

Quality Performance Indicators Audit Report



Tumour Area:	Lung Cancer
Patients Diagnosed:	1 st January – 31 st December 2017
Published Date:	26 th March 2019
Clinical Commentary:	Dr. Richard Stretton North Cancer Lung Clinical Director

1. Lung Cancer in Scotland

Latest available cancer registration figures indicate that with 5045 cases recorded during 2016, lung cancer is the most common types of cancer in Scotland, although incidence rates have reduced by 9.6% 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.

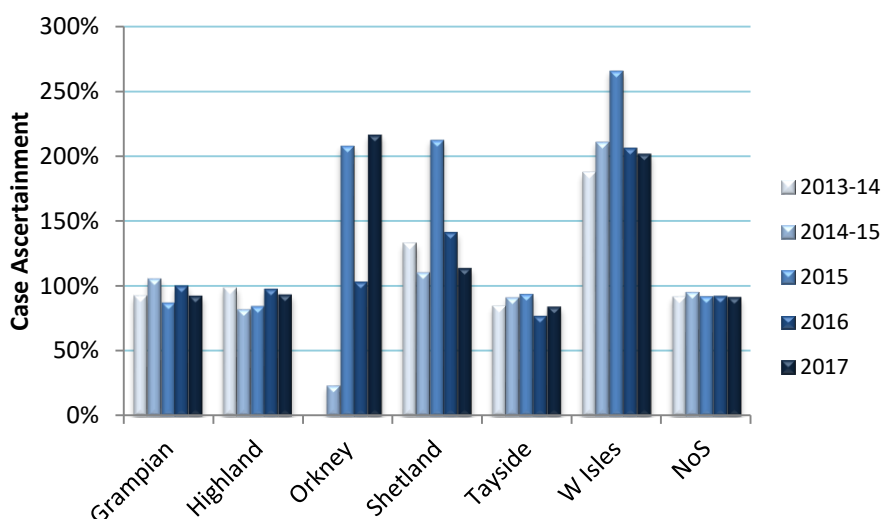
Relative survival for lung cancer is increasing². The table below shows the percentage change in one-year and five-year age-standardised survival rates for patients diagnosed in 1987-1991 compared to those diagnosed in 2007-2011.

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 2017 a total of 1023 cases of lung cancer were diagnosed in the North of Scotland and recorded through audit. Overall case ascertainment was high at 91.8%, similar to previous years, which indicates good 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.



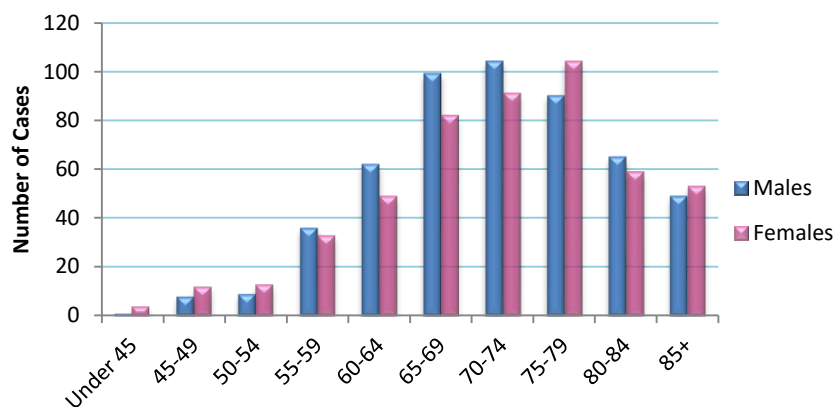
Case ascertainment by NHS Board for patients diagnosed with lung cancer in 2013-2017.

	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NoS
No. of Patients 2017	400	221	13	13	355	21	1023
% of NoS total	39.1%	21.6%	1.3%	1.3%	34.7%	2.1%	100.0%
Mean ISD Cases 2012-16	431.0	235.8	6.0	11.4	420.2	10.4	1114.8
% Case ascertainment 2017	92.8%	93.7%	216.7%	114.0%	84.5%	201.9%	91.8%

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 for patients in NHS Grampian. This is a temporary issue due to the NHS Grampian team adopting the updated TNM version 8 in January 2017, while the QPI reporting adopted TNM version 8 from January 2018. Therefore despite very good recording of the TNM this unfortunately had to be recorded as 'not recorded', resulting in considerable numbers of patients not being included within the denominator for QPI 2iii, 6, 9, 10 and 14.

3. Age Distribution

The figure below shows the age distribution of patients diagnosed with lung cancer in the North of Scotland in 2017, with numbers of patients diagnosed highest in the 70-74 year age bracket for men and 75-79 year age bracket for women.



Age distribution of patients diagnosed with lung cancer in the North of Scotland 2017.

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. For some QPIs comparable data are not available for previous years due to changes in the QPI definitions or because they are new QPIs.

5. Governance and Risk

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

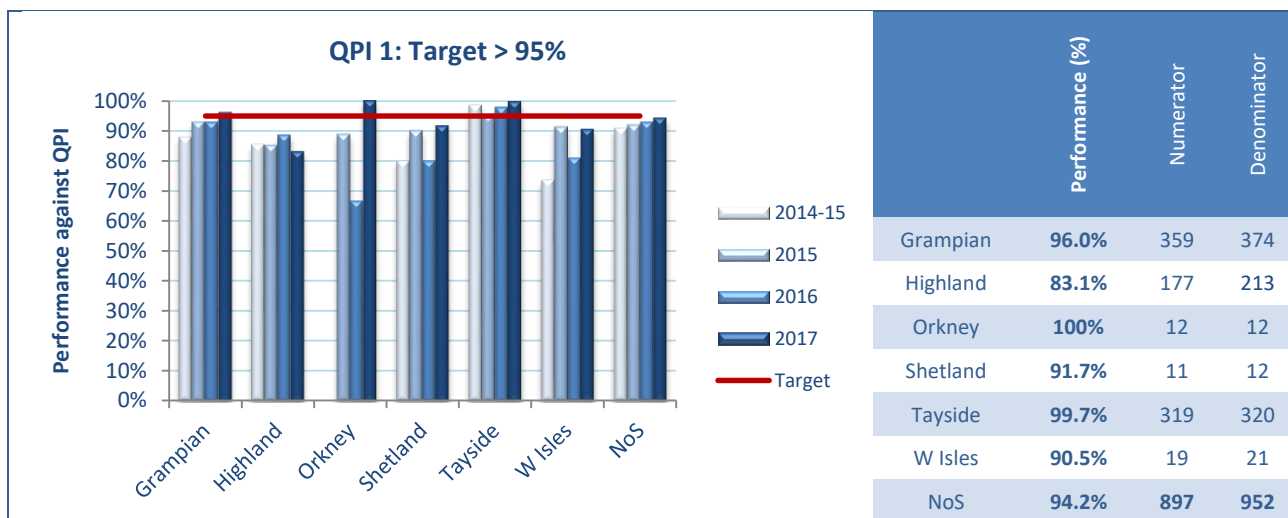
- Ensuring accountability for quality and required standards
- Investigating and taking action on sub-standard performance
- Identifying, sharing and ensuring delivery of best-practice
- Identifying and managing risks to ensure quality of care
- Driving continuous improvement

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.

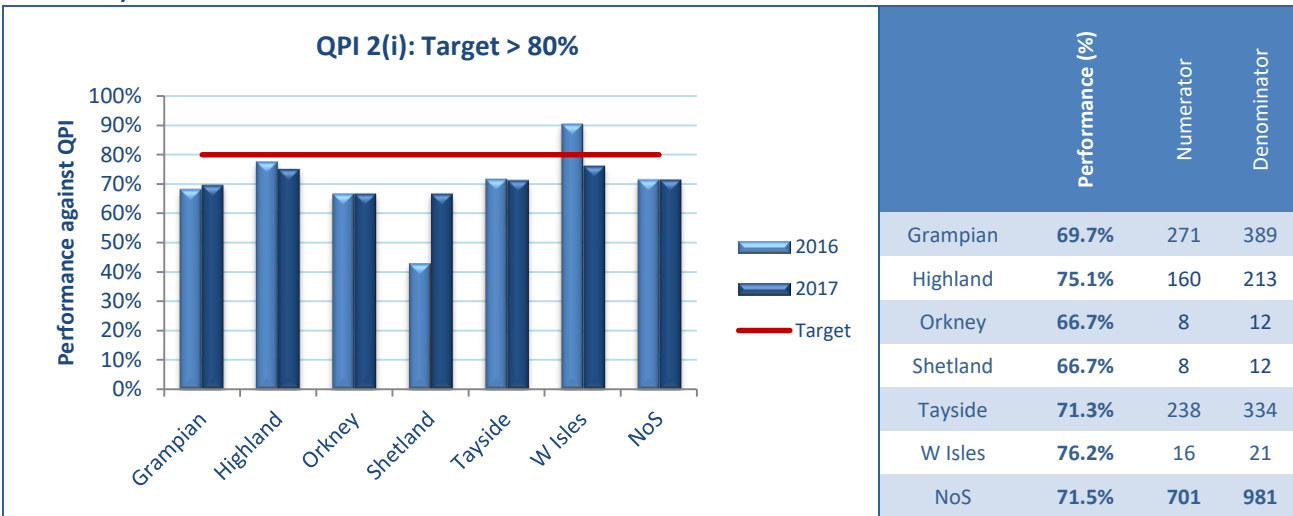
QPI 1	Multi-Disciplinary Team (MDT) Meeting
Proportion of patients with lung cancer who are discussed at MDT meeting before definitive treatment.	



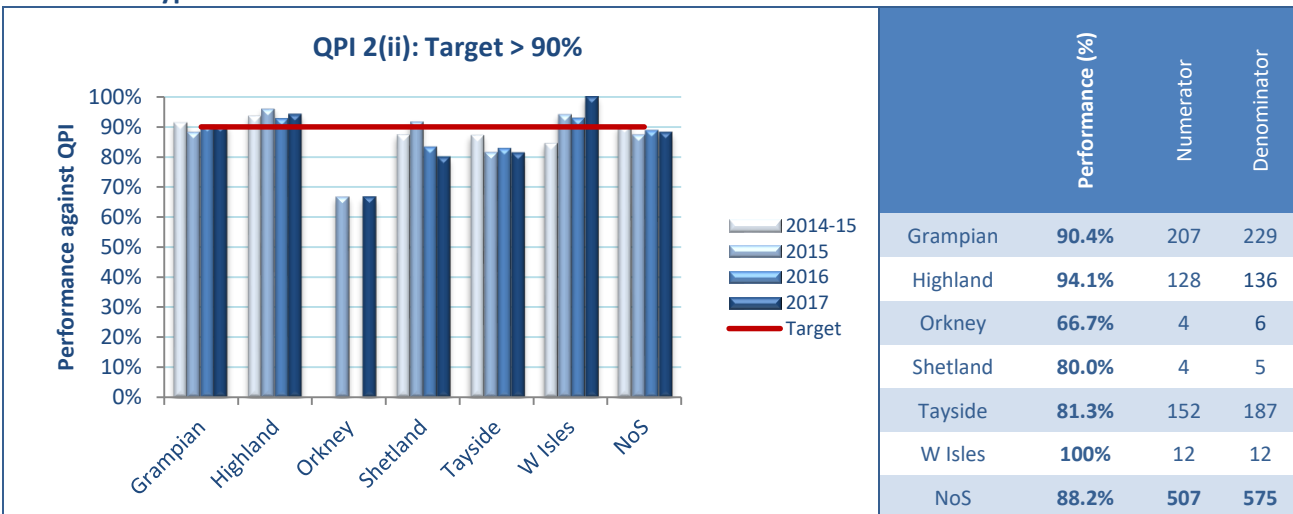
Clinical Commentary	Compliance with this QPI continues to improve with the North narrowly missing the 95% target. When patients are not discussed at MDT, this is usually due to patients requiring emergency treatment. Patients who require emergency treatment will then subsequently be discussed at MDT. A number of Argyll & Bute patients, included in results for NHS Highland, are managed by NHS Greater Glasgow and Clyde and further investigation is required to understand how these patients are managed and data collected and included in audit.
Actions	<ol style="list-style-type: none"> 1. NHS Highland audit teams to investigate patient pathway for Argyll & Bute patients to ensure discussion at MDT is included in this pathway and appropriate data collected for audit purposes. 2. NCA will raise this with the National Cancer Quality Steering Group to ensure they are aware of this data flow issue.
Risk Status	Mitigate

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

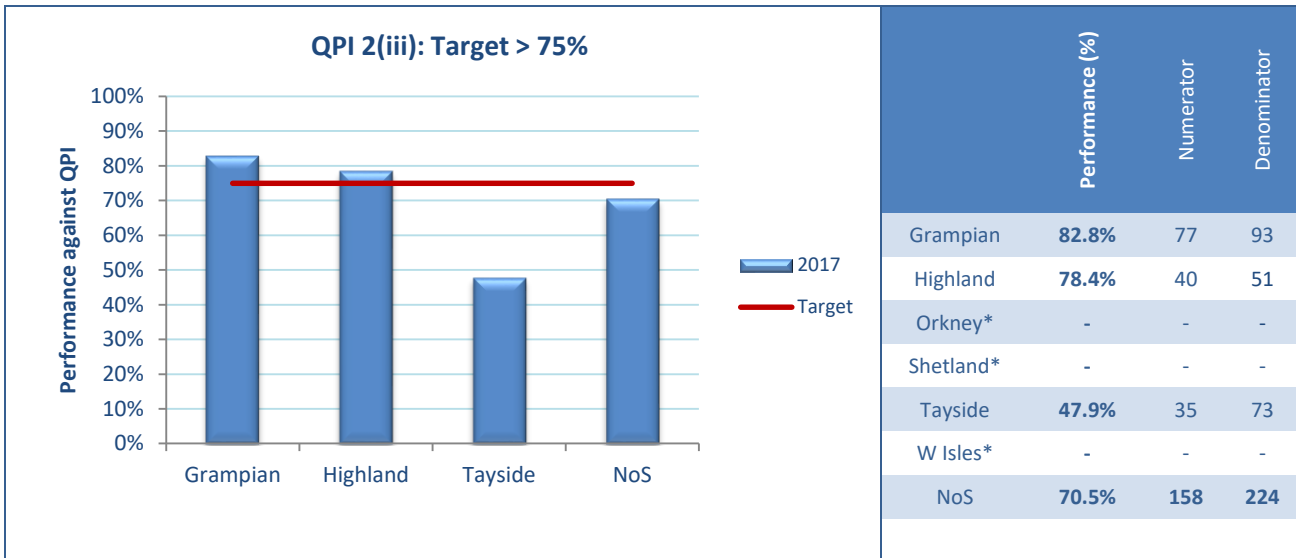
Specification (i) Patients with lung cancer who have a pathological diagnosis (including following surgical resection).



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



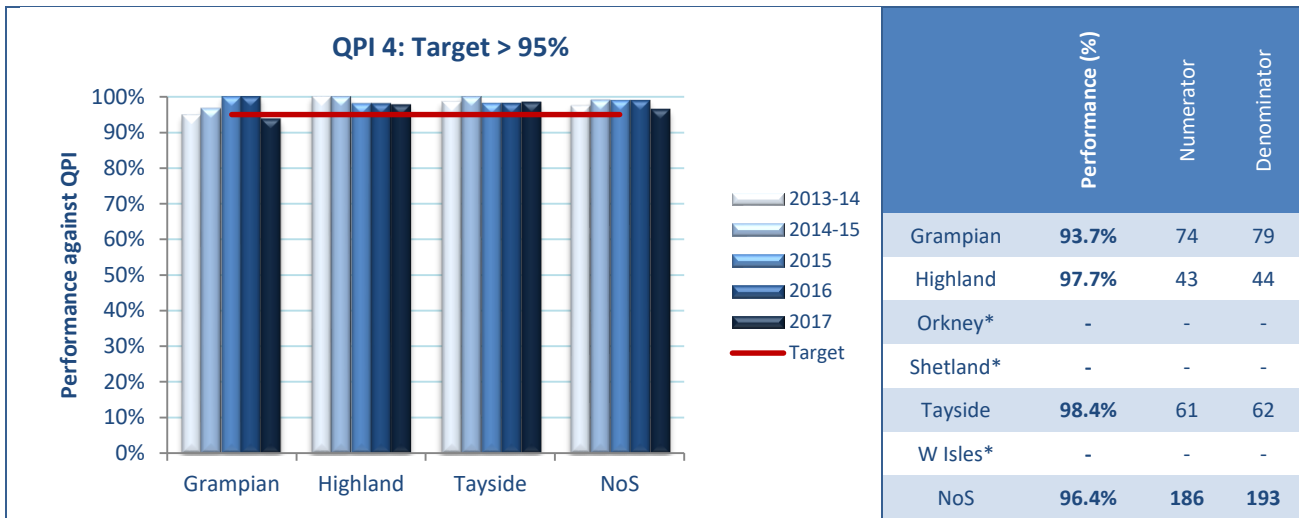
Specification (iii) Patients with a pathological diagnosis of NSCLC who have molecular profiling undertaken.



*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.

<p>Clinical Commentary</p>	<p>The main reason for patients not receiving a biopsy is due to their fitness for the procedure. Boards reported that patients often have comorbidities and poor performance status for biopsy procedures. All cases where a biopsy was not undertaken have been reviewed by individual Boards and felt it was clinically appropriate not to undertake the procedure, and in most cases patients would not have gone on to receive treatment based on the result of a pathological diagnosis. In a number of cases, the impact of a pathological diagnosis would not have affected the treatment decisions and therefore it was felt clinically appropriate to continue on the patient pathway without a biopsy procedure. Where biopsies were undertaken, the North just failed the performance targets for specifications ii and iii of this QPI. NHS Tayside did not meet the target for specification (iii), molecular profiling. The Board have reviewed patients not having molecular profiling and it is apparent that in 50% of the cases the patients would not have been for treatment in any case due to poor performance status. It is noted that of the patients tested nearly 90% received biological therapy (QPI 11) suggesting that the case selection for molecular testing was overall appropriate. It was however recognised that samples from patients with NSCLC (NOS) were for a period not being sent for additional testing e.g. PDL1, however this has now been addressed and all such samples are sent for testing and performance against this QPI should improve in future years.</p>
<p>Actions</p>	<p>1. All centres in North Cancer Alliance have reviewed the cases where biopsies did not take place and the results would suggest that these were appropriate clinical decisions based on the patient's fitness for treatment. This raises the issue as to whether an 80% target is appropriate and should be assessed at the next formal review of Lung Cancer QPIs beginning in September 2019.</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.	

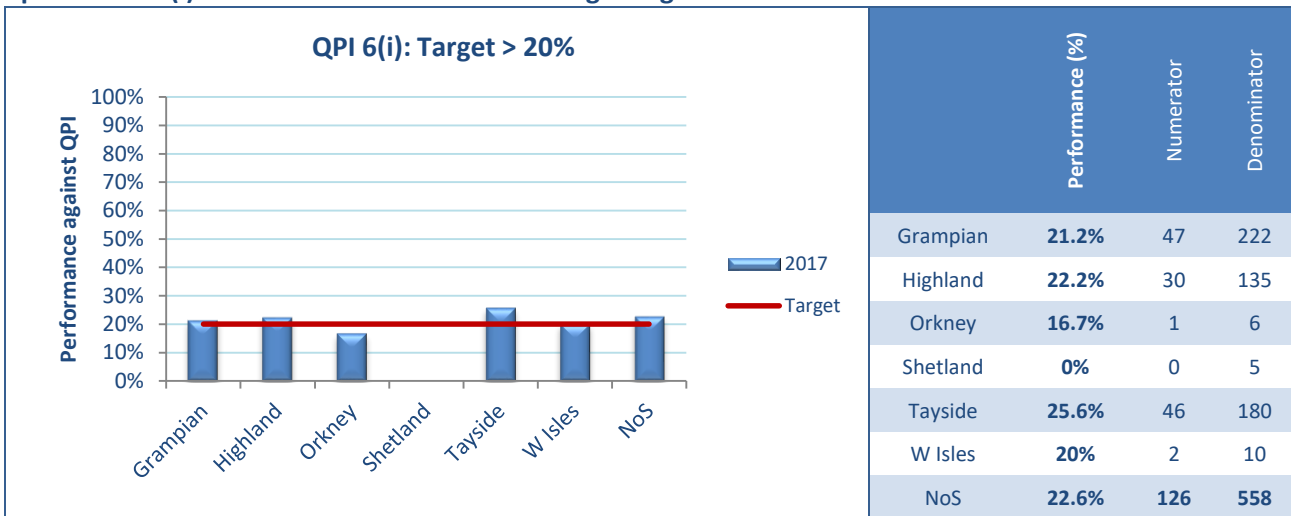


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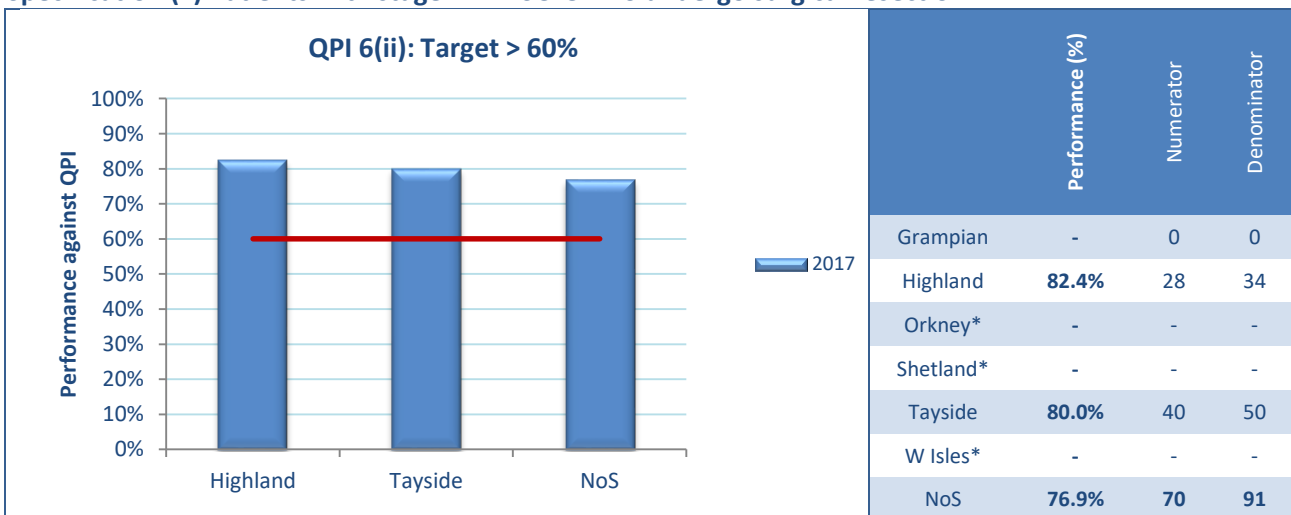
Clinical Commentary	PET-CT continues to be a key part of the patient pathway, and while this QPI was met on a North of Scotland basis seven patients did not receive a PET-CT prior to the start of treatment in NHS Grampian. It is expected that performance will improve in future years.
Actions	No action required
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.



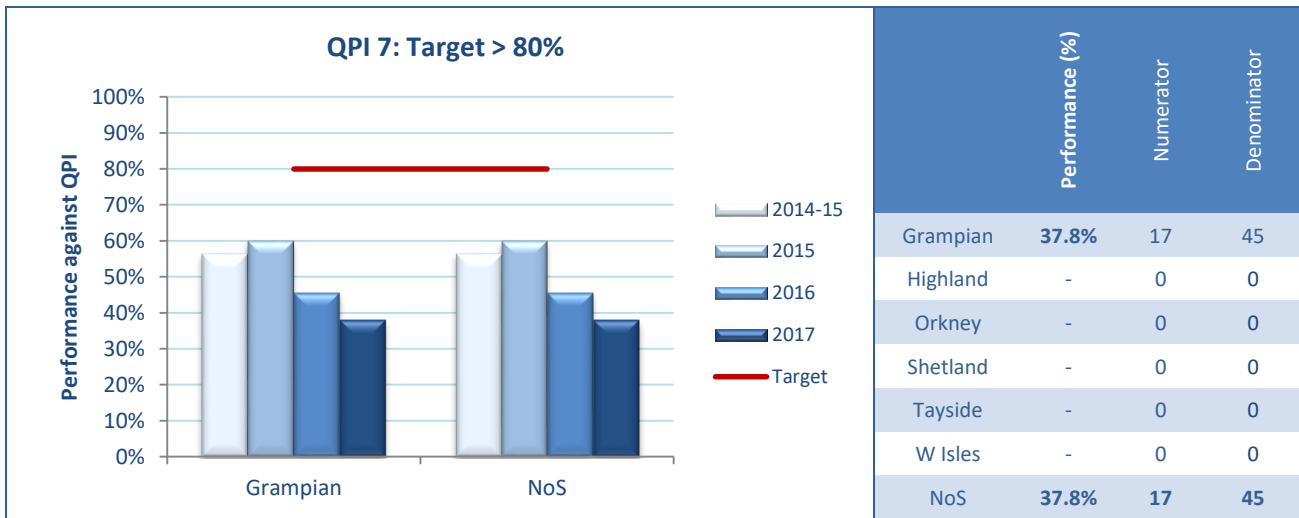
Specification (ii) Patients with stage I - II NSCLC who undergo surgical resection.



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Clinical Commentary	Note that there are no results for NHS Grampian for specification (ii) as patients in 2017 were clinically staged using TNM 8 and therefore the appropriate patient group could not be identified to report this QPI. NHS Grampian data will be reported in future years as all boards are now using TNM8 clinical staging. The targets for surgical resection were met in both Highland and Tayside, with resection rates continuing to improve throughout the North region.
Actions	<ol style="list-style-type: none"> 1. NCLPB to support the development of a sustainable surgical service for patients in the North. 2. As part of the review of clinical management guidelines, NCLPB to document how decision-making for surgery is undertaken and produce a surgery guideline. 3. NCA to discuss with NHS Grampian audit team an alternative route to obtaining resection numbers. 4. NCCLG request an action plan from NCLPB which outlines actions to ensure sustainability of surgery service in the North. Once the creation of the action plan is complete, this risk can be de-escalated.
Risk Status	Escalate

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	It was recognised that appropriate lymph node sampling in the Grampian surgical patients was not sufficient. This has now been addressed in Grampian with more rigorous attention to this aspect of resections. Action has been taken in the course of 2018, and the latter half of 2018 demonstrated a significant change in the target achievement, which will continue from 2019 onwards.
Actions	<ol style="list-style-type: none"> 1. Capitalise on the improvement in lymph node sampling and support its implementation as a routine part of surgical practice in the region. 2. NCA to undertake interim audit with NHSG to assess improvement formally and report back to NCCLG once completed, with action plan to de-escalate this risk.
Risk Status	Escalate

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	The treatment decisions for all patients not having surgery or radiotherapy have been formally reviewed and the majority of patients were not fit for radical treatment. The SABR services within the North of Scotland was still being established in the region at the time the patients were being treated and results are expected to improve in future years.
Actions	1. NCA to benchmark radiotherapy numbers for non-surgery patients against service provision in the other Scottish regions.
Risk Status	Tolerate

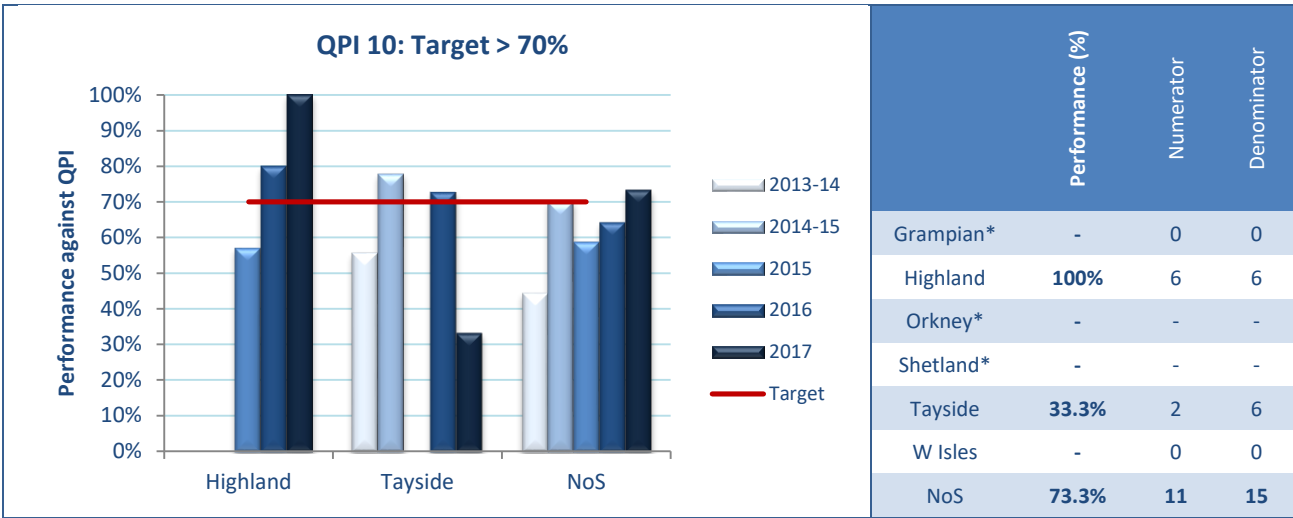
QPI 9	Chemoradiotherapy in locally advanced non small cell lung cancer
Proportion of patients with NSCLC not undergoing surgery who receive radical radiotherapy, to 54Gy or greater, and concurrent or sequential chemotherapy.	



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Clinical Commentary	Note that there are no results for NHS Grampian as patients in 2017 were clinically staged using TNM 8 and therefore the appropriate patient group could not be identified to report this QPI. NHS Grampian data will be reported in future years as all boards are now using TNM8 clinical staging. NHS Tayside surpassed the target 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.	

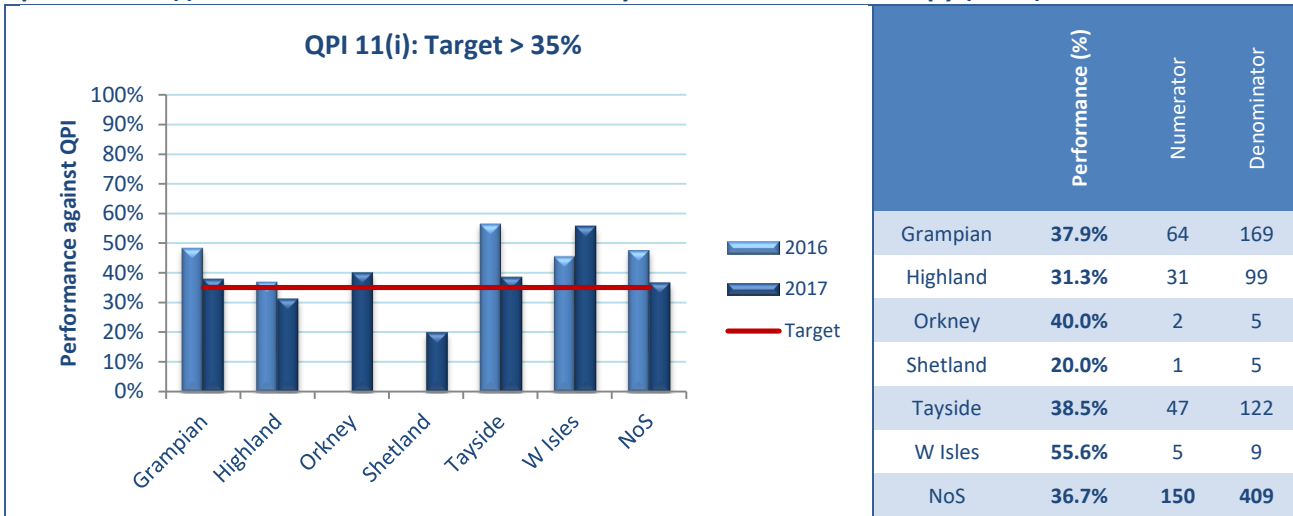


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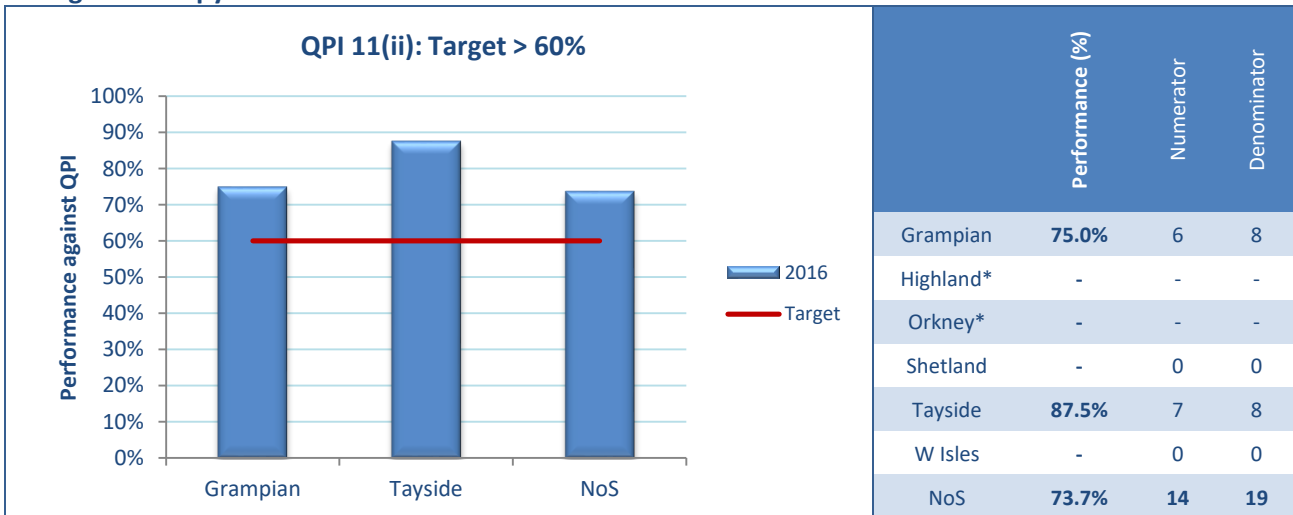
Clinical Commentary	Note that there are no results for NHS Grampian as patients in 2017 were clinically staged using TNM 8 and therefore the appropriate patient group could not be identified to report this QPI. NHS Grampian data will be reported in future years as all boards are now using TNM8 clinical staging. Patients failing this QPI in NHS Tayside have been reviewed and treatment decisions were appropriate, with small number of patients affecting the result.
Actions	No action required
Risk Status	Tolerate

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.

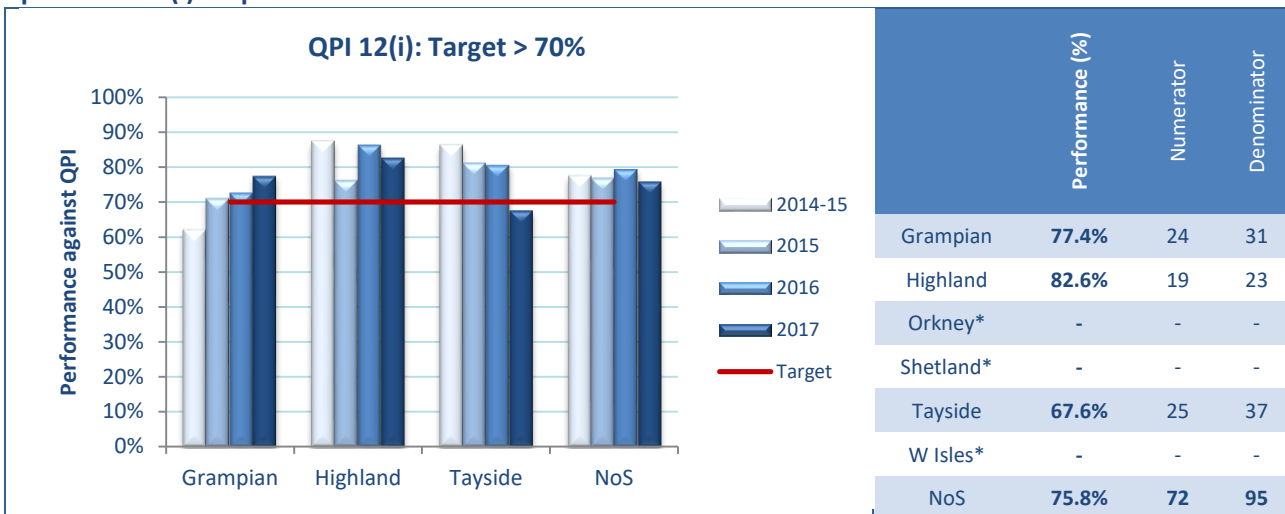


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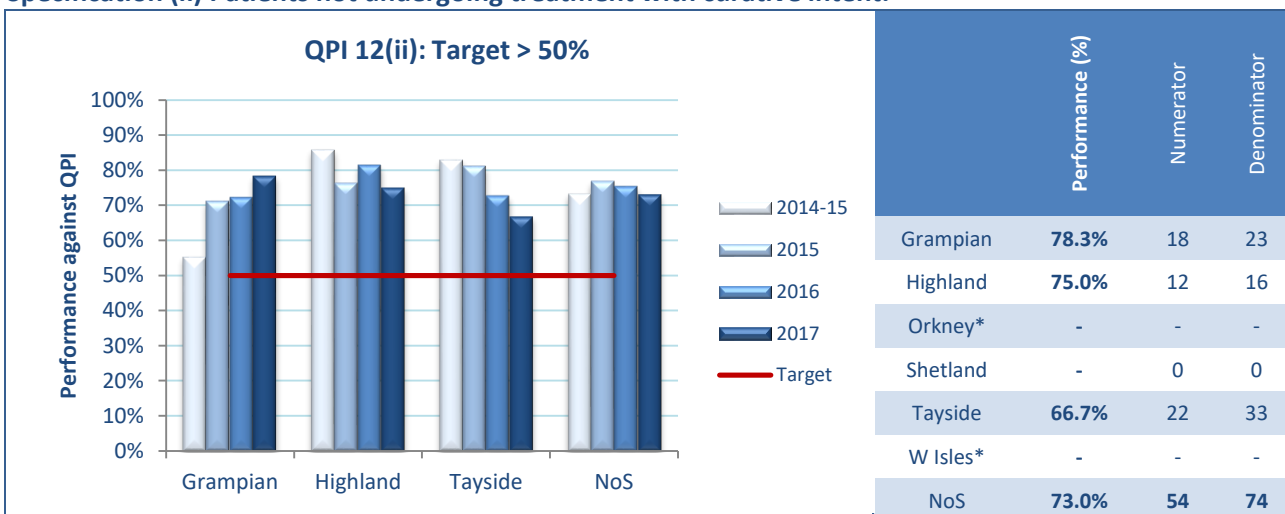
Clinical Commentary	The North region met both these QPI targets; treatment of patients not receiving SACT or biological therapy have been reviewed by boards and treatment provided was deemed clinically appropriate.
Actions	No action required
Risk Status	Tolerate

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

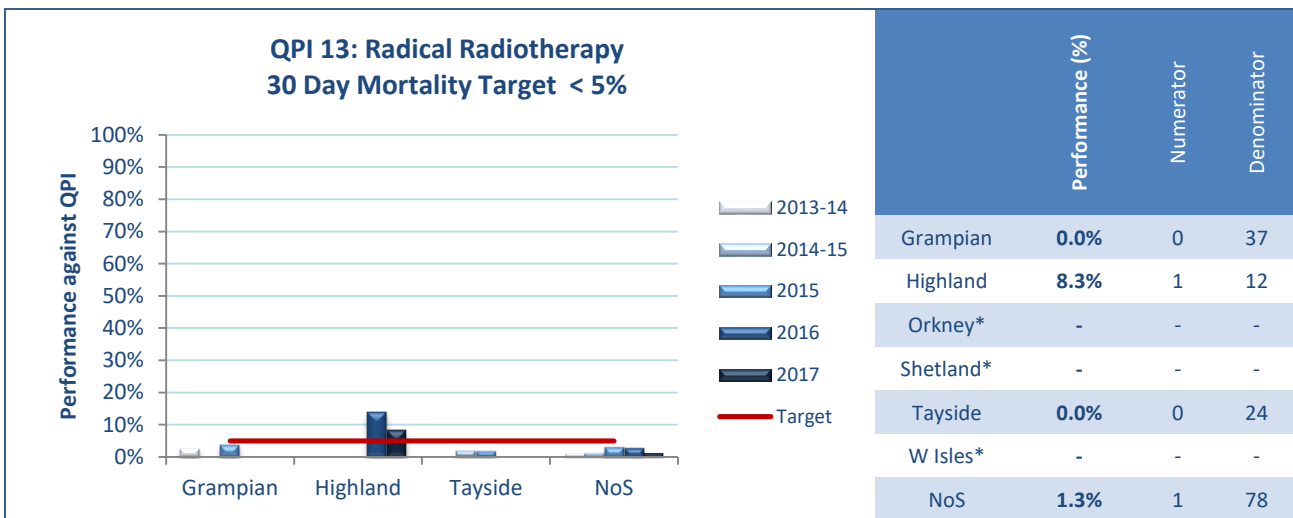
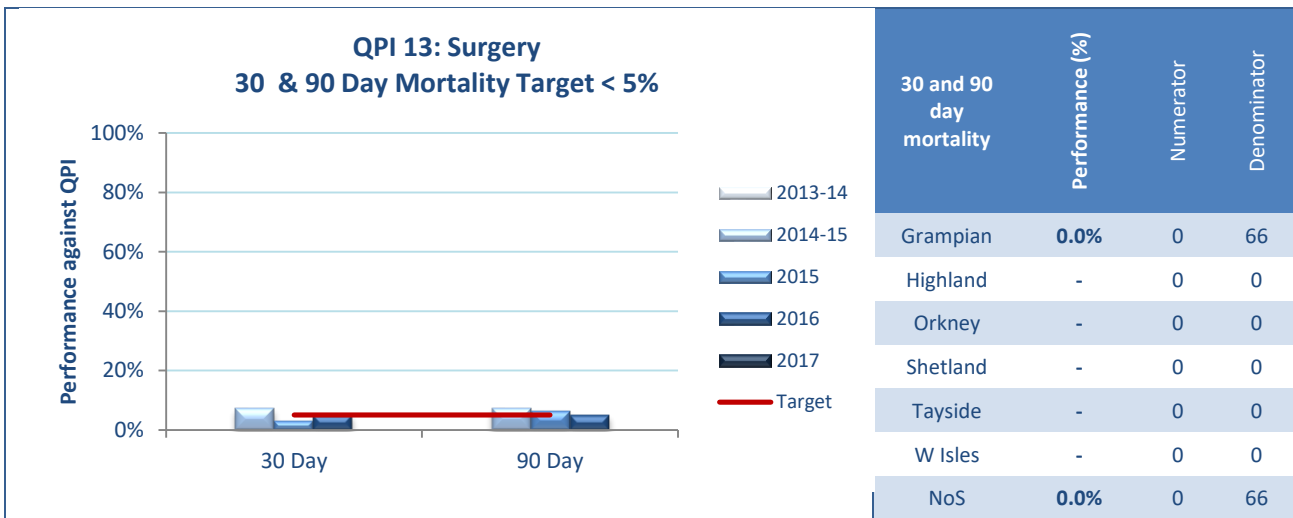


Specification (ii) Patients not undergoing treatment with curative intent.

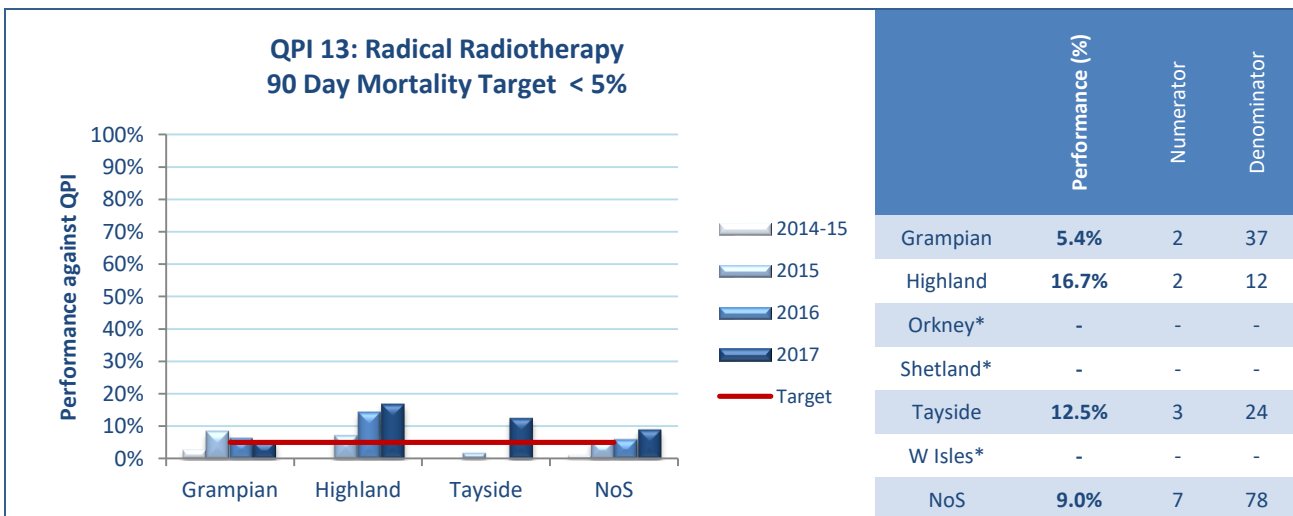


Clinical Commentary	This QPI was met across the region. Boards have reviewed cases where patients did not receive chemotherapy, which was usually due to poor performance status following completion of chemotherapy and before starting radiotherapy.
Actions	No action required
Risk Status	Tolerate

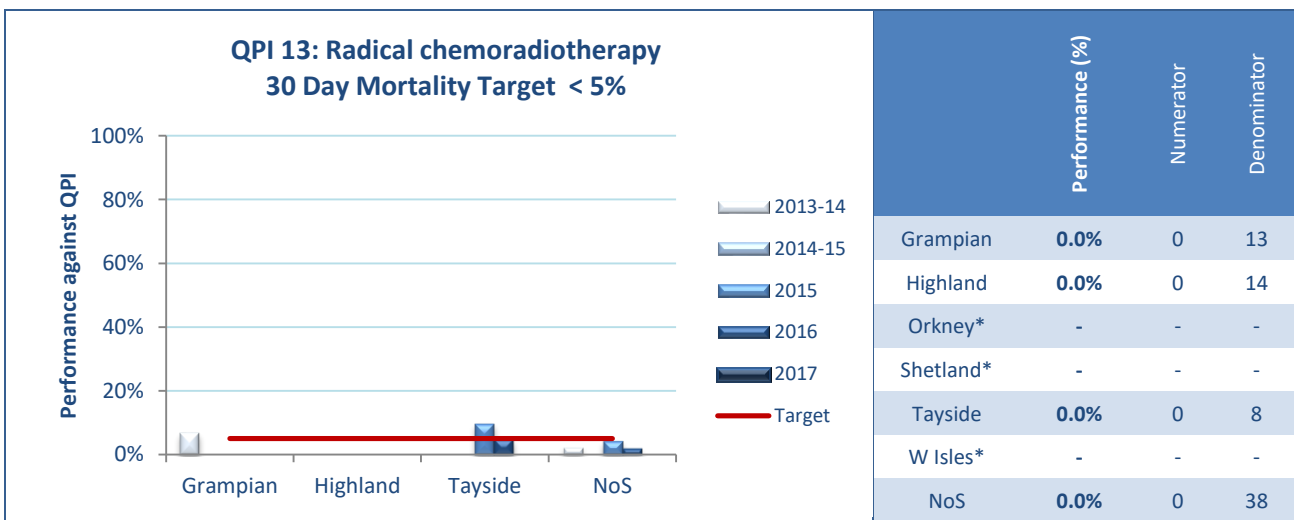
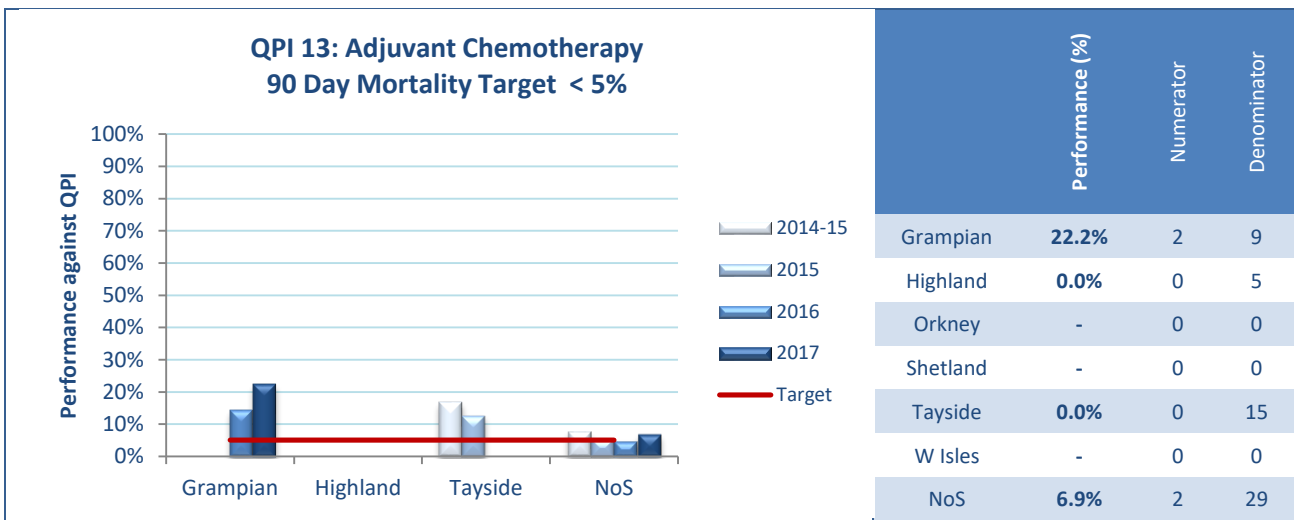
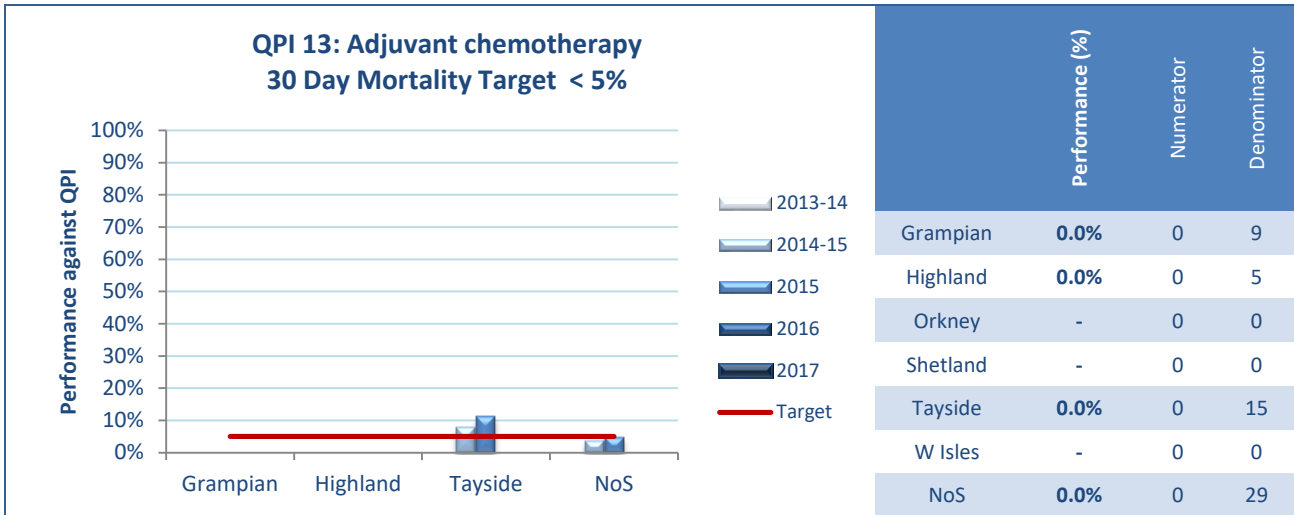
QPI 13	Mortality following treatment for lung cancer
Proportion of patients with lung cancer who die within 30 or 90 days of active treatment for lung cancer.	



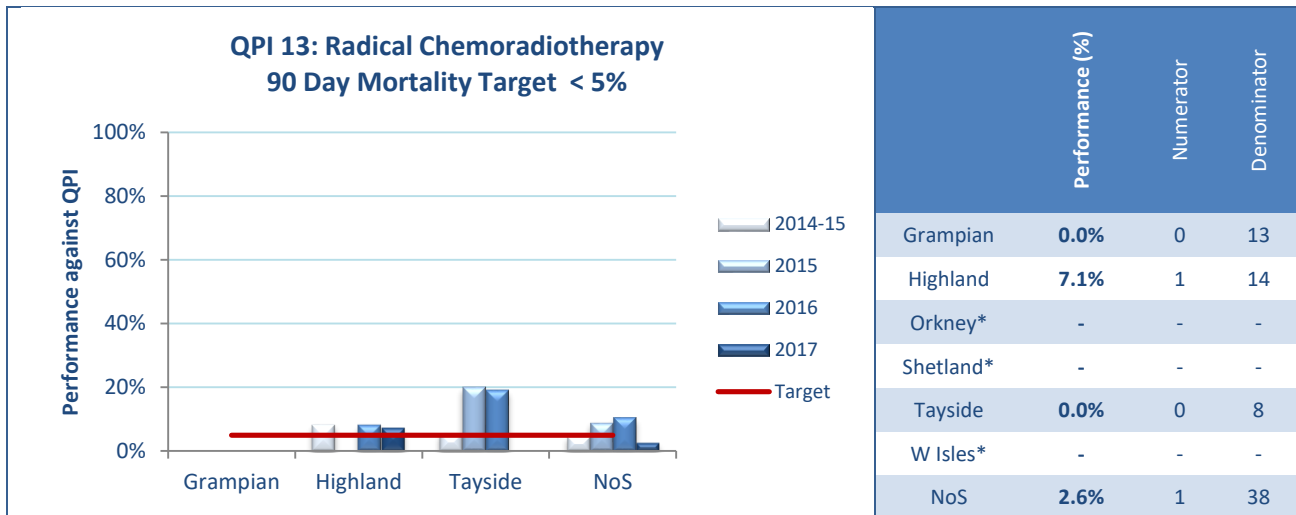
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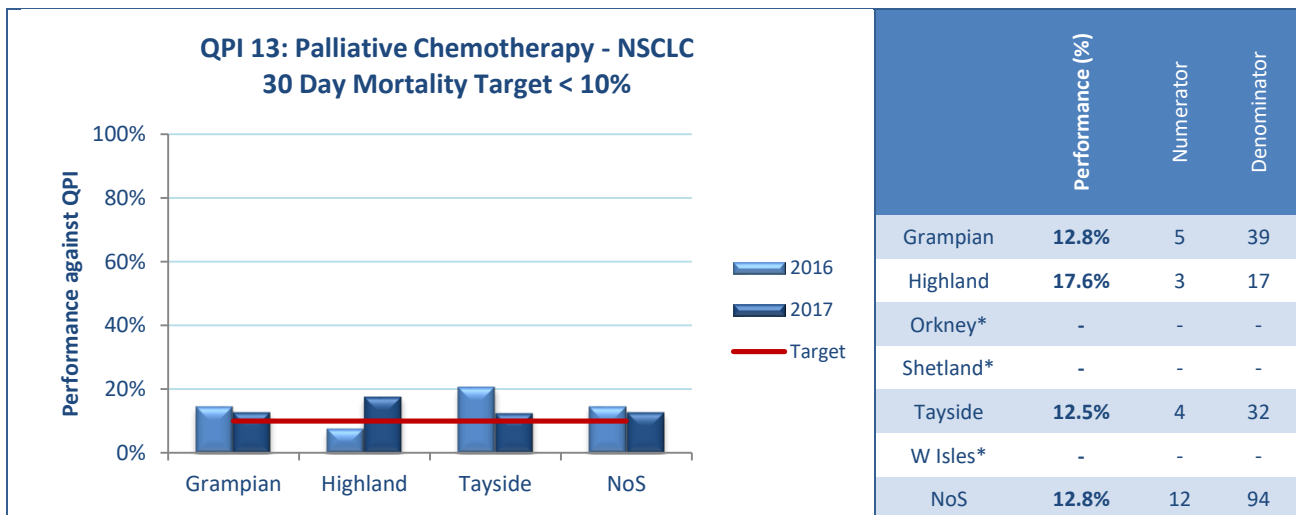
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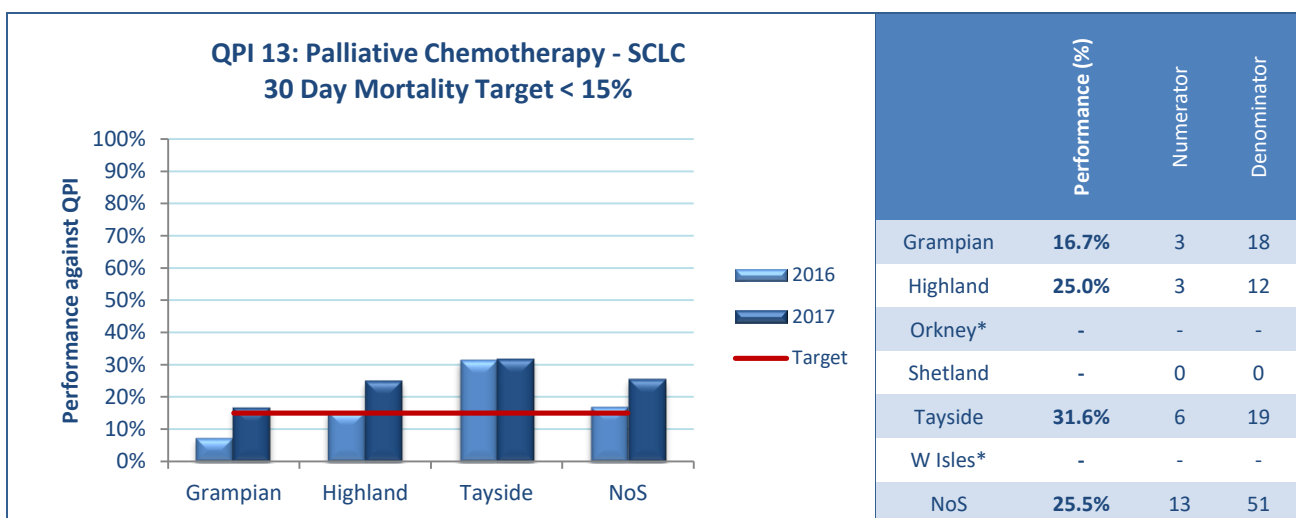
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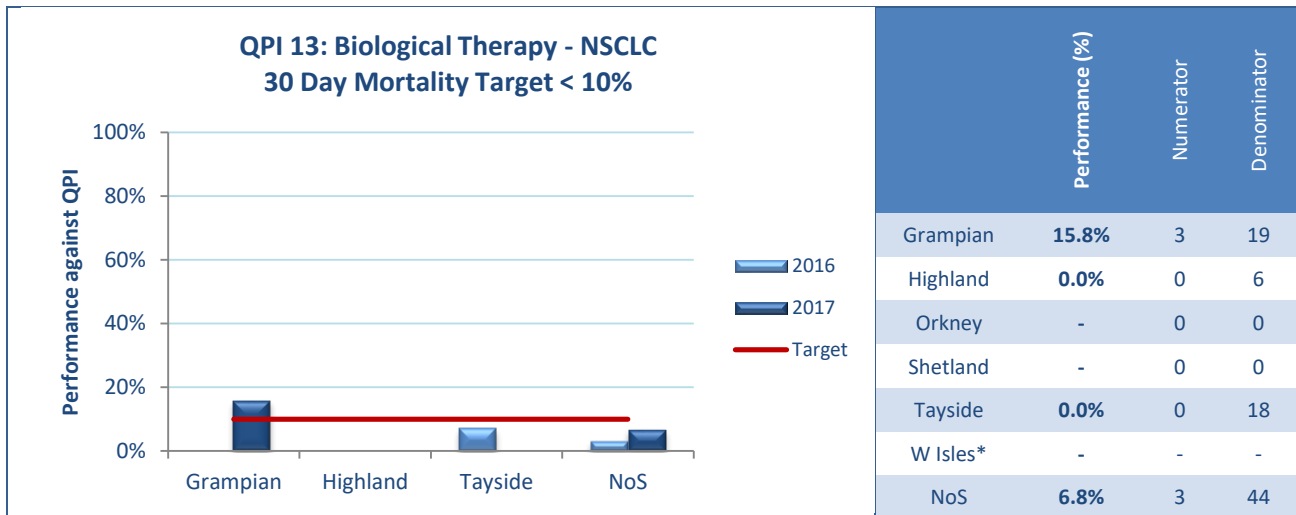
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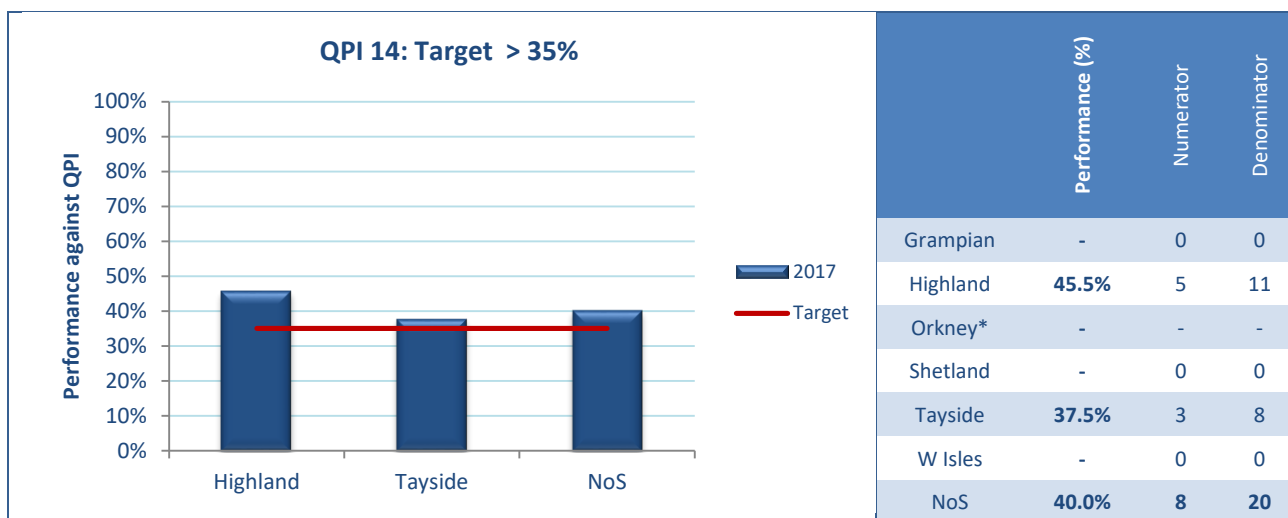


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No patients with SCLC received biological therapy

Clinical Commentary	It is recognised that selection of patients fit for systemic therapy can be challenging. In most cases failure against targets represents a small number of patients. Patients who died during treatment continue to be reviewed as part of the board processes.
Actions	1. NCLPB to review clinical management guidelines and ensure these are reflective of best practice in lung cancer care.
Risk Status	Mitigate

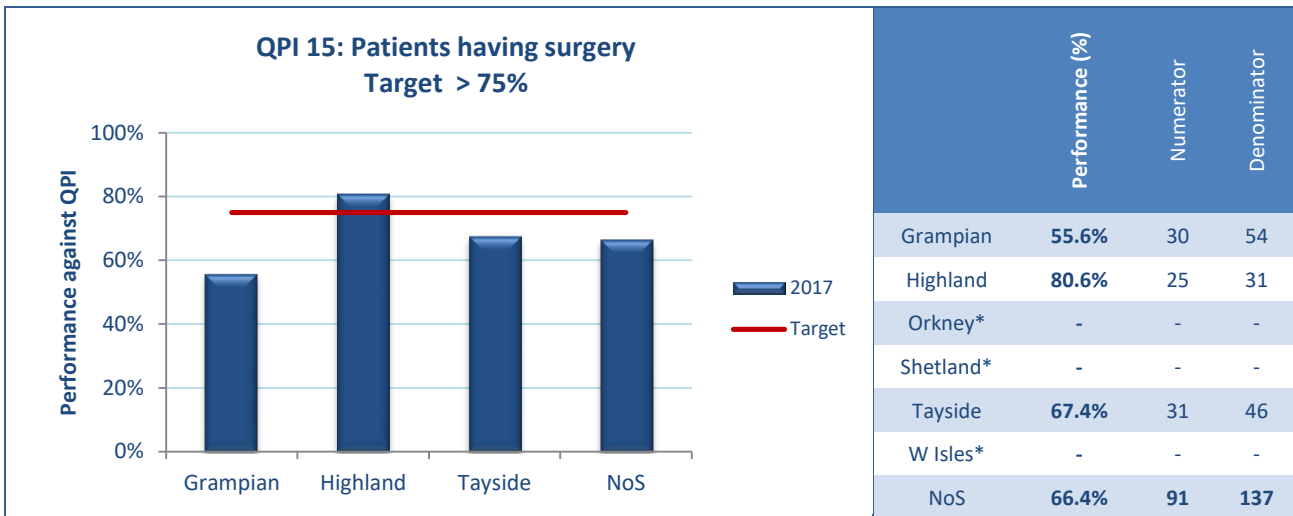
QPI 14	Stereotactic Ablative Radiotherapy (SABR) in inoperable stage I lung cancer
Proportion of patients with stage I lung cancer not undergoing surgery who receive SABR.	



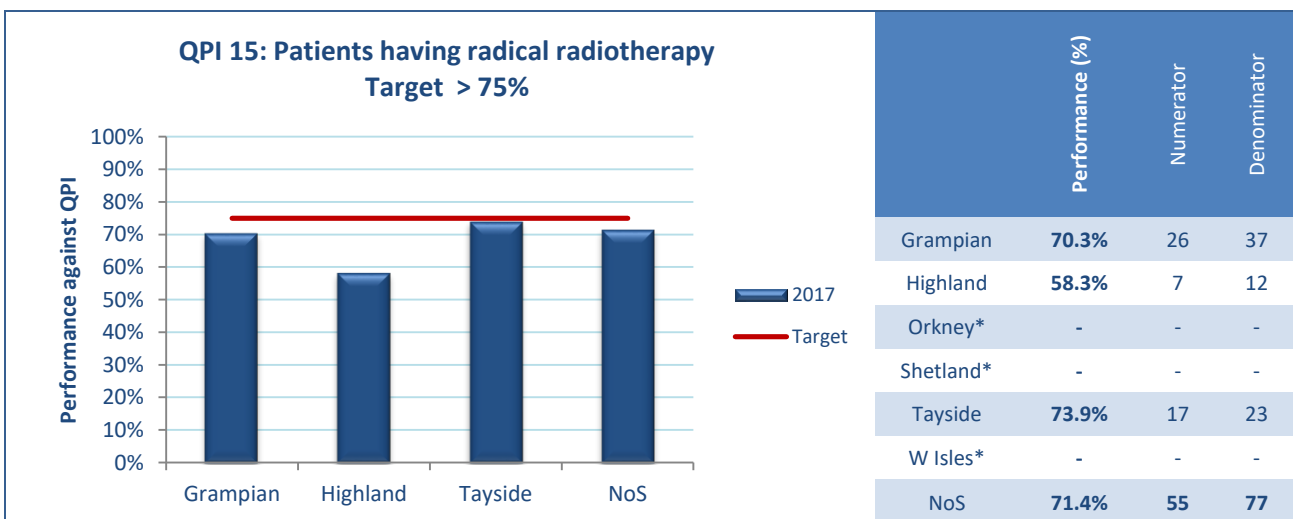
*Where the number of cases per Board is between one and four, this is excluded from charts and tables to minimise the risk of disclosure. However, these excluded Board numbers are included within the total for the North of Scotland.

Clinical Commentary	Note that there are no results for NHS Grampian as patients were staged using TNM 8 and therefore the appropriate patient group could not be identified to report this QPI. As of March 2018, NHS Tayside has its own SABR service which will improve future performance results against this QPI.
Actions	1. Closely monitor the results of this QPI in future years in the expectation that access to SABR has improved and this should ensure more patients with Stage 1 lung cancer receive this treatment option.
Risk Status	Mitigate

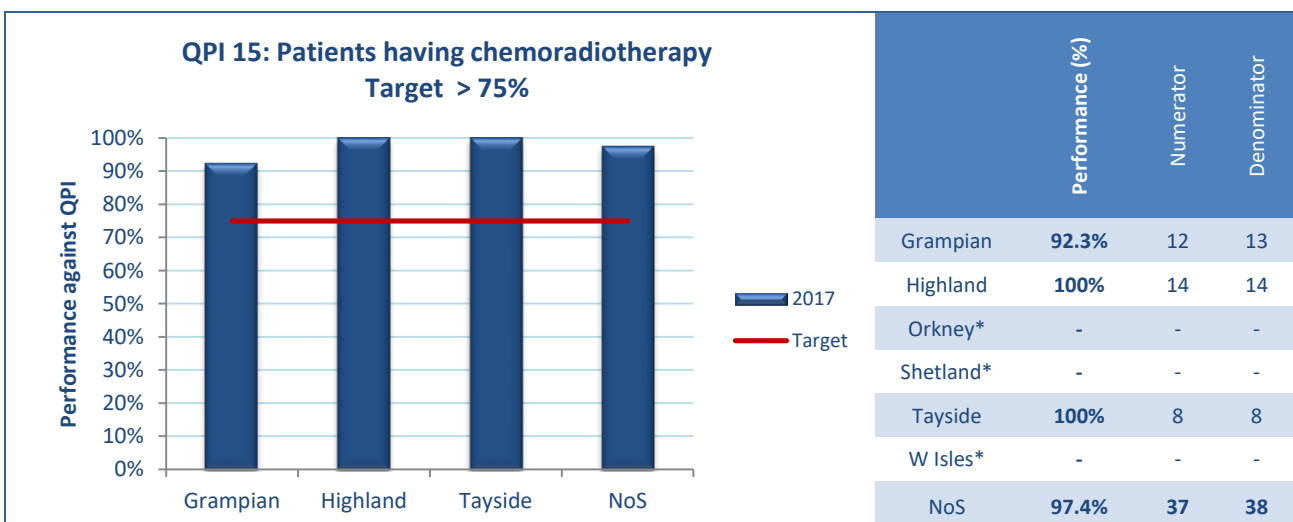
QPI 15	Pre-treatment diagnosis
Proportion of patients who receive curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) that have a cytological / histological diagnosis prior to treatment.	



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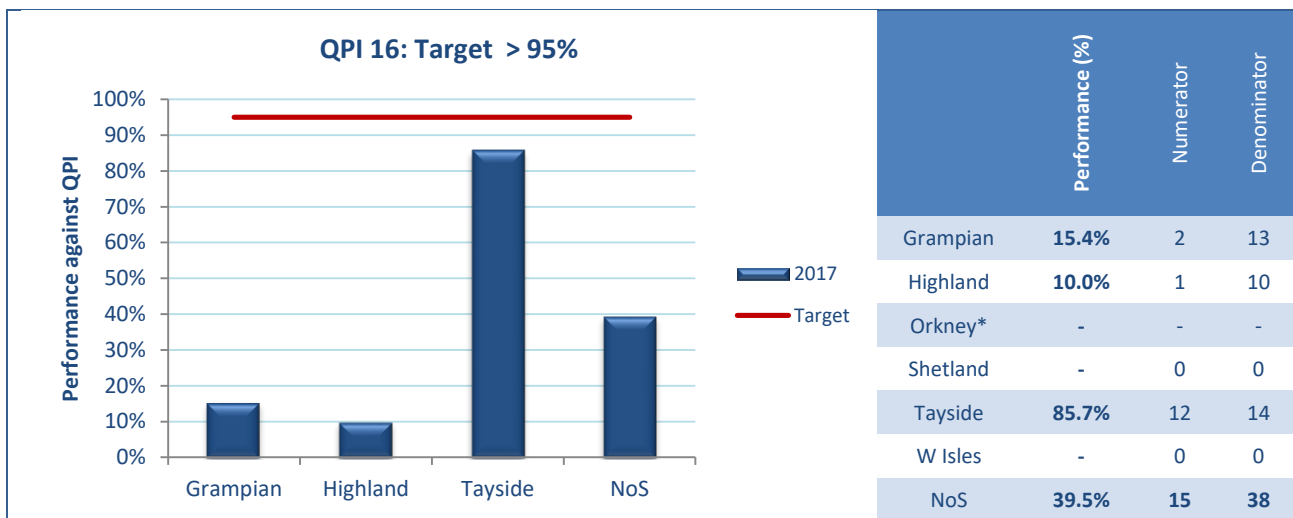
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Clinical Commentary	In the North, the targets were narrowly missed for patients receiving surgery and radical radiotherapy. Boards have reviewed patients who failed this QPI. In the majority of cases tissue could either not be safely accessed prior to treatment or biopsy attempts were unsuccessful and repeat attempts were not judged to be safe or appropriate. Importance of undertaking a tissue diagnosis is part of the decision-making on the patient pathway and will continue to be monitored.
Actions	No action required
Risk Status	Tolerate

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.	

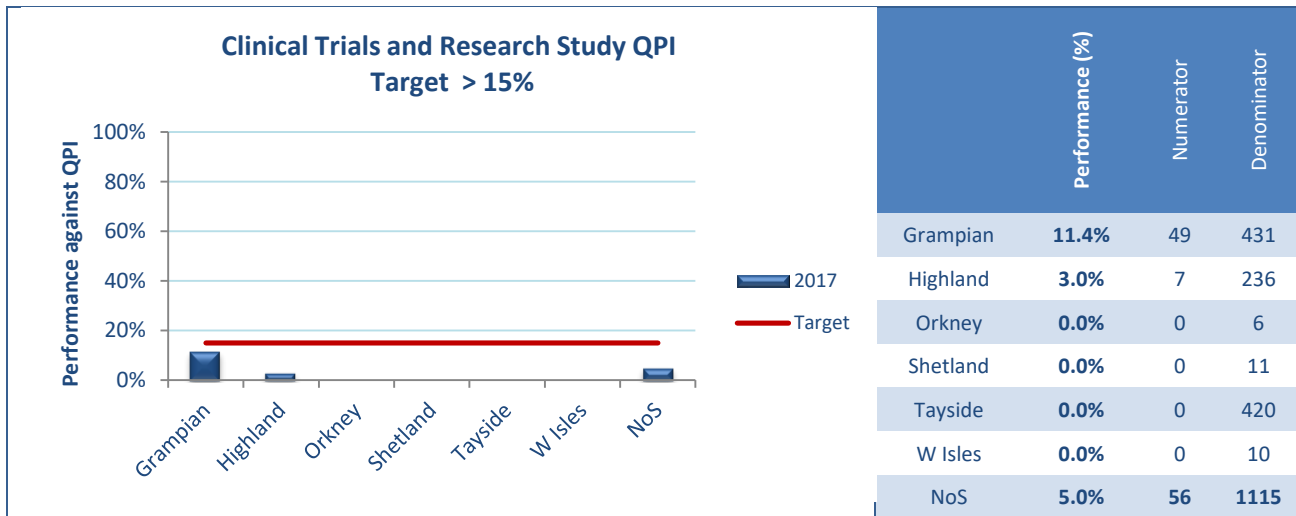


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Clinical Commentary	The practice of obtaining brain imaging prior to treatment of patients with N2 disease was not widely implemented for patients diagnosed in 2017 which has affected results for this year. Performance in future years is expected to improve as the practice is implemented.
Actions	<ol style="list-style-type: none"> 1. Through the NCLPB, clinicians to be reminded of the requirement for brain imaging for patients with N2 disease receiving curative treatments. 2. Requirements of this QPI to be reflected in the patient pathway and clinical management guidelines in the North. 3. NCCLG to be updated at the June 2019 meeting on progress in implementing brain imaging within the patient pathway, including any further data on current performance in the North.
Risk Status	Escalate

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 2017.



Clinical Commentary	There continue to be issues in the recruitment of patients to clinical trials in the North.
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	Escalate

References

1. Information Services Division. Cancer in Scotland, April 2018.
http://www.isdscotland.org/Health-Topics/Cancer/Publications/2018-04-24/Cancer_in_Scotland_summary_m.pdf
2. 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>
3. 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>
4. <http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/>
5. https://www.nrhcc.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 2017

Trial	Principle Investigator	Patients enrolled
EGF cancer vaccine in IIIb/IV biomarker positive, wild type EGF-R NSCLC patients	Marianne Nicholson (Grampian)	yes
Lume BioNIS	Marianne Nicholson (Grampian)	yes
LUSH	Peter Murchie (Grampian)	yes
NIVO PASS	Marianne Nicholson (Grampian)	yes
SPLENDOR: Survival imProvement in Lung canCEr iNduced by DenOsUmab theRapy	Marianne Nicholson (Grampian)	yes
TRACERx	Marianne Nicholson (Grampian)	yes
CEDAR	Janabel Said (Tayside) Carol MacGregor (Highland)	no
GO29438	Carol MacGregor (Highland)	no
KEYNOTE 189	Marianne Nicholson (Grampian)	no
PEARLS	Angela Scott (Tayside) Marianne Nicholson (Grampian)	no