Scottish Cancer Taskforce
National Cancer Quality Steering Group

# Lung Cancer
# Clinical Quality Performance Indicators
# Engagement Document

# November 2016

## Contents Update Record

**October 2016 (v3.0)**
This document was updated following formal review of the Lung Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 3 of the lung cancer QPI data.

**The following QPIs have been updated:**

- QPI 2 - Pathological diagnosis
- QPI 5 - Investigation of mediastinal malignancy
- QPI 6 - Surgical resection in non small cell lung cancer
- QPI 8 - Radiotherapy in inoperable lung cancer
- QPI 11 - Systemic anti cancer therapy in non small cell lung cancer
- QPI 13 - Mortality following treatment for lung cancer

**The following QPIs have been archived:**

- QPI 3 - Bronchoscopy

**The following new QPIs have been added:**

- QPI 14 - Stereotactic Ablative Body Radiotherapy (SABR) in inoperable stage I non small cell lung cancer
- QPI 15 - Pre-treatment diagnosis

Please note the extant Clinical Trials QPI has now been added into each tumour specific QPI document (see QPI 16: Clinical Trials).

As a result of the changes above, the contents page and page numbering differ from earlier versions of this document. Sections 1 – 11 and the appendices have also been updated.

**Please note that this version of the Lung Cancer QPI Document applies to cases diagnosed from 1st January 2016 onwards. Where amended or new QPIs require new data items for measurement, this will apply for patients diagnosed from 1st January 2017.**

**Previous Updates:**

**March 2015 (v2.1)**
This document was updated following baseline review of the lung cancer QPIs which took place following analysis of year 1 of the lung cancer QPI data. As a result, the following QPIs have been updated:

- QPI 2 – Pathological diagnosis
- QPI 5 – Investigation of mediastinal malignancy
- QPI 7 – Lymph node assessment
- QPI 8 – Radiotherapy in inoperable lung cancer
- QPI 9 – Chemoradiotherapy in locally advanced non small cell lung
- QPI 12 – Chemotherapy in small cell lung cancer
- QPI 13 – Mortality following treatment for lung cancer

**Please note that 2.1 version of the Lung Cancer QPI Document applies to cases diagnosed from 1st April 2014 onwards.**

Please note that this document has been updated to include QPI 1 – Multi-Disciplinary Team (MDT) Meeting.

The overall QPI numbering, contents page and the page numbering have been amended as a result and therefore differ from earlier versions of this document.

## Contents Page

# 1. National Cancer Quality Programme

Beating Cancer: Ambition and Action (2016)[1] details a commitment to delivering the national cancer quality programme across NHSScotland, with a recognised need for national cancer QPIs to support a culture of continuous quality improvement. Addressing variation in the quality of cancer services is pivotal to delivering improvements in quality of care. This is best achieved if there is consensus and clear indicators for what good cancer care looks like.

Small sets of cancer specific outcome focussed, evidence based indicators are in place for 18 different tumour types. These are underpinned by patient experience QPIs that are applicable to all, irrespective of tumour type. These QPIs ensure that activity is focused on those areas that are most important in terms of improving survival and individual care experience whilst reducing variation and supporting the most effective and efficient delivery of care for people with cancer. QPIs are kept under regular review and are responsive to changes in clinical practice and emerging evidence.

A programme to review and update the QPIs in line with evolving evidence is in place as well as a robust mechanism by which additional QPIs will be developed over the coming years.

## 1.1 Quality Assurance and Continuous Quality Improvement

The ultimate aim of the programme is to develop a framework, and foster a culture of, continuous quality improvement, whereby real time data is reviewed regularly at an individual Multi Disciplinary Team (MDT)/Unit level and findings actioned to deliver continual improvements in the quality of cancer care. This will be underpinned and supported by a programme of regional and national comparative reporting and review.

NHS Boards will be required to report against QPIs as part of a mandatory, publicly reported programme at a national level. A rolling programme of reporting is in place, with approximately three national tumour specific reports published annually. National reports include comparative reporting of performance against QPIs at MDT/Unit level across NHSScotland, trend analysis and survival. This approach helps to overcome existing issues relating to the reporting of small volumes in any one year.

In the intervening years tumour specific QPIs are monitored on an annual basis through established Regional Cancer Network and local governance processes, with analysed data submitted to Information Services Division (ISD) for inclusion in subsequent national reports. This approach ensures that timely action is taken in response to any issues that may be identified through comparative reporting and systematic review.

# 2. Quality Performance Indicator Development Process

The QPI development process was designed to ensure that indicators are developed in an open, transparent and timely way. The development process can be found in appendix 1.

The Lung Cancer QPI Development Group was convened in November 2011, chaired by Dr Hilary Dobson (Regional Lead Cancer Clinician, WoSCAN). Membership of this group included clinical representatives drawn from the three regional cancer networks, Healthcare Improvement Scotland, ISD and patient/carer representatives.
Membership of the development group can be found in appendix 2.

# 3. QPI Formal Review Process

As part of the National Cancer Quality Programme a systematic national review process has been developed, whereby all tumour specific QPIs published are subject to formal review following 3 years analysis of comparative QPI data.

Formal review of the Lung Cancer QPIs was undertaken in February 2016.

A Formal Review Group was convened, chaired by Dr Valerie Doherty, Consultant Dermatologist. Membership of this group included Clinical Leads from the three Regional Cancer Networks. Membership of this group can be found in appendix 3.

The formal review process is clinically driven with comments sought from specialty specific representatives in each of the Regional Cancer Networks for discussion at the initial meeting. This review builds on existing evidence using expert clinical opinion to identify where new evidence is available.

During formal review QPIs may be removed and replaced with new QPIs. Triggers for doing so include significant change to clinical practice, targets being consistently met by all Boards, and publication of new evidence.

Any new QPIs have been developed in line with the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?
- **Evidence based** – is the indicator based on high quality clinical evidence?
- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

## 4. Format of the Quality Performance Indicators

QPIs are designed to be clear and measurable, based on sound clinical evidence whilst also taking into account other recognised standards and guidelines.

- Each QPI has a **short title** which will be utilised in reports as well as a fuller **description** which explains exactly what the indicator is measuring.
- This is followed by a brief overview of the **evidence base and rationale** which explains why the development of this indicator was important.
- The measurability **specifications** are then detailed; these highlight how the indicator will actually be measured in practice to allow for comparison across NHSScotland.
- Finally a **target** is indicated, which dictates the level each unit should be aiming to achieve against each indicator.

In order to ensure that the chosen target levels are the most appropriate and drive continuous quality improvement as intended they are kept under review and revised as necessary, if further evidence or data becomes available.

Rather than utilising multiple exclusions, a tolerance level has been built into the QPIs. It is very difficult to accurately measure patient choice, co-morbidities and patient fitness therefore target levels have been set to account for these factors. Further detail is noted within QPIs where there are other factors which influenced the target level.

Where ‘less than’ (<) target levels have been set the rationale has been detailed within the relevant QPI. All other target levels should be interpreted as ‘greater than’ (>) levels.

## 5. Supporting Documentation

A national minimum core dataset and a measurability specification document have been developed in parallel with the indicators to support the monitoring and reporting of Lung Cancer QPIs. The updated document will be implemented for patients diagnosed with Lung Cancer on, or after, 1st January 2017.

# 6. Quality Performance Indicators for Lung Cancer

## QPI 1 – Multi-Disciplinary Team (MDT) Meeting

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| **QPI Title:** | Patients should be discussed by a multidisciplinary team prior to definitive treatment. | |
| **Description:** | Proportion of patients with lung cancer who are discussed at MDT meeting before definitive treatment. | |
| **Rationale and Evidence:** | 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[2].<br><br>Discussion prior to definitive treatment decisions being made provides reassurance that patients are being managed appropriately. | |
| **Specifications:** | **Numerator:** | Number of patients with lung cancer discussed at the MDT before definitive treatment. |
| | **Denominator:** | All patients with lung cancer. |
| | **Exclusions:** | • Patients who died before first treatment. |
| **Target:** | 95%<br><br>The tolerance within this target is designed to account for situations where patients require treatment urgently. | |

## QPI 2 – Pathological diagnosis

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| **QPI Title:** | Where possible patients should have a pathological diagnosis of lung cancer. |
| **Description:** | Proportion of patients who have a pathological diagnosis of lung cancer.<br>**Please note:**<br>This QPI measures three distinct elements:<br>i. Patients with lung cancer who have a pathological diagnosis;<br>ii. Patients with a pathological diagnosis of non small cell lung cancer (NSCLC) who have tumour subtype identified; and<br>iii. Patients with a pathological diagnosis of NSCLC who have molecular profiling undertaken. |
| **Rationale and Evidence:** | A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.<br><br>Appropriate treatment of lung cancer depends on accurate diagnosis and distinction between histological types of lung cancer[3].<br><br>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[4]. Newer drug treatments for NSCLC work best if they are targeted on the basis of histological sub-type and/or molecular profiling. These molecular markers predict whether targeted treatments are likely to be effective and include, for example, epidermal growth factor receptor (EGFR) mutations[4]. |
| **Specification (i):** | **Numerator:** Number of patients with lung cancer who have a pathological diagnosis (including following surgical resection).<br><br>**Denominator:** All patients with lung cancer.<br><br>**Exclusions:**<br>• Patients who refuse investigations or surgical resection. |
| **Target:** | 70%<br><br>The tolerance level within this target takes 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. |
| **Specification (ii):** | **Numerator:** Number of patients with a pathological diagnosis of NSCLC who have a tumour subtype identified.<br><br>**Denominator:** All patients with a pathological diagnosis of NSCLC.<br><br>**Exclusions:**<br>• No exclusions. |

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| **Target:** | 80%<br><br>The tolerance level within this target is designed to account for situations where there is insufficient tissue to perform additional testing. |

(Continued overleaf…)

## QPI 2 – Pathological diagnosis (cont…)

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| **Specification (iii):** | **Numerator:** | Number of patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC who have molecular profiling undertaken. |
| | **Denominator:** | All patients with a pathological diagnosis of stage IIIB or IV adenocarcinoma NSCLC. |
| | **Exclusions:** | • Patients with performance status 4. |
| **Target:** | 75%<br><br>The tolerance level within this target is designed to account for situations where molecular profiling may not be appropriate if patients are not suitable for further treatment. | |

## QPI 4 – PET CT in patients being treated with curative intent

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| **QPI Title:** | Patients with lung cancer who are being treated with curative intent should have a PET CT Scan (Positron Emission Tomography – Computed Tomography) prior to treatment. | |
| **Description:** | 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. | |
| **Rationale and Evidence:** | Accurate staging is important to ensure appropriate treatment is delivered to patients with lung cancer.<br><br>All patients being considered for radical treatment with curative intent should have a PET CT scan completed and reported by the multidisciplinary team before treatment[3,4]. | |
| **Specifications:** | **Numerator:** | Number of patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection) who undergo PET CT prior to start of treatment. |
| | **Denominator:** | All patients with NSCLC who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection). |
| | **Exclusions:** | • No exclusions. |
| **Target:** | 95%<br><br>The tolerance level within this target accounts for the fact that some patients will refuse to undergo PET CT. In addition, in patients with small peripheral tumours (T1N0 disease) PET CT may not always be clinically appropriate. | |

## QPI 5 – Investigation of mediastinal malignancy

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| **QPI Title:** | Patients with non small cell lung cancer (NSCLC) with a possibility of mediastinal malignancy demonstrated on PET CT should undergo node sampling to confirm mediastinal malignancy. | |
| **Description:** | Proportion of patients with NSCLC who have positive mediastinal/ supraclavicular fossa (SCF) nodes on PET CT scan who undergo node sampling. | |
| **Rationale and Evidence:** | Mediastinal nodes which are PET CT positive should be further evaluated by mediastinal node sampling, unless patients have metastatic disease[4].<br><br>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.<br><br>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 required. | |
| **Specifications:** | **Numerator:** | Number of patients with NSCLC who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/N3) that have nodes sampled. |
| | **Denominator:** | All patients with NSCLC who have a PET CT scan that shows positive mediastinal/SCF nodes (N2/ N3). |
| | **Exclusions:** | • Patients with stage IV (M1a or M1b) disease.<br>• Patients who refuse investigation. |
| **Target:** | 60%<br><br>The tolerance within this target accounts for incidences where mediastinal node sampling would be inappropriate to the management of the patient, specifically in patients in whom there is a high probability of metastatic disease (for example bulky disease). | |

## QPI 6 – Surgical resection in non small cell lung cancer

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| **QPI Title:** | Patients with non small cell lung cancer (NSCLC) should undergo surgical resection. |
| **Description:** | Proportion of patients who undergo surgical resection for NSCLC.<br><br>**Please note:**<br>This QPI measures two distinct elements:<br>i. Patients with NSCLC who undergo surgical resection; and<br>ii. Patients with stage I – II NSCLC who undergo surgical resection. |
| **Rationale and Evidence:** | 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[4]. Surgery is the treatment which offers best chance of cure to patients with localised NSCLC[3].<br><br>Patients with stage I and II NSCLC are more likely to be suitable for surgical resection; therefore specification (ii) has been developed to ensure this indicator focuses on the patients most appropriate for surgical resection, whilst also providing an overall surgical resection rate for NSCLC. |
| **Specification (i):** | **Numerator:** Number of patients with non small cell lung cancer (NSCLC) who undergo surgical resection.<br><br>**Denominator:** All patients with non small cell lung cancer (NSCLC).<br><br>**Exclusions:**<br>• Patients who refuse surgery.<br>• Patients who die before surgery.<br>• Patients who undergo stereotactic ablative body radiotherapy (SABR). |
| **Target:** | 17%<br><br>The tolerance within this target accounts for the fact that not all patients are suitable for surgical resection due to extent of disease, fitness levels and co morbidities. |
| **Specification (ii):** | **Numerator:** Number of patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC who undergo surgical resection.<br><br>**Denominator:** All patients with stage I-II (T1aN0 - T2bN1, or T3N0) NSCLC.<br><br>**Exclusions:**<br>• Patients who refuse surgery.<br>• Patients who die before surgery.<br>• Patients who undergo stereotactic ablative body radiotherapy (SABR). |
| **Target:** | 60%<br><br>The tolerance within this target accounts for the fact that not all patients are suitable for surgical resection due to fitness levels and co-morbidities. |

## QPI 7 – Lymph node assessment

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| **QPI Title:** | In patients with non small cell lung cancer (NSCLC) undergoing surgery adequate assessment of lymph nodes should be made. | |
| **Description:** | 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. | |
| **Rationale and Evidence:** | Adequate assessment of lymph nodes for accurate staging will help guide prognosis and further treatment management.<br><br>Nodal dissection should be performed for all patients undergoing surgery with curative intent[5]. At time of surgical resection a minimum of six lymph nodes or stations should be excised or sampled[4,5]. | |
| **Specifications:** | **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%<br><br>The tolerance within this target accounts for situations where patients are not fit enough to undergo extensive lymphadenectomy**.** | |

## QPI 8 – Radiotherapy in inoperable lung cancer

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| **QPI Title:** | Patients with inoperable lung cancer should receive radiotherapy ± chemotherapy, or stereotactic ablative body radiotherapy (SABR). | |
| **Description:** | Proportion of patients with lung cancer not undergoing surgery who receive radiotherapy with radical intent (54Gy or greater) ± chemotherapy, or SABR. | |
| **Rationale and Evidence:** | Radiotherapy is an important treatment option for patients with lung cancer; it has a proven survival benefit for patients with lung cancer[3].<br><br>For patients with stage I, II or III NSCLC, radical radiotherapy is the recommended treatment option if patients are not suitable for surgery[4].<br>SABR is now also a recognised treatment option for those patients with early stage medically inoperable lung cancer[6]. | |
| **Specifications:** | **Numerator:** | Number of patients with lung cancer not undergoing surgery who receive radical radiotherapy (> 54Gy) ± chemotherapy, or SABR. |
| | **Denominator:** | All patients with lung cancer not undergoing surgery. |
| | **Exclusions:** | • Patients with Small Cell Lung Cancer (SCLC).<br>• Patients who refuse radiotherapy.<br>• Patients who die prior to treatment.<br>• Patients with stage IV (M1a or M1b) disease. |
| **Target:** | 35%<br><br>The tolerance within this target level accounts for the fact that due to co-morbidities 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 toxicity. | |

## QPI 9 – Chemoradiotherapy in locally advanced non small cell lung cancer

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| **QPI Title:** | Patients with inoperable locally advanced non small cell lung cancer (NSCLC) should receive potentially curative radiotherapy and concurrent or sequential chemotherapy. | |
| **Description:** | Proportion of patients with NSCLC not undergoing surgery who receive radical radiotherapy, to 54Gy or greater, and concurrent or sequential chemotherapy. | |
| **Rationale and Evidence:** | Chemoradiotherapy is an important treatment option for patients with lung cancer[3].<br><br>Patients with stage III NSCLC who are not suitable for surgery should receive chemoradiotherapy, as this has a proven survival benefit. Potential benefit of survival does however have to be balanced with the risk of additional toxicities from this treatment[4]. | |
| **Specifications:** | **Numerator:** | Number of patients with stage IIIA NSCLC[a], with performance status 0-1, not undergoing surgery who receive chemoradiotherapy (radiotherapy > 54Gy and concurrent or sequential chemotherapy). |
| | **Denominator:** | All patients with stage IIIA NSCLC, with performance status 0-1, not undergoing surgery who receive radical radiotherapy > 54Gy. |
| | **Exclusions:** | • Patients who refuse treatment.<br>• Patients who die before treatment.<br>• Patients receiving Continuous Hyperfractionated Radiotherapy. |
| **Target:** | 50%<br><br>The tolerance within this target accounts for the fact that due to co-morbidities not all patients will be suitable for chemotherapy. In addition, patients may not have disease that can be encompassed within a radical radiotherapy field without excess toxicity. | |

## QPI 10 – Chemoradiotherapy in limited stage small cell lung cancer

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| **QPI Title:** | Patients with limited stage small cell lung cancer (SCLC) should receive platinum-based chemotherapy and (concurrent or sequential) radiotherapy. | |
| **Description:** | Proportion of patients with limited stage (stage I – IIIB)[b] SCLC treated with radical intent who receive both platinum-based chemotherapy, and radiotherapy to 40Gy or greater. | |
| **Rationale and Evidence:** | Patients with limited stage disease SCLC should receive concurrent chemoradiotherapy, as this is proven to improve survival[4]. Combination treatment is dependent on patient fitness levels and any potential survival benefit should be balanced with the risk of additional toxicities of this treatment.<br><br>Sequential radical thoracic radiotherapy should be considered where patients with limited-stage disease SCLC are unfit for concurrent chemoradiotherapy but respond to chemotherapy[4]. | |
| **Specifications:** | **Numerator:** | Number of patients with T1-4, N0-3, M0 (stage I to IIIB)[b] SCLC, performance status 0 or 1 who receive chemoradiotherapy (radiotherapy > 40Gy and concurrent or sequential platinum-based chemotherapy). |
| | **Denominator:** | All patients with T1-4, N0-3, M0 (stage I to IIIB) SCLC, performance status 0 or 1. |
| | **Exclusions:** | • Patients who refuse treatment.<br>• Patients who die before treatment.<br>• Patients who undergo surgical resection. |
| **Target:** | 70%<br><br>The tolerance within this target accounts for the fact that due to co-morbidities not all patients will be suitable for chemotherapy. In addition, patients may not have disease that can be encompassed in a radical radiotherapy field with acceptable toxicity (e.g. N3). | |

## QPI 11 – Systemic anti cancer therapy in non small cell lung cancer

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|---|---|---|
| **QPI Title:** | Patients with advanced non small cell lung cancer (NSCLC) should receive systemic anti cancer therapy, where appropriate. | |
| **Description:** | Proportion of patients with NSCLC not undergoing surgery who receive chemotherapy, or biological therapy where appropriate.<br><br>**Please note:** This QPI measures two distinct elements:<br>i. Patients with NSCLC who receive systemic anti cancer therapy (SACT); and<br>ii. Patients with stage IIIB and IV NSCLC that are EGFR / ALK positive who receive biological therapy. | |
| **Rationale and Evidence:** | Systemic anti cancer therapy should be offered to all patients with NSCLC and good performance status, to improve survival, disease control and quality of life[4].<br><br>Patients with EGFR mutations / ALK rearrangements in advanced stage lung cancer should be offered tyrosine kinase inhibitors (TKIs) which have been shown to increase progression-free survival[7,8]. | |
| **Specification (i):** | **Numerator:** | Number of patients with NSCLC not undergoing surgery who receive systemic anti cancer therapy. |
| | **Denominator:** | All patients with NSCLC not undergoing surgery. |
| | **Exclusions:** | • Patients who refuse chemotherapy.<br>• Patients who die before treatment. |
| **Target:** | 35%<br><br>The tolerance within this target accounts for the fact that due to earlier stage disease, co-morbidities, and fitness not all patients will require or be suitable for chemotherapy. | |
| **Specification (ii):** | **Numerator:** | Number of patients with stage IIIB or IV NSCLC, with performance status 0-2 not undergoing surgery that are EGFR / ALK positive who receive biological therapy. |
| | **Denominator:** | All patients with stage IIIB or IV NSCLC, with performance status 0-2 not undergoing surgery that are EGFR / ALK positive. |
| | **Exclusions:** | • Patients who refuse SACT treatment.<br>• Patients who die before treatment.<br>• Patients who are participating in clinical trials. |
| **Target:** | 60%<br><br>The tolerance within this target accounts for the fact that due to co-morbidities not all patients will require or be suitable for biological therapy. | |

## QPI 12 – Chemotherapy in small cell lung cancer

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|---|---|---|
| **QPI Title:** | Patients with small cell lung cancer (SCLC) should receive chemotherapy. | |
| **Description:** | Proportion of patients with SCLC who receive first line chemotherapy ± radiotherapy. | |
| **Rationale and Evidence:** | Patients with SCLC should receive combination chemotherapy, dependant on fitness levels, as this has a proven survival benefit and provides palliation for symptoms caused by primary or metastatic tumour[3,4].<br><br>**Please note:** This QPI measures two distinct elements:<br>i. Patients with SCLC who receive chemotherapy ± radiotherapy; and<br>ii. Patients with SCLC not undergoing treatment with curative intent who receive palliative chemotherapy. | |
| **Specification (i):** | **Numerator:** | Number of patients with SCLC who are receive chemotherapy ± radiotherapy. |
| | **Denominator:** | All patients with SCLC. |
| | **Exclusions:** | • Patients who refuse chemotherapy.<br>• Patients who die prior to treatment.<br>• Patients who are participating in clinical trials. |
| **Specification (ii):** | **Numerator:** | Number of patients with SCLC not undergoing treatment with curative intent who receive palliative chemotherapy. |
| | **Denominator:** | All patients with SCLC not undergoing treatment with curative intent. |
| | **Exclusions:** | • Patients who refuse chemotherapy.<br>• Patients who die prior to treatment.<br>• Patients who are participating in clinical trials. |
| **Target:** | Specification (i): 70%<br><br>Specification (ii): 50%<br><br>The tolerance within this target accounts for the fact that due to co-morbidities, and fitness not all patients will require or be suitable for chemotherapy. | |

## QPI 13 – Mortality following treatment for lung cancer

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|---|---|---|
| **QPI Title:** | 30 and 90 day mortality following treatment for lung cancer. | |
| **Description:** | Proportion of patients with lung cancer who die within 30 or 90 days of active treatment for lung cancer. | |
| **Rationale and Evidence:** | Treatment related mortality is a marker of the quality and safety of the whole service provided by the Multi Disciplinary Team (MDT)[3].<br><br>Outcomes of treatment, including treatment related morbidity and mortality should be regularly assessed.<br><br>Treatment should only be undertaken in individuals that may benefit from that treatment, that is, treatments should not be undertaken in futile situations. This QPI is intended to ensure treatment is given appropriately, and the outcome reported on and reviewed. | |
| **Specification (i):** | **Numerator:** | Number of patients with lung cancer who receive active treatment[c] who die within 30 days of treatment. |
| | **Denominator:** | All patients with lung cancer who receive active treatment[c]. |
| | **Exclusions:** | • No exclusions. |
| | **Please note:** | This indicator will be split by diagnosis of NSCLC and SCLC for palliative chemotherapy and biological therapy. |
| **Specification (ii):** | **Numerator:** | Number of patients with lung cancer who receive treatment with curative intent (surgery, radical radiotherapy or chemoradiotherapy) who die within 90 days of treatment. |
| | **Denominator:** | All patients with lung cancer who receive treatment with curative intent (surgery, radical radiotherapy or chemoradiotherapy). |
| | **Exclusions:** | • No exclusions |
| | **Please Note:** | This indicator will be reported by treatment modality, i.e. surgery, radical radiotherapy, chemoradiotherapy etc. as opposed to one single figure. |
| **Targets:** | **Surgery, Radical Radiotherapy, Adjuvant Chemotherapy and Radical Chemoradiotherapy**<br><5%<br><br>**Palliative Chemotherapy/Biological Therapy**<br>NSCLC <10%<br>SCLC <15% | |

## QPI 14 – Stereotactic Ablative Body Radiotherapy (SABR) in inoperable stage I non small cell lung cancer

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|---|---|---|
| **QPI Title:** | Patients with inoperable stage I non small cell lung cancer (NSCLC) should receive Stereotactic Ablative Body Radiotherapy (SABR). | |
| **Description:** | Proportion of patients with stage I NSCLC not undergoing surgery who receive SABR. | |
| **Rationale and Evidence:** | SABR is now a recognised treatment option for patients with medically inoperable early stage lung cancer. Patients with stage I lung cancer who are not suitable for surgery should receive SABR as this has a proven survival benefit[6]. | |
| **Specifications:** | **Numerator:** | Number of patients with stage I NSCLC not undergoing surgery who receive SABR. |
| | **Denominator:** | All patients with stage I NSCLC not undergoing surgery. |
| | **Exclusions:** | • Patients who refuse SABR.<br>• Patients who die prior to treatment. |
| **Target:** | 35%<br><br>The tolerance within this target level accounts for the fact that due to co-morbidities, previous radiotherapy or excessive tumour motion not all patients will be suitable for SABR.<br><br>In addition, patients may not have disease that can be encompassed within a radical radiotherapy field without excess toxicity. | |

## QPI 15 – Pre-treatment diagnosis

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|---|---|---|
| **QPI Title:** | Where possible patients should have a cytological / histological diagnosis prior to treatment. | |
| **Description:** | Proportion of patients who are being treated with curative treatment (radical radiotherapy, radical chemoradiotherapy or surgical resection) who have a cytological / histological diagnosis prior to treatment. | |
| **Rationale and Evidence:** | A definitive diagnosis is valuable in helping inform patients and carers about the nature of the disease, the likely prognosis and treatment choice.<br><br>Appropriate treatment depends on accurate diagnosis which should be confirmed by cytology / histology[3]. | |
| **Specification (i):** | **Numerator:** | Number of patients who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection) who have a cytological / histological diagnosis prior to treatment. |
| | **Denominator:** | All patients with lung cancer who are treated with curative intent (radical radiotherapy, radical chemoradiotherapy or surgical resection). |
| | **Exclusions:** | • Patients who refuse investigations |
| | **Please note:** | This indicator will be reported by treatment modality, i.e. surgery, radical radiotherapy, chemoradiotherapy etc. as opposed to one single figure. |
| **Target:** | 75%<br><br>The tolerance level within this target takes account of the fact that not all lesions will be accessible for pre-operative diagnosis (small and / or peripheral lesions). | |

## QPI 16 – Clinical Trial Access

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| **QPI Title:** | All patients should be considered for participation in available clinical trials, wherever eligible. |
| **Description:** | Proportion of patients with lung cancer who are enrolled in an interventional clinical trial or translational research. |
| **Rationale and Evidence:** | Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Furthermore evidence suggests improved patient outcomes from participation in clinical trials[3].<br><br>Clinicians are therefore encouraged to enter patients into well-designed trials and to collect longer-term follow-up data.<br><br>High accrual activity into clinical trials is used as a goal of an exemplary clinical research site. |
| **Specifications:** | **Numerator:** Number of patients with lung cancer enrolled in an interventional clinical trial or translational research.<br><br>**Denominator:** All patients with lung cancer.<br><br>**Exclusions:** • No exclusions. |
| **Target:** | Interventional clinical trials – 7.5%<br><br>Translational research – 15% |

The clinical trials QPI will be measured utilising SCRN data and ISD incidence data, as is the methodology currently utilised by the Chief Scientist Office (CSO) and NCRI. The principal benefit of this approach is that this data is already collected utilising a robust mechanism. At present a 'clinical trial' data item is contained within all tumour specific datasets, however in order to avoid any duplication of effort, and focus resources appropriately, SCRN data is the preferred option.

Utilising SCRN data allows for comparison with CSO published data and ensures capture of all clinical trials recruitment, not solely first line treatment trials, as contained in the clinical audit data. Given that a significant proportion of clinical trials are for relapsed disease this is felt to be particularly important in driving quality improvement. This methodology utilises incidence as a proxy for all patients with cancer. This may slightly over, or underestimate, performance levels, however this is an established approach currently utilised by NHSScotland. For clinical trials definitions please see appendix 4.

The full Clinical Trials QPI document can be found at:

Healthcare Improvement Scotland - Cancer Quality Performance Indicators

## 7. Survival

Improving survival forms an integral part of the national cancer quality improvement programme. Lung cancer survival analysis will be reported and analysed on a 3 yearly basis by Information Services Division (ISD). The specific issues which will be addressed will be identified by an expert group ahead of any analysis being undertaken, as per the agreed national cancer quality governance and improvement framework.

The Lung Cancer QPI Group has identified, during the QPI development process, the following issues for survival analysis:

- 5 and 10 year overall survival.

To ensure consistent application of survival analysis, it has been agreed that a single analyst on behalf of all three regional cancer networks undertakes this work. Survival analysis will be scheduled as per the national survival analysis and reporting timetable, agreed with the National Cancer Quality Steering Group and Scottish Cancer Taskforce. This reflects the requirement for record linkage and the more technical requirements of survival analyses which would make it difficult for individual Boards to undertake routinely and in a nationally consistent manner.

## 8. Areas for Future Consideration

The Lung Cancer QPI Groups have not been able to identify sufficient evidence, or determine appropriate measurability specifications, to address all areas felt to be of key importance in the treatment of lung cancer, and therefore in improving the quality of care for patients affected by lung cancer.

The following areas for future consideration have been raised across the lifetime of the Lung Cancer QPIs.

- Clinical management of patients with mesothelioma.
- CT scan undertaken prior to first respiratory physician consultation.

## 9. Governance and Scrutiny

A national and regional governance framework to assure the quality of cancer services in NHSScotland has been developed; key roles and responsibilities within this are set out below. Appendices 5 and 6 provide an overview of these governance arrangements diagrammatically. The importance of ensuring robust local governance process are in place is recognised and it is essential that NHS Boards ensure that cancer clinical audit is fully embedded within established processes.

### 9.1 National

- Scottish Cancer Taskforce
  - Accountable for overall national cancer quality programme and overseeing the quality of cancer care across NHSScotland.
  - Advising Scottish Government Health and Social Care Directorate (SGHSCD) if escalation required.

- Healthcare Improvement Scotland
  - Proportionate scrutiny of performance.
  - Support performance improvement.

- Quality assurance: ensure robust action plans are in place and being progressed via regions/Boards to address any issues identified.

- Information Services Division (ISD)
  - Publish national comparative report on tumour specific QPIs and survival for approximately three tumour types per annum as part of the rolling programme of reporting.

### 9.2 Regional – Regional Cancer Networks

- Annual regional comparative analysis and reporting against tumour specific QPIs.
- Support national comparative reporting of specified generic QPIs.
- Identify and share good practice.
- In conjunction with constituent NHS Boards identify regional and local actions required to develop an action plan to address regional issues identified.
- Review and monitoring of progress against agreed actions.
- Provide assurance to NHS Board Chief Executive Officers and Scottish Cancer Taskforce that any issues identified have been adequately and timeously progressed.

### 9.3 Local – NHS Boards

- Collect and submit data for regional comparative analysis and reporting in line with agreed measurability and reporting schedule (generic and tumour specific QPIs).
- Utilise local governance structures to review performance, develop local action plans and monitor delivery.
- Demonstrate continual improvements in quality of care through on-going review, analysis and feedback of clinical audit data at an individual multidisciplinary team (MDT) or unit level.

## 10. How to participate in the engagement process

In order to ensure wide inclusiveness of clinical and management colleagues from across NHS Scotland, patients affected by prostate cancer and the wider public, several different methods of engagement are being pursued:

**Professional groups, health service staff, voluntary organisations and individuals:**

- Wide circulation of the draft documentation for comment and feedback.

**Patient representative groups:**

- Organised patient focus group sessions to be held.

### 10.1 Submitting your comments

You can submit your comments on the Revised Lung Cancer QPIs via the Scottish Government Consultation Hub (website link below):

https://consult.scotland.gov.uk/nhs/lung-cancer-qpi

All responses should be submitted by **Friday 9th December 2016**.

If you require any further information regarding the engagement process please use the email address below.

**Email:** LungQPIPublicEngagement@gov.scot

## 10.2 Engagement feedback

At the end of the engagement period, all comments and responses will be collated for review by the Lung Cancer QPI Formal Review Group. Those who have participated in the engagement process will receive an overview of the changes made and a copy of the final Lung Cancer QPI document.

## 11. References


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# 12. Appendices

## Appendix 1: QPI Development Process

### Preparatory Work and Scoping

The preparatory work involved the development of a structured briefing paper by Healthcare Improvement Scotland. This paper took account of existing, high quality, clinical guidance and provided a basis for the development of QPIs.

The scope for development of lung cancer QPIs and a search narrative were defined and agreed by the Lung Cancer QPI Development Group. The table below shows the final search criteria used in the literature search.

| Inclusion | Exclusion |
|---|---|
| Lung carcinomas<br><br>Adults only<br><br>Date: 2005 or later<br><br>Topics: diagnosis, staging, management of non-metastatic (organ confined or locally advanced) and metastatic (advanced) disease, follow up | Lung sarcomas<br><br><br><br><br><br>Topics: prevention, screening, palliative/end of life care |

**Table 1 – Lung Cancer Search Criteria**

A systematic search was carried out by Healthcare Improvement Scotland using selected websites and two primary medical databases to identify national and international guidelines.

Thirty-four guidelines were appraised for quality using the AGREE II instrument. The instrument assesses the methodological rigour and precision used when developing a guideline. Seventeen of the guidelines were not recommended for use. Five of the guidelines were recommended for use and six recommended for use with modifications.

### Indicator Development

The Lung Cancer QPI Development Group defined evidence based, measurable indicators with a clear focus on improving the quality and outcome of care provided.

The Group developed QPIs using the clinical recommendations set out in the briefing paper as a base, ensuring all indicators met the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?
- **Evidence based** – is the indicator based on high quality clinical evidence?
- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

### Engagement Process

A wide clinical and public engagement exercise was undertaken as part of development in 2011 where the Lung Cancer QPIs, along with accompanying draft minimum core dataset and measurability specifications, were made available on the Scottish Government website. During the engagement period clinical and management colleagues from across NHSScotland, patients affected by lung cancer and the wider public were given the opportunity to influence the development of Lung Cancer QPIs.

Draft documentation was circulated widely to professional groups, health service staff, voluntary organisations and individuals for comment and feedback.

Following the engagement period all comments and responses received were reviewed by the Lung Cancer QPI Development Group and used to produce and refine the final indicators.

## Appendix 2: Lung Cancer QPI Development Group Membership (2012)

| Name | Designation | Cancer Network |
|---|---|---|
| Hilary Dobson (CHAIR) | Regional Lead Cancer Clinician | WoSCAN |
| David Atkinson | Patient Representative | |
| Fiona Barnett | Clinical Nurse Specialist | SCAN (Victoria Hospital, Kirkcaldy) |
| Peter Brown | Consultant Respiratory Physician | NOSCAN (Ninewells Hospital, Tayside) |
| Tracey Cole | Project Manager (until May 2012) | |
| Ian Colquhoun | Consultant Thoracic Surgeon | WoSCAN (Golden Jubilee Hospital, Clydebank) |
| Kirsty Docherty | Clinical Nurse Specialist | WoSCAN (Inverclyde Royal Hospital, Inverclyde) |
| Jane Edgecombe | Consultant in Palliative Medicine | WoSCAN (Beatson West of Scotland Cancer Centre) |
| Carrie Featherstone | Consultant Clinical Oncologist | WoSCAN (Beatson West of Scotland Cancer Centre) |
| Mike Gronski | Consultant Radiologist | WoSCAN (Victoria Infirmary, Glasgow) |
| Michele Hilton Boon | Programme Manager | Healthcare Improvement Scotland |
| Janet Ironside | Consultant Clinical Oncologist | WoSCAN (Western General Hospital, Edinburgh) |
| Robert Jeffrey | Consultant Thoracic Surgeon | NOSCAN (Aberdeen Royal Infirmary, Grampian) |
| Keith Kerr | Consultant Pathologist | NOSCAN (Aberdeen Royal Infirmary, Grampian) |
| Carol MacGregor | Consultant Clinical Oncologist | NOSCAN (Raigmore Hospital, Inverness) |
| Liz MacMillan | Oncology Department Manager | WoSCAN (Forth Valley Royal Hospital, Falkirk) |
| Lynn McAllister | Macmillan Lung Clinical Nurse Specialist | NOSCAN (Ninewells Hospital, Dundee) |
| Robert Milroy | Consultant Respiratory Physician | WoSCAN (Glasgow Royal Infirmary, Glasgow) |
| John Murchison | Consultant Radiologist | WoSCAN (Edinburgh Royal Infirmary, Edinburgh) |
| Brian Murray | Principle Information Development Manager | NHS National Services Scotland |

| Name | Designation | Cancer Network |
|---|---|---|
| Marianne Nicolson | Consultant Medical Oncologist | NOSCAN (Aberdeen Royal Infirmary, Grampian) |
| Noelle O'Rourke | Consultant Clinical Oncologist | WoSCAN (Beatson West of Scotland Cancer Centre) |
| Fiona Roberts | Consultant Pathologist | WoSCAN (Western Infirmary, Glasgow) |
| Donald Salter | Consultant Pathologist | SCAN (Royal Infirmary of Edinburgh. Edinburgh) |
| Iona Scott | Project Manager (from May 2012) | WoSCAN |
| Colin Selby | Consultant Respiratory Physician | SCAN (Queen Margaret Hospital, Dunfermline) |
| Nicola Steele | Consultant Medical Oncologist | WoSCAN (Beatson West of Scotland Cancer Centre) |
| Liz Steven | Macmillan Lung Clinical Nurse Specialist | NOSCAN (Aberdeen Royal Infirmary, Grampian) |
| Tom Taylor | Consultant Radiologist | NOSCAN (Ninewells Hospital, Dundee) |
| Steven Thomas | Consultant Respiratory Physician | NOSCAN (Raigmore Hospital, Inverness) |
| Evelyn Thomson | Regional Manager (Cancer) | WoSCAN |
| Jennifer Wilson | Clinical Nurse Specialist | WoSCAN (Forth Valley Royal Hospital, Falkirk) |
| Stan Wright | Consultant Respiratory Physician | WoSCAN (Chair NHS QIS Lung Cancer Standards Development) |
| Vipin Zamvar | Consultant Cardiothoracic Surgeon | SCAN (Royal Infirmary of Edinburgh, Edinburgh) |

NOSCAN - North of Scotland Cancer Network
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

## Appendix 3: Lung Cancer QPI Formal Review Group Membership (2016)

| Name | Designation | Cancer Network |
|---|---|---|
| Anne Parker (CHAIR) | Consultant Haematologist | WoSCAN / NHS Greater Glasgow & Clyde |
| Iona Scott | Quality and Service Improvement Manager | WoSCAN |
| Hardy Remmen | Clinical Lead – Lung Cancer MCN | NOSCAN |
| Colin Selby | Clinical Lead – Lung Cancer MCN | SCAN |
| John McPhelmin | Clinical Lead – Lung Cancer MCN | WoSCAN |
| Evelyn Thomson | Regional Manager (Cancer) | WoSCAN |
| Carrie Featherstone | Consultant Clinical Oncologist | WoSCAN, (Beatson West of Scotland Cancer Centre) |
| Carol MacGregor | Consultant Oncologist | NOSCAN |
| Tamasin Evans | Consultant Oncologist | SCAN |
| Jennifer Doherty | National Cancer Quality Programme Co-ordinator | WoSCAN |

**Formal review of the Lung Cancer QPIs has been undertaken in consultation with various other clinical specialties.**

## Appendix 4: Clinical Trials Definitions

In order to ensure appropriate and nationally comparative measurement against QPIs developed it is of utmost importance to agree consistent definitions of the various terminologies utilised.

The Clinical Trial QPI SLWG has therefore agreed the following definitions:

| | |
|---|---|
| **Research** | Research can be defined as the attempt to derive generalisable (i.e. of value to others in a similar situation) new knowledge by addressing clearly defined questions with systematic and rigorous methods. This excludes: audit; needs assessments; quality improvement and other local service evaluations. It also excludes routine banking of biological samples or data except where this activity is integral to a self-contained research project designed to test a clear hypothesis[9]. |
| **Interventional Clinical Trial** | A clinical study in which participants are assigned to receive one or more interventions (or no intervention) so that researchers can evaluate the effects of the interventions on biomedical or health-related outcomes. The assignments are determined by the study protocol. Participants may receive diagnostic, therapeutic, or other types of interventions[10]. |
| **Translational Research** | Translational research transforms scientific discoveries arising from laboratory, clinical, or population studies into clinical applications to reduce cancer incidence, morbidity, and mortality[11]. The development of the breast cancer drug trastuzumab (Herceptin) is an example for this kind of research. Researchers derived knowledge about the function and presence of a specific gene (HER) from laboratory studies. This information was then used to develop trastuzumab (Herceptin), which inhibits the growth of cancerous cells in patients whose cancers over express the protein coded by this gene. |

## Appendix 5: 3 Yearly National Governance Process and Improvement Framework for Cancer Care

This process is underpinned by the annual regional reporting and governance framework (see appendix 6).

**1. National QPI Development Stage**

- QPIs developed by QPI development groups, which include representation from Regional Cancer Networks, Healthcare Improvement Scotland, ISD, patient representatives and the Cancer Coalition.

**2. Data Analysis Stage:**

- NHS Boards and Regional Cancer Advisory Groups (RCAGs)* collect data and analyse on yearly basis using nationally agreed measurability criteria and produce action plans to address areas of variance, see appendix 6.
- Submit yearly reports to ISD for collation and publication every 3 years.
- National comparative report approved by NHS Boards and RCAGs.
- ISD produce comparative, publicly available, national report consisting of trend analysis of 3 years data and survival analysis.

**3. Expert Review Group Stage (for 3 tumour types per year):**

- Expert group, hosted by Healthcare Improvement Scotland, review comparative national results.
- Write to RCAGs highlighting areas of good practice and variances.
- Where required NHS Boards requested to submit improvement plans for any outstanding unresolved issues with timescales for improvement to expert group.
- Improvement plans ratified by expert group and Scottish Cancer Taskforce.

**4. Improvement Support Stage:**

- Where required Healthcare Improvement Scotland provide expertise on improvement methodologies and support.

**5. Monitoring Stage:**

- RCAGs work with Boards to progress outstanding actions, monitor improvement plans and submit progress report to Healthcare Improvement Scotland.
- Healthcare Improvement Scotland report to Scottish Cancer Taskforce as to whether progress is acceptable**.**

**6. Escalation Stage:**

- If progress not acceptable, Healthcare Improvement Scotland will visit the service concerned and work with the RCAG and Board to address issues.
- Report submitted to Scottish Cancer Taskforce and escalation with a proposal to take forward to Scottish Government Health Department.

*In the South and East of Scotland Cancer Network (SCAN) the Regional Cancer Planning Group is the equivalent group to Regional Cancer Advisory Group (RCAG).

## Appendix 6: Regional Annual Governance Process and Improvement Framework for Cancer Care

**1. Regional QPI Implementation Stage:**

- National cancer QPIs and associated national minimum core dataset and measurability specifications, developed by QPI development groups.
- Regional implementation of nationally agreed dataset to enable reporting of QPIs.

**2. Data Analysis Stage:**

- NHS Boards collect data and data is analysed on a yearly basis using nationally agreed measurability criteria at local/ regional level.
- Data/results validated by Boards and annual regional comparative report produced by Regional Networks.
- Areas of best practice and variance across the region highlighted.
- Yearly regional reports submitted to ISD for collation and presentation in national report every 3 years.

**3. Regional Performance Review Stage:**

- RCAGs* review regional comparative report.
- Regional or local NHS Board action plans to address areas of variance developed.
- Appropriate leads identified to progress each action.
- Action plans ratified by RCAGs.

**4. Monitoring Stage:**

- Where required, NHS Boards monitor progress with action plans and submit progress reports to RCAGs.
- RCAGs review and monitor regional improvement.

**5. Improvement Support Stage:**

- Where required Healthcare Improvement Scotland maybe requested to provide expertise to NHS Boards/RCAGs on improvement methodologies and support.

**6. Escalation Stage:**

- If progress not acceptable, RCAGs will escalate any issues to relevant Board Chief Executives. If progress remains unacceptable RCAGs will escalate any relevant issues to Healthcare Improvement Scotland.

*In the South and East of Scotland Cancer Network (SCAN) the Regional Cancer Planning Group is the equivalent group to Regional Cancer Advisory Group (RCAG).

## Appendix 7: Glossary of Terms

| | |
|---|---|
| **Active treatment** | Treatment which is intended to improve the cancer and/or alleviate symptoms, as opposed to supportive care. |
| **Adenocarcinoma** | Cancer that begins in cells that line certain internal organs and that have gland-like (secretory) properties. |
| **Adjuvant Chemotherapy** | The use of chemotherapy, after initial treatment by surgery to reduce the risk of recurrence of the cancer. |
| **Biopsy** | Removal of a sample of tissue from the body to assist in diagnosis of a disease. |
| **Cancer** | The name given to a group of diseases that can occur in any organ of the body, and in blood, and which involve abnormal or uncontrolled growth of cells. |
| **Chemoradiotherapy** | Treatment that combines chemotherapy with radiotherapy. |
| **Chemotherapy** | The use of drugs that kill cancer cells, or prevent or slow their growth. |
| **Clinical trials** | A type of research study that tests how well new medical approaches or medicines work. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease. |
| **Co-morbidity** | The condition of having two or more diseases at the same time. |
| **Combined modality** | Integrated use of two or more different treatments (surgery, chemotherapy, radiotherapy) to combat the cancer. |
| **Computerised Tomography (CT)** | An x-ray imaging technique, which allows detailed investigation of the internal organ of the body. |
| **Curative intent** | Treatment which is given with the aim of curing the cancer. |
| **Cytological** | The study of the structure and function of cells under the microscope, and of their abnormalities. |
| **Diagnosis** | The process of identifying a disease, such as cancer, from its signs and symptoms. |
| **Extensive stage disease** | A term used to define the extent of small cell lung cancer. Broadly this includes all small cell lung cancers that have metastasised outside of the thorax. |
| **Gray (Gy)** | Unit of absorbed radiation dose. |
| **Histological/ histopathological** | The study of the structure, composition and function of tissues under the microscope, and their abnormalities |
| **Hyperfractionated radiotherapy** | Radiotherapy treatment in which the total dose of radiation is divided into small doses and treatments are given more than once a day. |
| **Inoperable** | Describes a condition that cannot be treated by surgery. |
| **Limited stage SCLC** | A staging classification for small cell lung cancer developed by the Veterans' Administration Lung Study Group. Using the 7th edition of the TNM staging system this broadly includes T1-4, N1-3, M0 disease. |

| | |
|---|---|
| **Lobectomy** | A surgical procedure that is used to take out part of the lung (called a lobe). |
| **Lung Cancer** | There are two types of primary lung cancer: Small Cell Lung Cancer (SCLC) and Non Small Cell Lung Cancer (NSCLC) which behave and respond to treatment differently. |
| **Lymph nodes** | Small bean shaped organs located along the lymphatic system. Nodes filter bacteria or cancer cells that might travel through the lymphatic system. |
| **Malignancy** | Cancerous. Malignant cells can invade and destroy nearby tissue and spread to other parts of the body. |
| **Multi Disciplinary Team Meeting (MDT)** | A meeting which is held on a regular basis, which is made up of participants from various disciplines appropriate to the disease area, where diagnosis, management, and appropriate treatment of patients is discussed and decided. |
| **Mediastinal** | The thin membrane that lines the chest cavity in the area between the lungs. |
| **Metastatic** | Spread of cancer away from the primary site to somewhere else via the bloodstream or the lymphatic system. |
| **Morbidity** | How much ill health a particular condition causes. |
| **Mortality** | Either (1) the condition of being subject to death; or (2) the death rate, which reflects the number of deaths per unit of population in any specific region, age group, disease or other classification, usually expressed as deaths per 1000, 10,000 or 100,000. |
| **Non Small Cell Lung Cancer (NSCLC)** | The most common type of lung cancer, there are three types of NSCLC: Squamous Cell Carcinoma, Adenocarcinoma and Large Cell Carcinoma. |
| **Palliative treatment** | Anything which serves to alleviate symptoms due to the underlying cancer but is not expected to cure it. |
| **Pathological** | The study of disease processes with the aim of understanding their nature and causes. This is achieved by observing samples of fluid and tissues obtained from the living patient by various methods, or at post mortem. |
| **Peripheral tumour** | An abnormal mass of tissue situated in sub-segmental bronchi and is not usually visible on bronchoscopy. |
| **Performance status** | A measure of how well a patient is able to perform ordinary tasks and carry out daily activities (e.g. WHO score of 0=asymptomatic, 4=bedridden). |
| **Platinum-based chemotherapy** | Chemotherapy drugs that contain derivatives of the metal platinum. |
| **Pneumonectomy** | An operation to remove an entire lung. |
| **Positron emission tomography / Computed Tomography (PET CT)** | A specialised imaging technique which demonstrates uptake of tracer in areas of high cell metabolism and can help differentiate between benign and malignant masses. It is most frequently used to help stage lung cancer by demonstrating or excluding distant metastases. |

| | |
|---|---|
| **Predictive markers** | A finding that can be used to help predict whether a person's cancer will respond to a specific treatment, may also describe something that increases a person's risk of developing a condition or disease. |
| **Primary Tumour** | Original site of the cancer. The mass of tumour cells at the original site of abnormal tissue growth. |
| **Prognosis** | An assessment of the expected future course and outcome of a person's disease. |
| **Radiotherapy** | The use of radiation, usually X-rays or gamma rays, to kill tumour cells. |
| **Radical Treatment** | Treatment which is given with the aim of destroying cancer cells to attain cure. |
| **Small Cell Lung Cancer (SCLC)** | A type of lung cancer in which the cells are small and round. SCLC is often fast growing and can spread quickly. |
| **Surgery/Surgical Resection Resection** | Surgical removal of the tumour/lesion. |
| **Staging** | Process of describing to what degree cancer has spread from its original site to another part of the body. Staging involves clinical, surgical and pathology assessments.<br>See TNM Classification |
| **Stereotactic radiotherapy** | A type of external radiotherapy that uses special equipment to position the patient and precisely deliver radiation to a tumour. |
| **Survival** | The percentage of people in a study or treatment group who are alive for a certain period of time after they were diagnosed with or treated for a disease, such as cancer. |
| **Systemic Anti Cancer Therapy (SACT)** | Treatment of cancer using drugs which induce a reduction in tumour cell population, for example cancer chemotherapy or hormone therapy. |
| **Thorascopic** | Thoracoscopy is the insertion of an endoscope, a narrow diameter tube with a viewing mirror or camera attachment, through a very small incision (cut) in the chest wall. |
| **Toxicity** | The extent to which something is poisonous or harmful. |
| **Tissue** | A group or layer of cells that work together to perform a specific function. |
| **TNM classification** | TNM classification provides a system for staging the extent of cancer. T refers to the size of the primary tumour. N refers to the involvement of the lymph nodes. M refers to the presence of metastases or distant spread of the disease. |
| **Tumour size** | The size of a cancer measured by the amount of space taken up by the tumour. |
| **Well-differentiated** | Cancer in which the cells are mature and look like cells in the tissue from when it arose. Differentiated cancers tend to be decidedly less aggressive than undifferentiated cancers composed of immature cells. |