymph node sampling at ARI and an interim audit has shown that NHS Grampian is now meeting this QPI target with 85% compliance for lung cancer surgery undertaken in 2019.</p> <p>It is therefore expected that the North of Scotland will achieve this target in future years of QPI reporting.</p>
Actions	<ol style="list-style-type: none"> NHS Grampian to continue audit of lymph node sampling to ensure achievement of this QPI in future years.
Risk Status	Mitigate

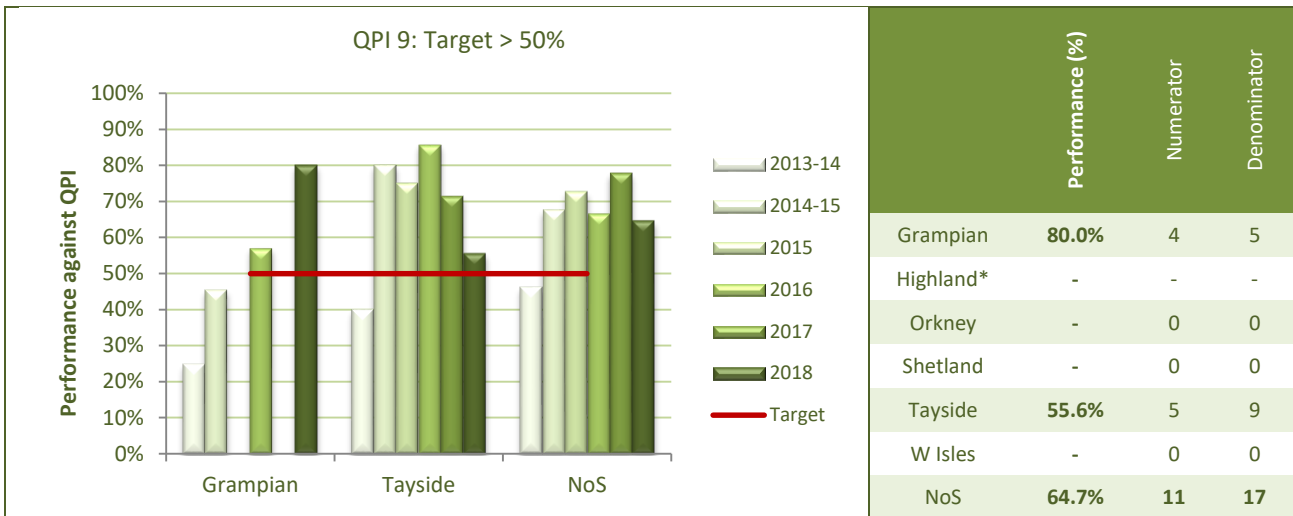
QPI 8	Radiotherapy in inoperable lung cancer
Proportion of patients with lung cancer not undergoing surgery who receive radiotherapy with radical intent (54Gy or greater) ± chemotherapy, or SABR.	



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Clinical Commentary	<p>The North of Scotland failed to meet this QPI target for patients diagnosed in 2018. All cases have been looked at by NHS Boards and for those patients not undergoing surgery / medically inoperable, there are often pre-existing comorbidities that also make them unsuitable for radical radiotherapy. Examples of these would be poor lung function and interstitial lung disease. Patients not undergoing radical radiotherapy will often have palliative treatments or best supportive care only.</p> <p>Currently, the North Cancer Lung Pathway Board are finalising the clinical management guidelines for NSCLC and SCLC patients which will ensure decision-making for these radical treatments is equitable across the North of Scotland. Results in the North of Scotland fall behind the Scottish average of 36%, with SCAN the only region to achieve this target in two years of reporting.</p>
Actions	<ol style="list-style-type: none"> 1. NCLPB to finalise the clinical management guidelines for NSCLC and SCLC to align decision-making for radical treatments across the three North cancer centres.
Risk Status	Mitigate

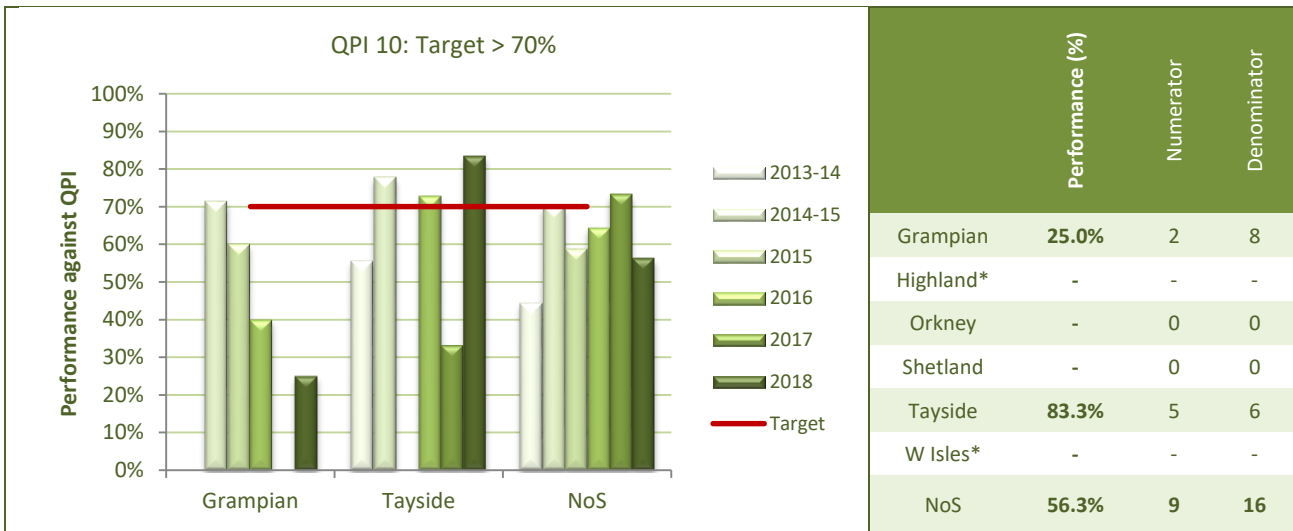
QPI 9	Chemoradiotherapy in locally advanced non small cell lung cancer
Proportion of patients with NSCLC not undergoing surgery who receive radical radiotherapy, to 54Gy or greater, and concurrent or sequential chemotherapy.	



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Clinical Commentary	The North of Scotland result of 64.7% was the best of the three Scottish regions for patients diagnosed in 2018 and above the 50% target and 54% Scottish average, although please note the limited patients including within the denominator of this QPI.
Actions	No action required
Risk Status	Tolerate

QPI 10	Chemoradiotherapy in limited stage small cell lung cancer
Proportion of patients with limited stage (stage I – IIIB) SCLC treated with radical intent who receive both platinum-based chemotherapy, and radiotherapy to 40Gy or greater.	

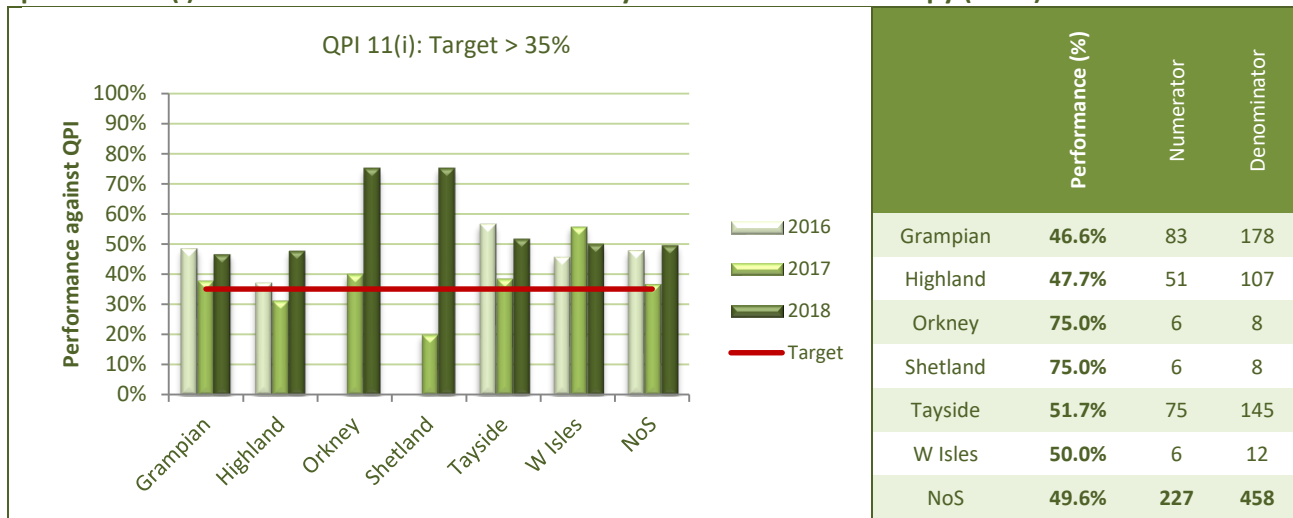


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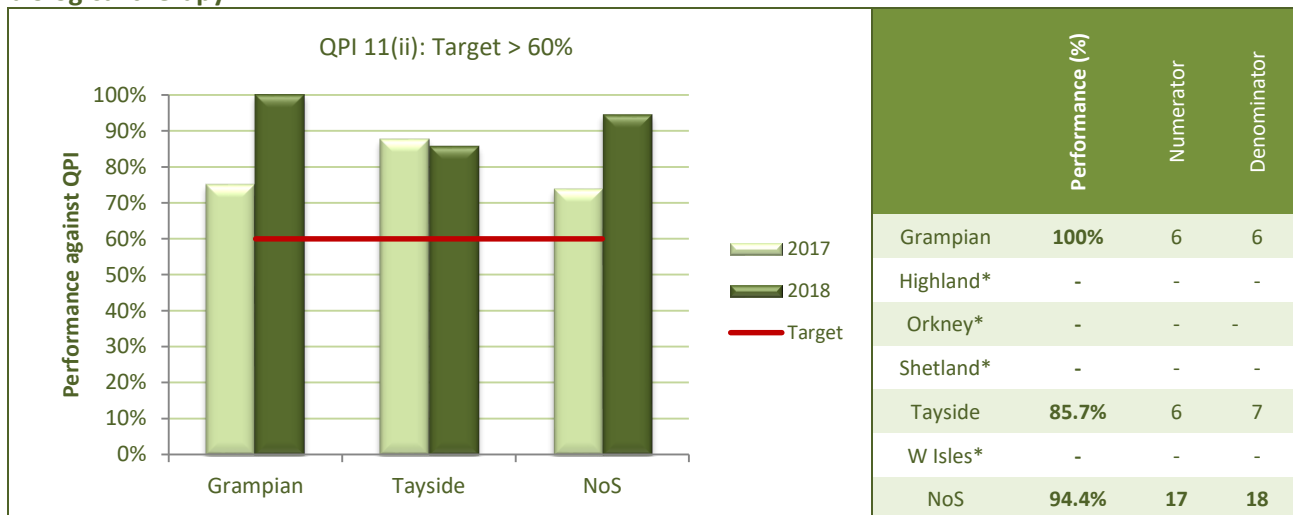
Clinical Commentary	While the North of Scotland failed to achieve this target, our 56.3% performance was above the Scottish average of 54%. Furthermore, there were data collection issues in NHS Grampian for two patients who had chemotherapy for limited stage disease, but could not be included within this QPI due to how their staging was recorded. The NCLPB has written to the chair of the NHS Grampian MDT to ensure all patients are staged using the TNM system to ensure all eligible patients can be included in the reporting of this QPI.
Actions	1. All boards to ensure patients are staged using the TNM system incorporated as part of the NSCLC and SCLC clinical management guidelines.
Risk Status	Mitigate

QPI 11	Systemic anti cancer therapy in non small cell lung cancer
Proportion of patients with NSCLC not undergoing surgery who receive chemotherapy or biological therapy where appropriate.	

Specification (i) Patients with NSCLC who receive systemic anti cancer therapy (SACT).



Specification (ii) Patients with stage IIIB and IV NSCLC that are EGFR or ALK positive who receive biological therapy.

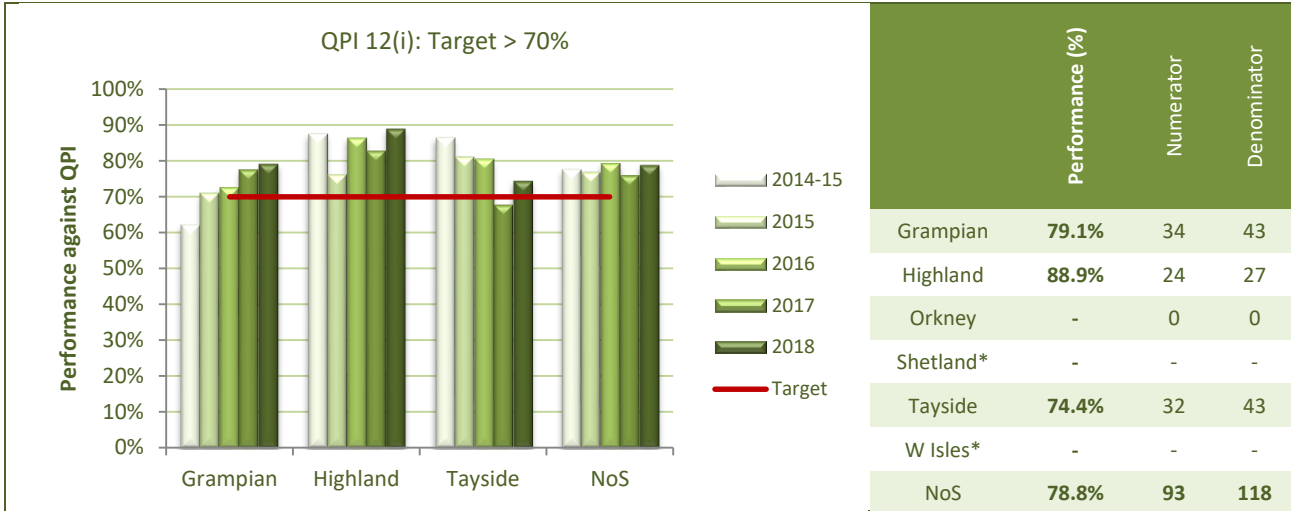


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Clinical Commentary	The North of Scotland achieved this QPI target for patients diagnosed in 2018, with performance for specification (i) above the Scottish average of 43%, while specification (ii) surpassed the 60% target and the 88% result for Scotland.
Actions	No action required
Risk Status	Tolerate

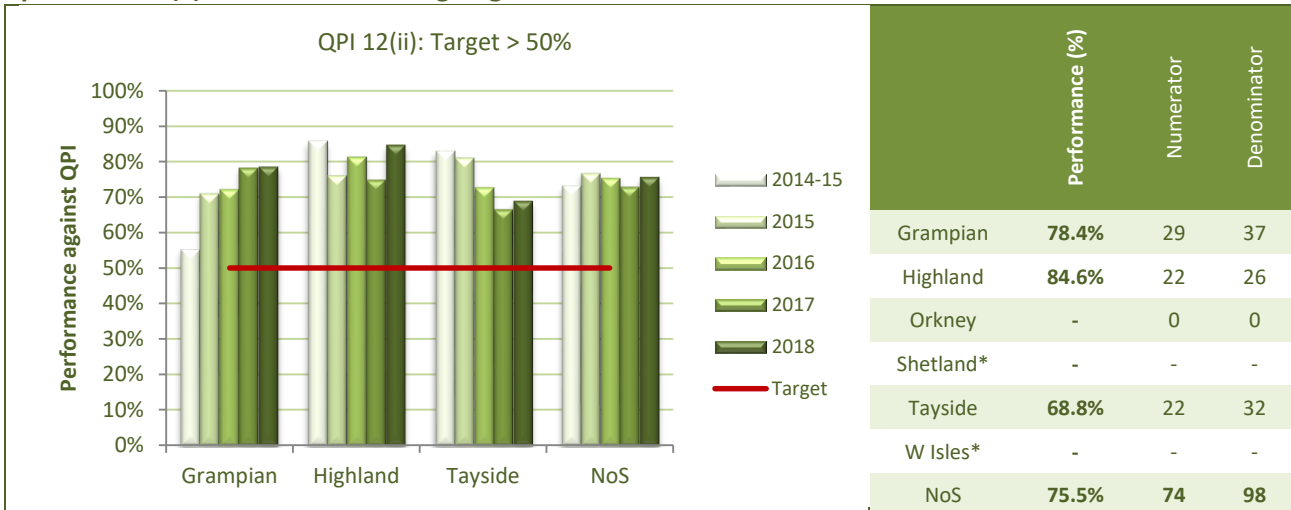
QPI 12	Chemotherapy in small cell lung cancer
Proportion of patients with SCLC who receive first line chemotherapy ± radiotherapy.	

Specification (i) All patients with SCLC



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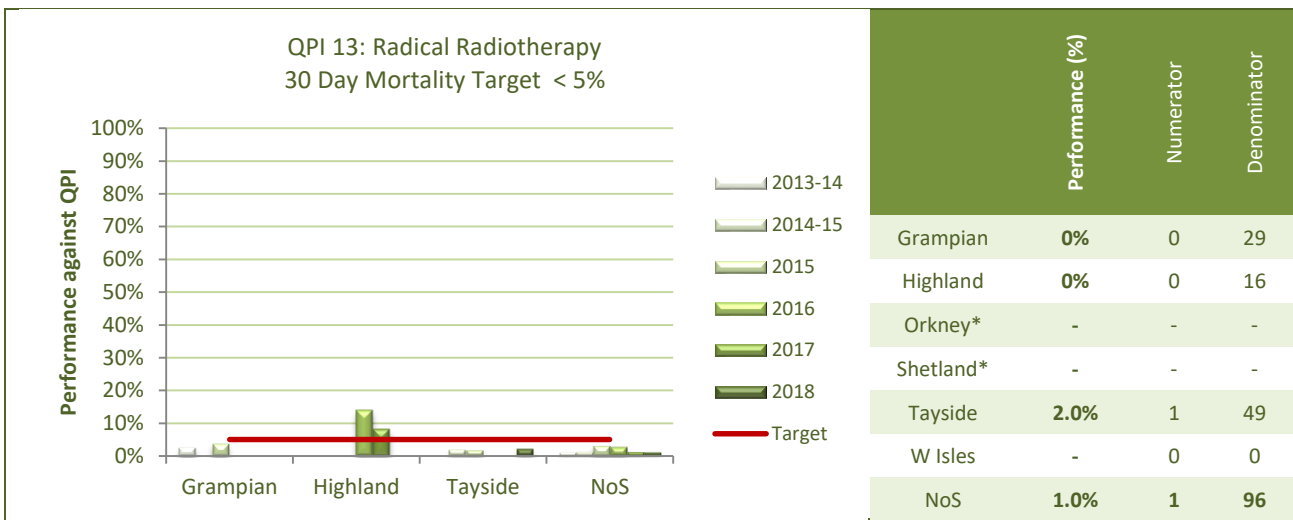
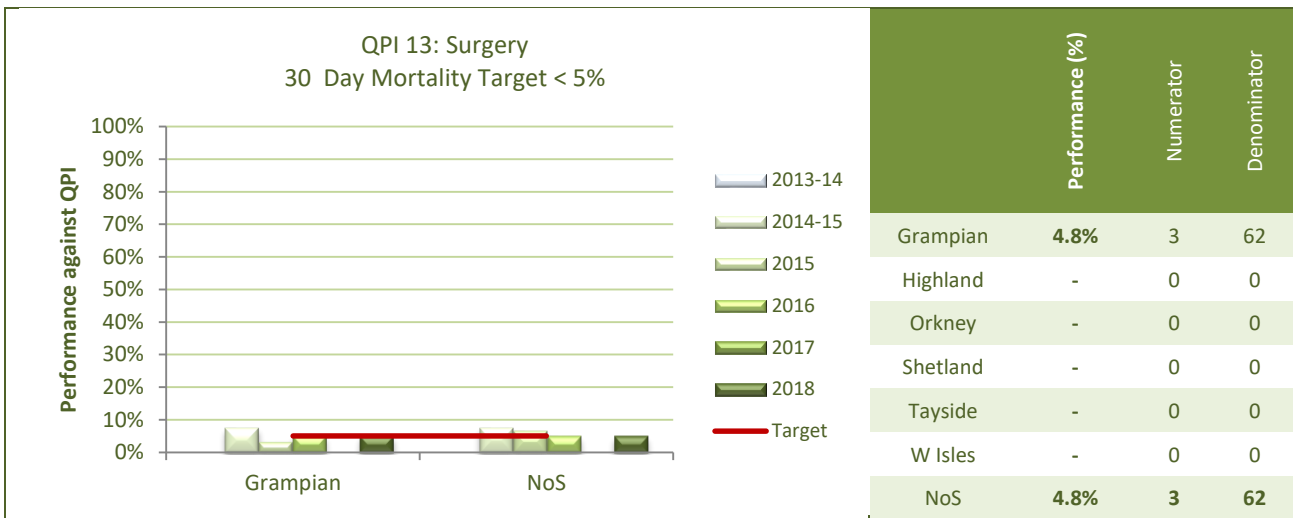
Specification (ii) Patients not undergoing treatment with curative intent.



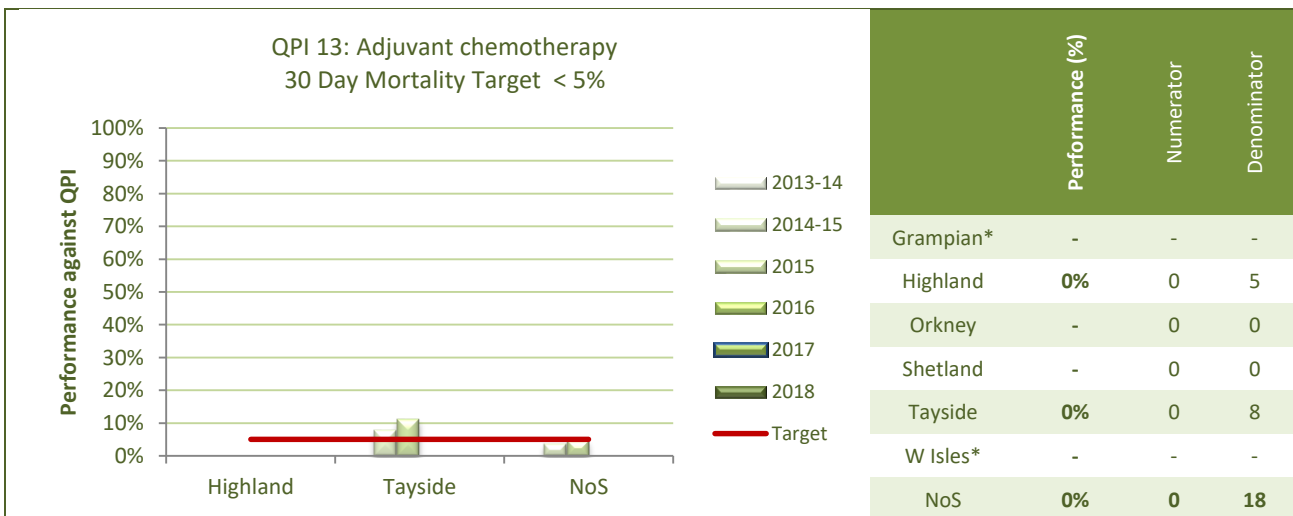
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Clinical Commentary	For the fifth straight year, the North of Scotland achieved this QPI target and again these results were above the Scottish averages of (i) 75% and (ii) 69%.
Actions	No action required.
Risk Status	Tolerate

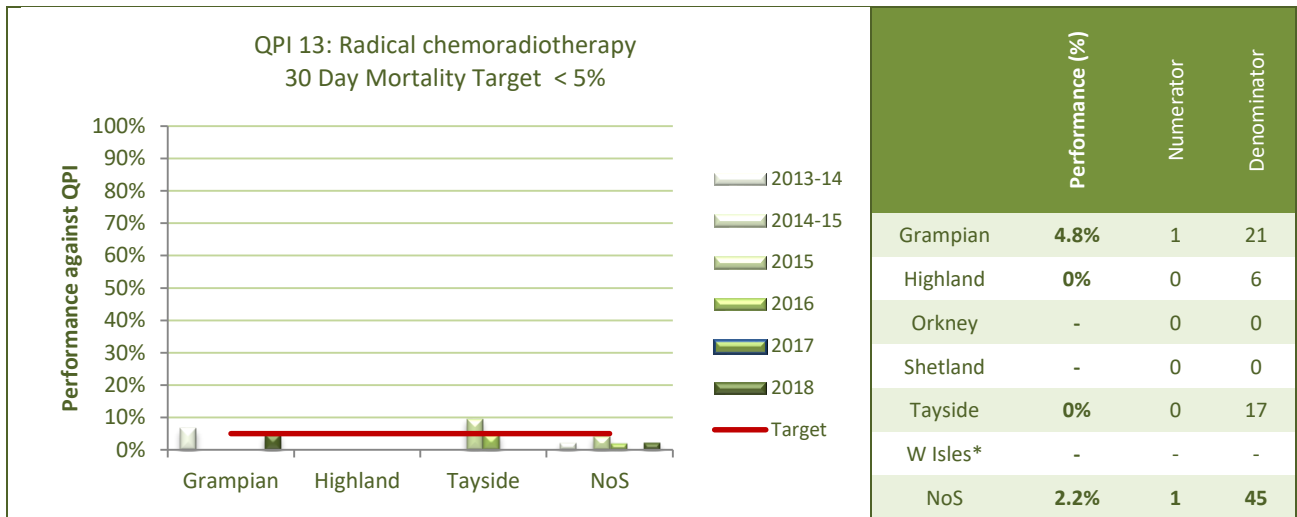
QPI 13	Mortality following treatment for lung cancer
Proportion of patients with lung cancer who die within 30 or 90 days of active treatment for lung cancer.	



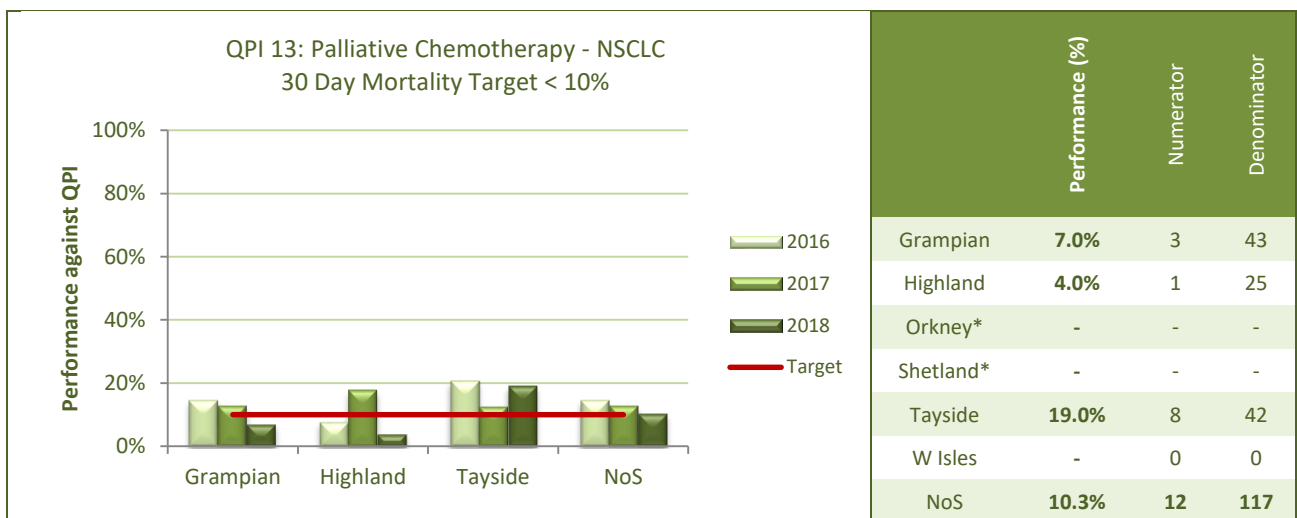
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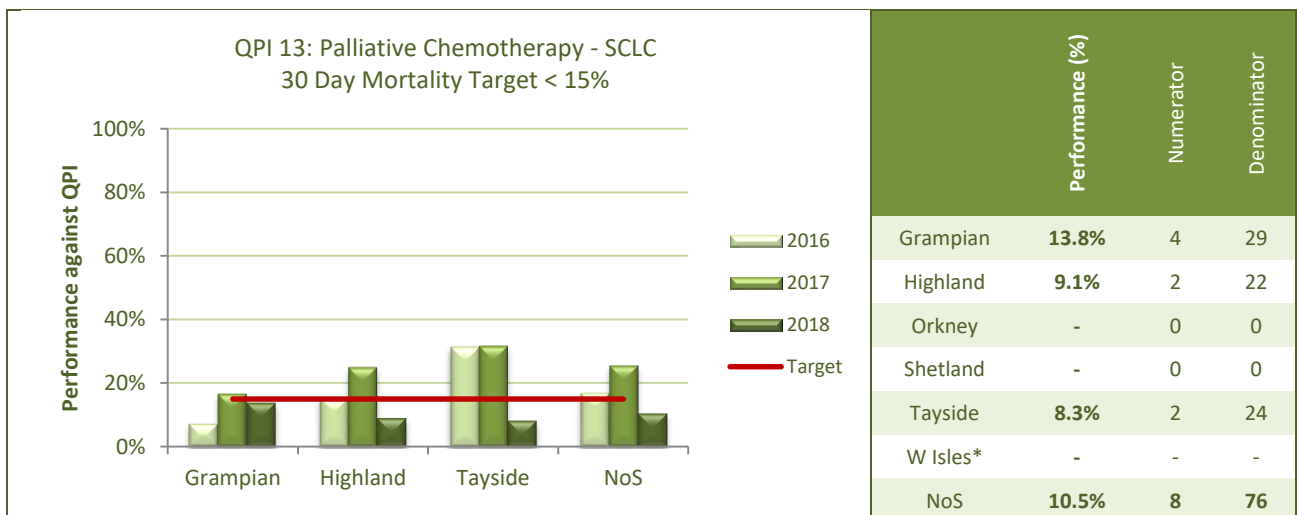
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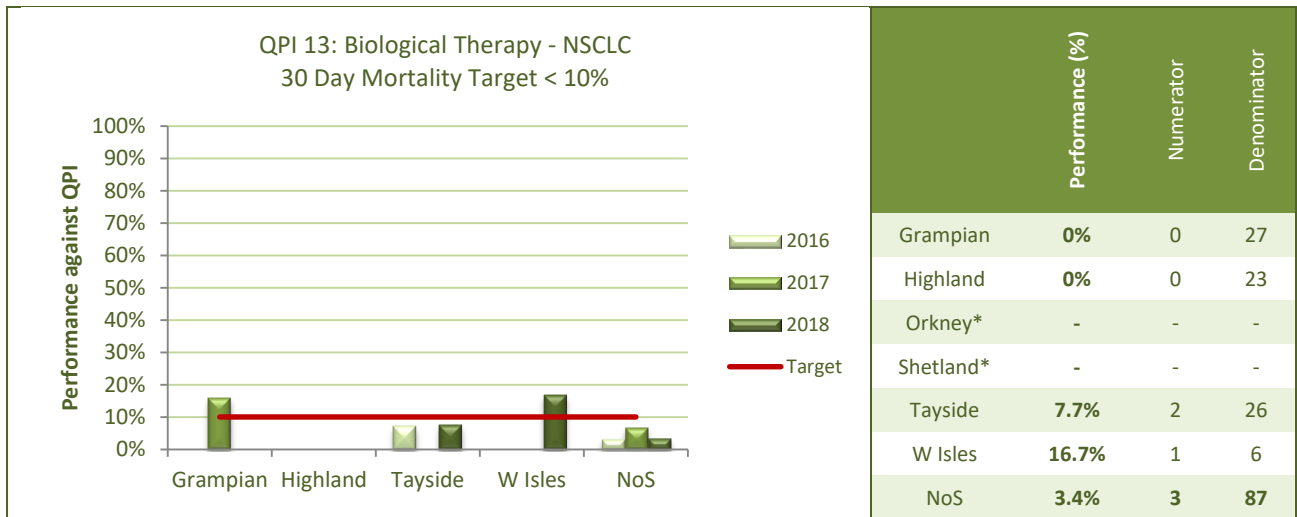
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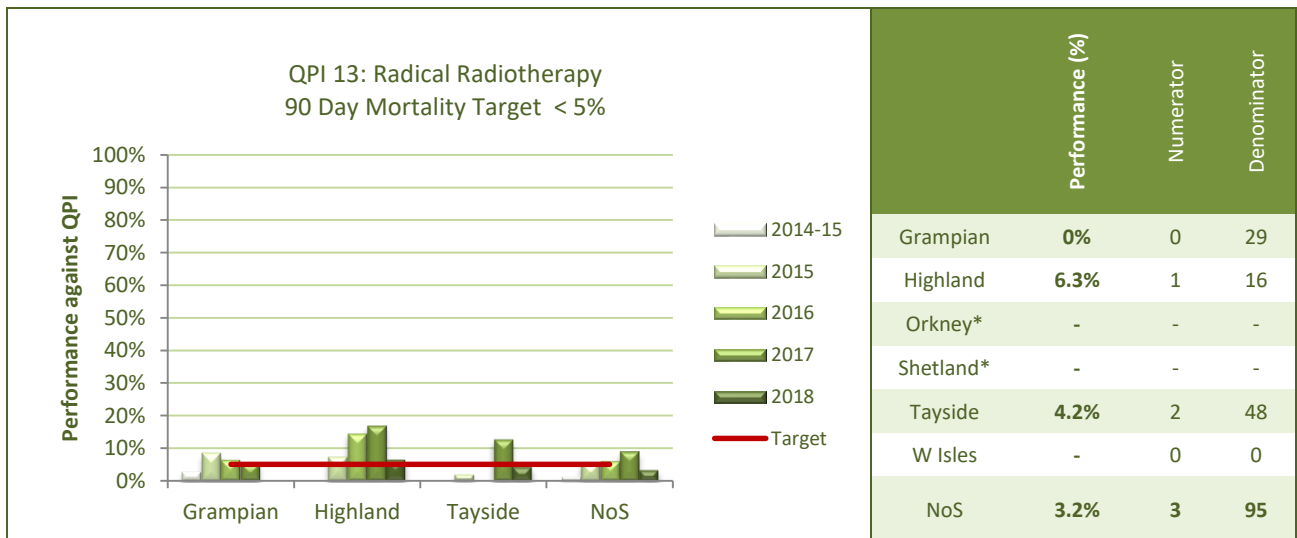
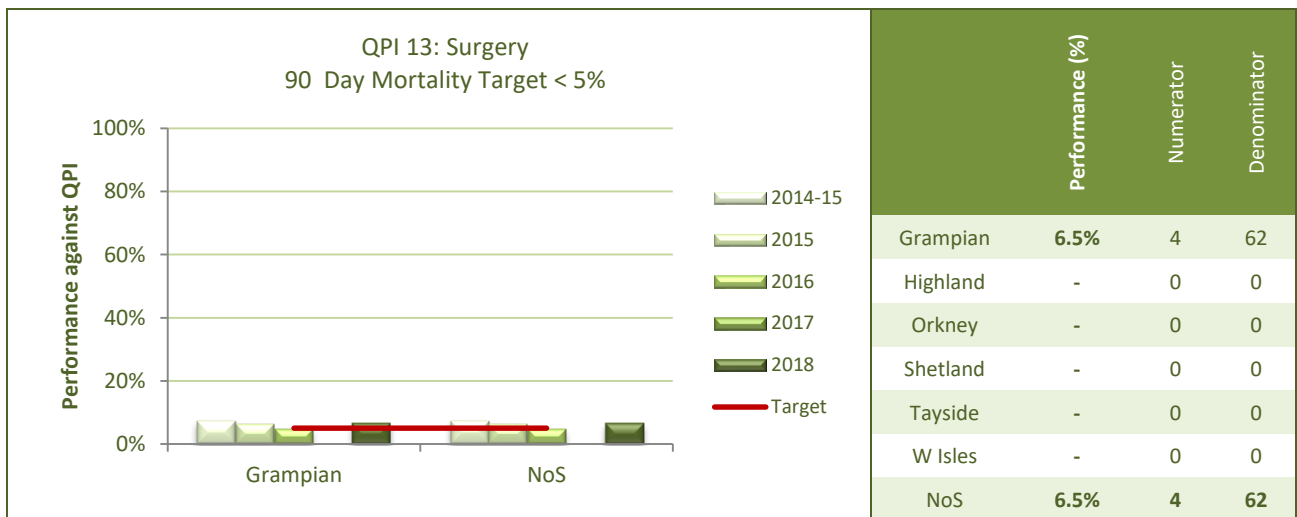


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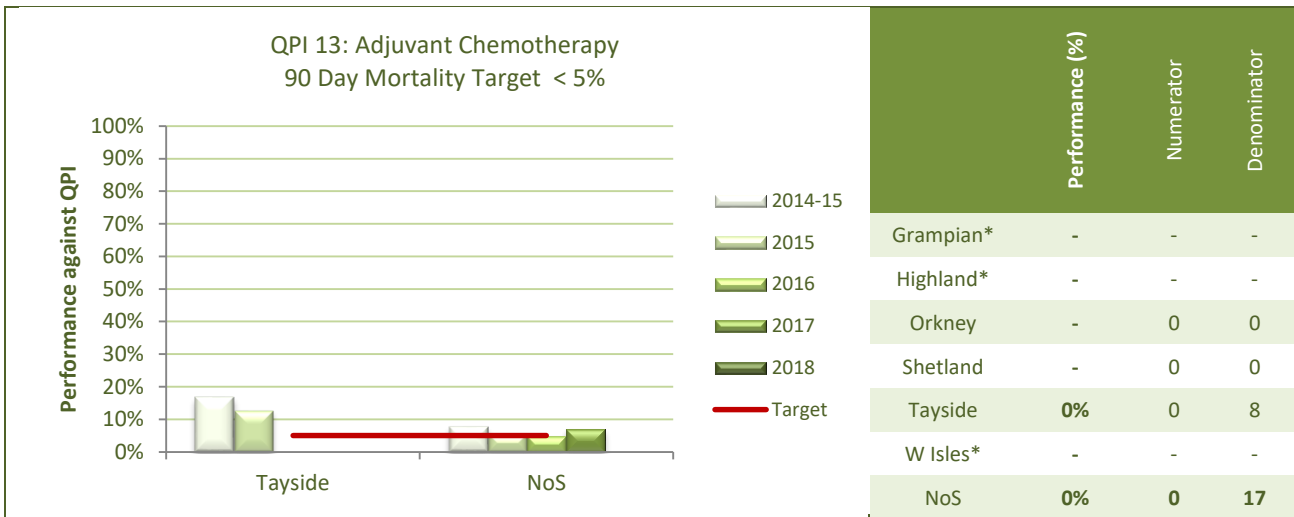


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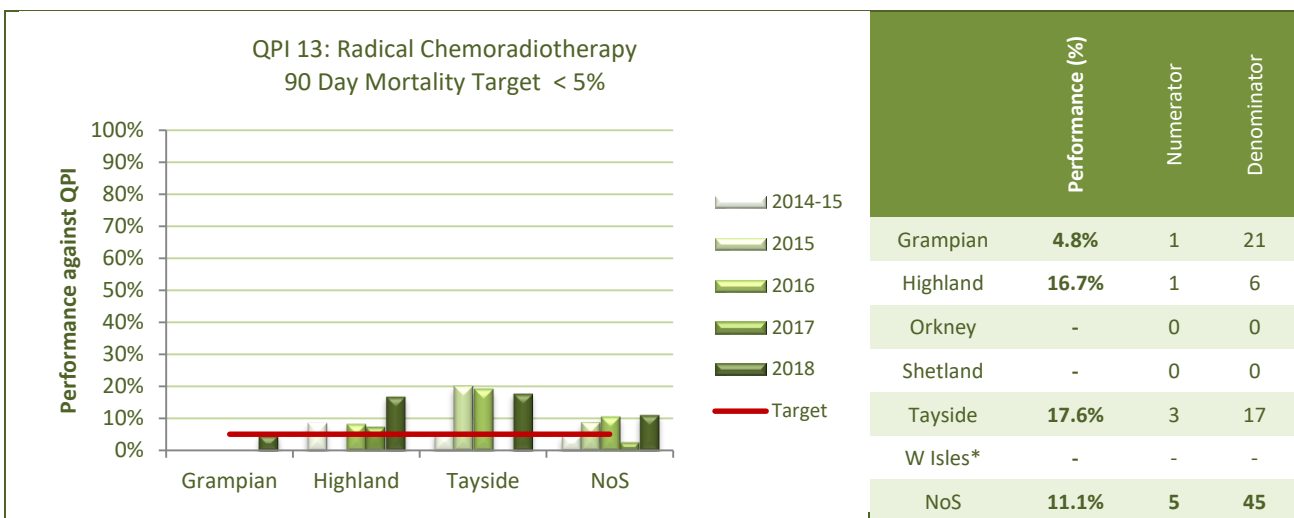
Note that no patients with SCLC received biological therapy.



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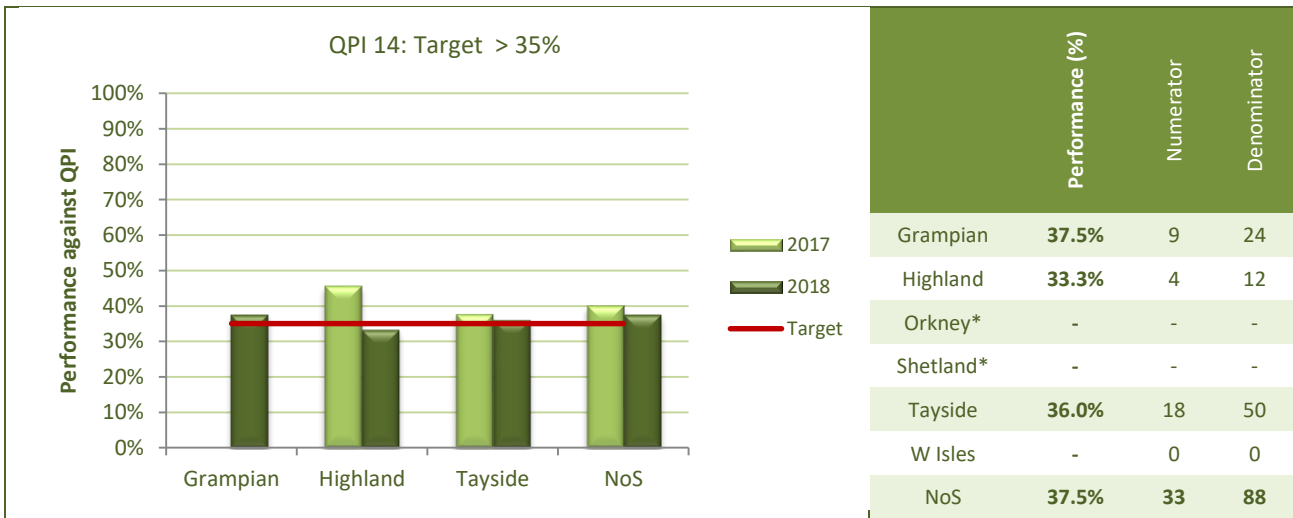
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Clinical Commentary

Mortality for patients within 30 and 90-day of treatments continues to be reviewed at board level. For 90-day mortality, the tolerances for patients undergoing Surgery and Radical Chemoradiotherapy were not met. For the four deaths after surgery, these cases have been reviewed locally as part of morbidity and mortality review. For Radical Chemoradiotherapy, there were five deaths across the three cancer centres and all have been reviewed at board level. The NCA lung cancer pathway board is committed to providing the best service for our patients. At present there is variation in the north with regards to referral to thoracic surgical centres. Patients from Highland are referred to the Golden Jubilee Hospital in Glasgow, patients from Tayside are referred to Edinburgh Royal Infirmary and in Grampian, patients are referred to the local thoracic surgical team. This historical referral pattern stretches back many years and was borne out of a variety of factors at the time. The current arrangements are now well established and work well for the MDTs in the different boards, with surgical teams present via video conference and well-established lines of communication between the clinical and administrative teams in the referral and thoracic surgical centres. The NCA lung cancer pathway board are seeking a plan and guidance from the NCA and NHS Grampian as to the future plans for thoracic surgery in the north.

	The surgical team in Aberdeen Royal Infirmary are providing an efficient service that includes VATS resection, but it is hard to ignore that the volume of surgery and number of surgeons is appreciably lower than other centres in Scotland. The mortality figures for this year are higher than the rest of Scotland, however in contrast it is noted that for 2017 the mortality rate was 0%.
Actions	1. NCLPB seeks guidance from NCA and NHS Grampian as to plans for thoracic surgery for the North
Risk Status	Escalate

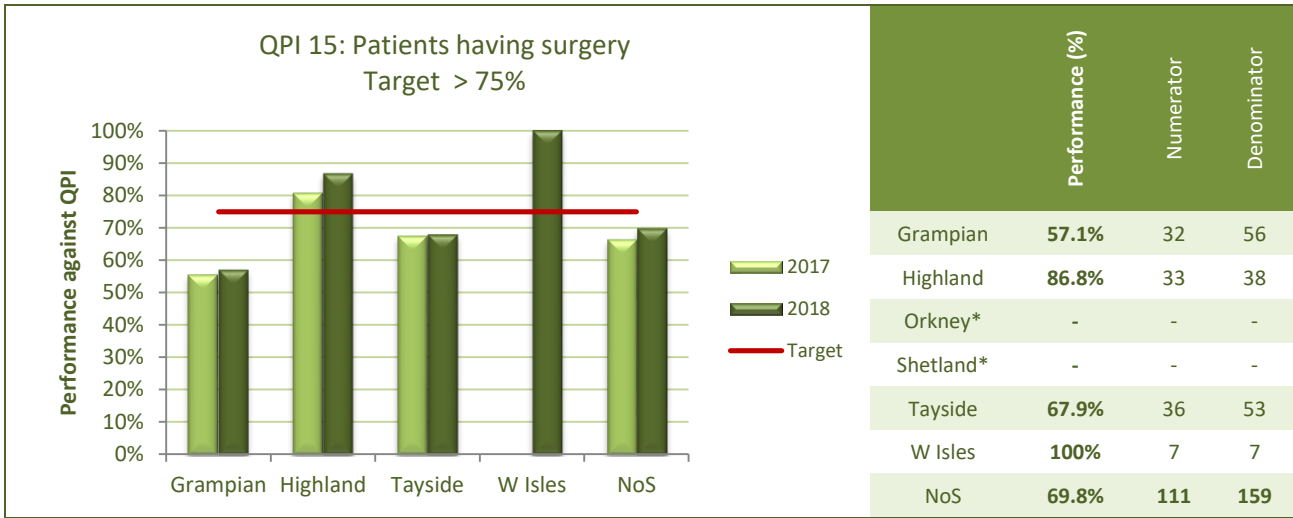
QPI 14	Stereotactic Ablative Radiotherapy (SABR) in inoperable stage I lung cancer
Proportion of patients with stage I lung cancer not undergoing surgery who receive SABR.	



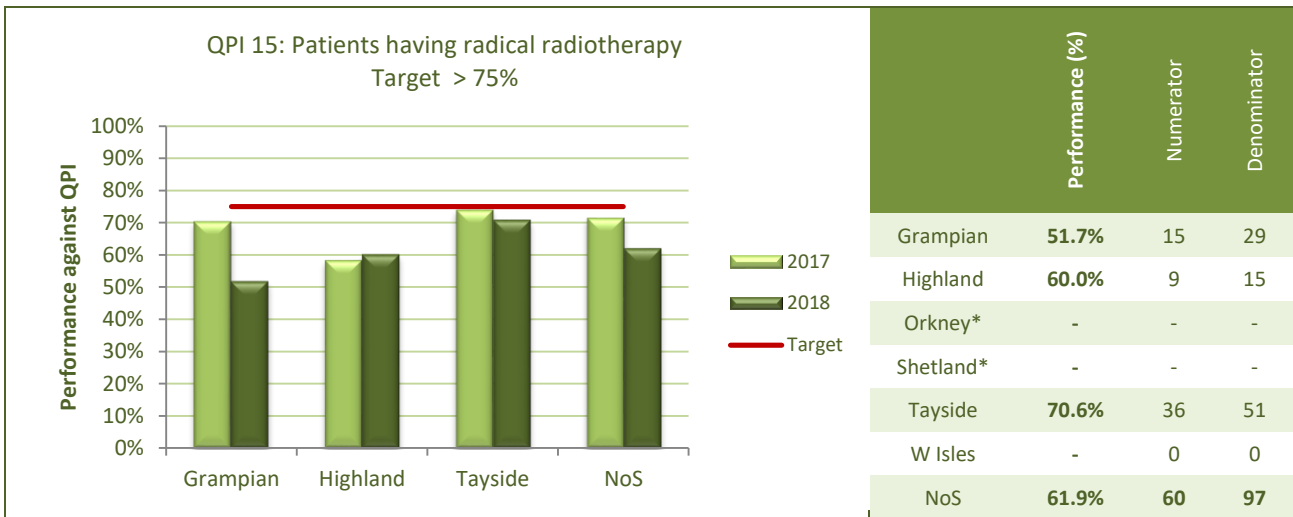
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Clinical Commentary	The North of Scotland achieved the 35% target for patients diagnosed in 2018 and remain consistent with the Scottish average of 38%. SABR has been embedded in patient pathways and the revised clinical management guidelines, and this will ensure appropriate stage 1 patients are being offered SABR where they are not undergoing surgery.
Actions	No action required.
Risk Status	Tolerate

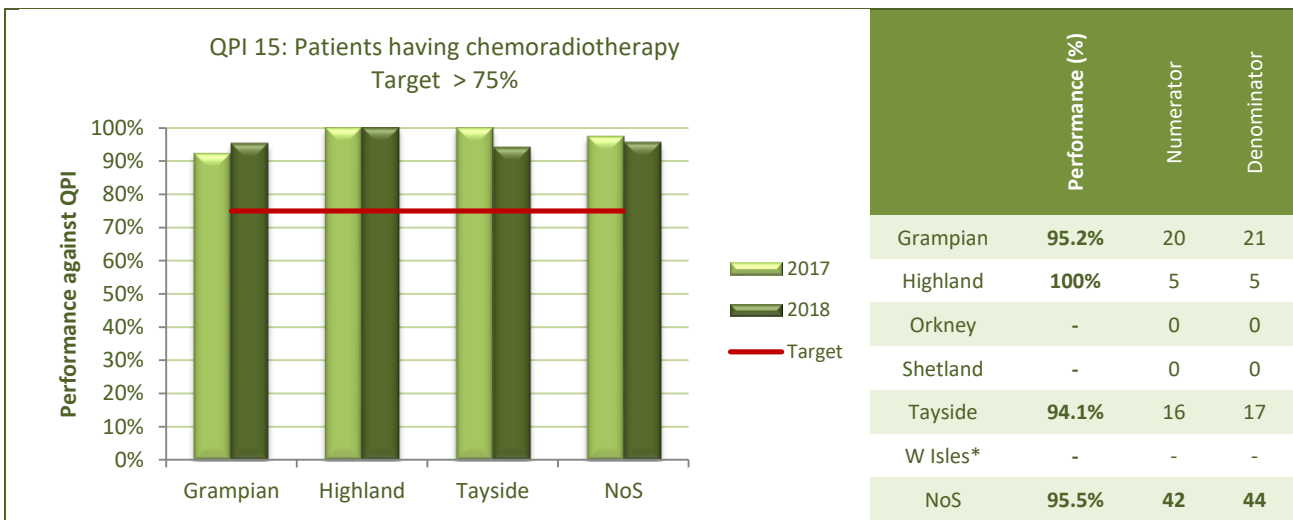
QPI 15	Pre-treatment diagnosis
Proportion of patients who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that have a cytological / histological diagnosis prior to treatment.	



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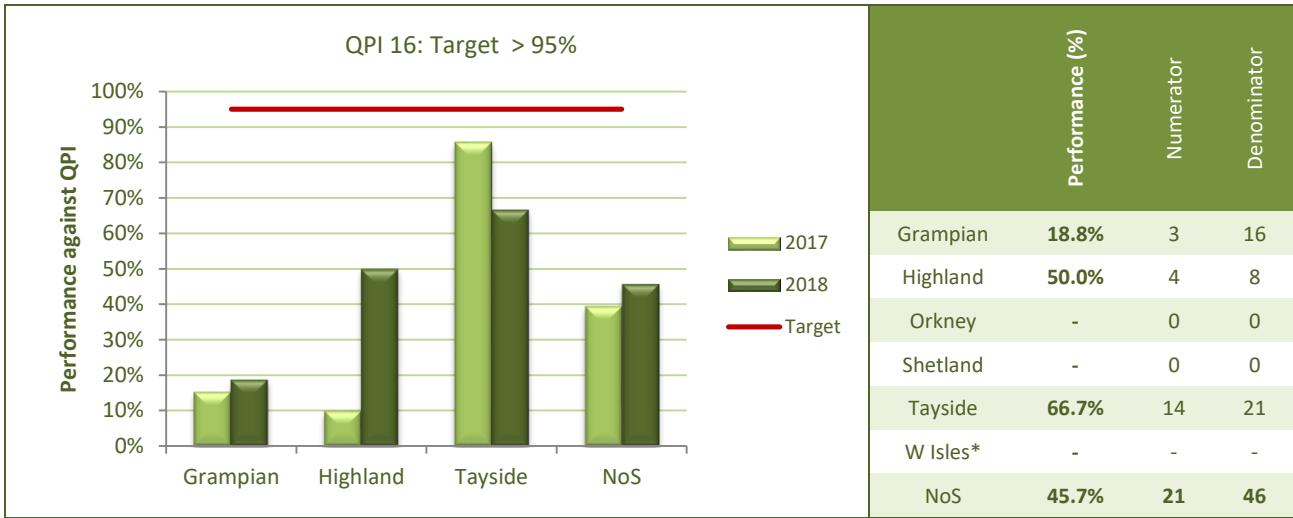
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Clinical Commentary	<p>While the North of Scotland failed to meet the targets in specification (i) and (ii), it has been noted that the achievement of histological diagnosis is not always possible.</p> <p>Results for the North are above the Scottish averages, with specification (i) 70% above the 63% average, while specification (ii) was 62% compared to 60%. The target for specification (iii) is achieved with only two patients having chemoradiotherapy not having a tissue diagnosis, and this is often due to their suitability for biopsy prior to treatment.</p>
Actions	<ol style="list-style-type: none"> 1. NCA to propose the tolerances for this QPI are reviewed as part of the QPI formal review process currently progressing.
Risk Status	Mitigate

QPI 16	Brain Imaging
Proportion of patients with N2 disease who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that undergo contrast enhanced CT or contrast enhanced MRI prior to start of treatment.	

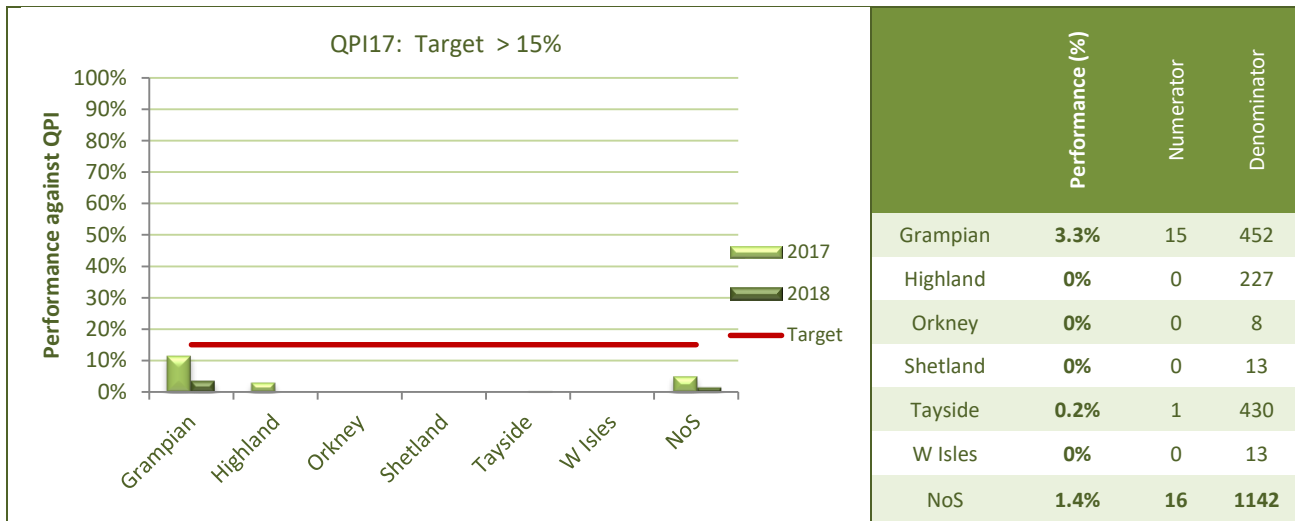


*Where the number of cases per Board is between one and four, this is excluded from charts and tables to minimise the risk of disclosure. However, these excluded Board numbers are included within the total for the North of Scotland.

Clinical Commentary	<p>Performance against this QPI requires improvement in the North of Scotland; there has been discussion at the North Cancer Lung Pathway Board to gain regional consensus around which patients should receive brain imaging, in line with the review of NICE guidelines. It has been proposed to exclude SCLC patients from this QPI as part of the formal review, as per the new guidelines these patients should not be offered brain imaging. Furthermore, this is embedded within the reviewed clinical management guidelines for lung cancer to be ratified.</p> <p>These improvements should ensure performance against a new QPI for brain imaging will provide a better assessment of quality of care in future years.</p>
Actions	<ol style="list-style-type: none"> 1. NCA have proposed to the QPI Formal Review panel that patients with SCLC are excluded from this QPI, as per clinical practice. 2. NCLPB to approve the clinical management guidelines for NSCLC and SCLC and ensure brain imaging pathways at board level reflect agreed regional practice based on the revised NICE guidelines.
Risk Status	Mitigate

Clinical Trials and Research Study Access QPI

Proportion of patients with lung cancer who are consented for a clinical trial / translational research. Figures show patients consented for clinical trials or research studies during 2018.



Clinical Commentary	Recruitment to clinical trials remains a key challenge across all tumour groups in the North of Scotland. The NCLPB is circulating a list of open trials to pathway board members to encourage intra-regional referrals where patients are eligible for clinical trial entry.
Actions	1. All clinicians should consider opening relevant clinical trials in their tumour areas. When this is not possible patient referrals to other sites for access to clinical trials should be considered.
Risk Status	Mitigate

References

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1. NHS National Services Scotland. Cancer Survival in Scotland, 1987-2011. 2015. <https://isdscotland.scot.nhs.uk/Health-Topics/Cancer/Publications/2015-03-03/2015-03-03-CancerSurvival-Report.pdf>
2. Scottish Cancer Taskforce, 2017. Lung Cancer Clinical Performance Indicators, Version 3.1. Health Improvement Scotland. <http://www.healthcareimprovementscotland.org/his/idoc.ashx?docid=ca8878fd-6a36-4c47-8151-836756f44c0c&version=-1>
3. <http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/>
4. https://www.nrhc.scot/uploads/tiny_mce/NCA/NCA%20Governance/NCA-GOV-QPI-Process-Explained.pdf

Appendix 1: Clinical Trials and Research studies open to recruitment in the North of Scotland in 2018

Trial	Principle Investigator	Patients enrolled
CANC – 4658: LUME bioNIS	Gillian Price (Grampian)	Y
CANC-4880 - PEARLS: A randomized, phase 3 trial with anti-PD-1 monoclonal antibody pembrolizumab (MK-3475) versus placebo for patients with early stage NSCLC after resection and completion of standard adjuvant therapy (PEARLS)	Angela Scott (Tayside) Gillian Price (Grampian)	Y
CONFIRM	Gillian Price (Grampian) Angela Scott (Tayside) Carol MacGregor (Highland)	Y
NIVO PASS	Gillian Price (Grampian)	Y
TRACERx	Gillian Price (Grampian)	Y
DARWIN1	Gillian Price (Grampian)	N
DARWIN2	Gillian Price (Grampian)	N
NCRN - 3033: EGF cancer vaccine in IIIb/IV biomarker positive, wild type EGF-R NSCLC patients (Bioven)	Gillian Price (Grampian)	N
SPLENDOR: Survival imProvement in Lung canCEr iNduced by DenOsUmab theRapy	Gillian Price (Grampian)	N
SYSTEMS-2	Claire Stilwell (Grampian)	N
VIM	Gillian Price (Grampian)	N