

London Cancer:
Pathway specification for
Lung cancer

February 2015

Version 16.0

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1. Introduction

1.1. *London Cancer*

The cancer care providers of North East London and North Central London and West Essex agreed in July 2011 to develop an integrated cancer system in response to the requirements of London's Strategic Health Authority and commissioners. Since April 2012 this integrated cancer system, *London Cancer*, has been commissioned to provide cancer services for a resident population of 3.2 million. Its mission is to drive superior outcomes and experience for our patients and local communities, and thereby position its staff as leaders in cancer care – locally, nationally and globally.

London Cancer will be underpinned by patient-empowerment, research, evidence and information sharing. It will radically refocus hospitals into working in partnership with each other, primary care and patients, to deliver coordinated, comprehensive pathways of excellent care for every patient irrespective of where they access our system or the type of cancer that they have.

The agreed priorities of the integrated cancer system are:

- Being patient-focused through listening, communication, involvement, information, education, choice, and personalisation
- Optimising care along a co-ordinated pathway – earlier diagnosis, exceptional treatment for all, local treatment where appropriate, compassionate aftercare and empowering/supporting patient self-management
- Embedding research for personalised care, equitable access to trials, the discovery of new treatments and evaluating new ways of working together with patients
- Increasing value – superior outcomes for patients per pound invested.

In addition to these priorities, *London Cancer* has carried out extensive research on what matters to patients and has distilled this work into ten key themes that will be central to everything that we do:

1. **Diagnosis** – patients are diagnosed at an earlier stage
2. **Ethos** – patients are treated holistically as individuals, and with dignity, sensitivity and respect, so that they do not feel that they are treated as a set of cancer symptoms
3. **Communication** – patients receive written and verbal information about diagnosis and all treatment options, including side effects and quality of life implications
4. **Choice** – patients and carers are fully involved in the choice of hospital and treatment options
5. **Support** – patients are given information on support groups, benefits entitlement and are offered emotional and psychosocial support
6. **Carers** – carers are fully involved and supported throughout the pathway
7. **Holistic assessment** – patients have holistic assessments at appropriate stages throughout the pathway, with action to meet their needs taken as a result
8. **Seamless care** – all patients are assigned a CNS when diagnosed and a community keyworker on discharge
9. **Transport** – patients should only travel when necessary and appropriate arrangements should be made for the immunosuppressed; patients should be provided with free parking or transport vouchers
10. **Discharge** – patients and their GPs should be provided with discharge information and follow-up advice.

1.2. Pathway specifications

London Cancer will deliver a step-change in cancer services in North East London and North Central London and West Essex. It is doing this through empowering clinicians and placing patients at the heart of cancer care. Clinically led pathway boards have been constituted for each cancer pathway and these boards will, under the leadership of a pathway director, lead service improvement and change across the pathway. The focus of pathway boards is the whole patient pathway, including:

- The diagnostic interface with the public
- Primary care and accident and care in emergency departments
- Initial assessment and appropriate rapid onward referral where necessary
- The provision of various aspects of patient treatment
- Follow-up or supporting end of life care.

To instigate change pathway boards will develop specifications for the future delivery of services along their pathways within the integrated cancer system. The organisations of *London Cancer* that contribute to the pathway will then be invited to demonstrate how they could meet the requirements of these specifications for the components of the pathway that they wish to provide.

The *London Cancer* lung pathway specification is found in the following pages including thoracic surgery.

A full list of contributors and the dates on which they met can be found in the Appendix 1.

2. Overarching principles and commitments

Before we describe the technical provisions that we would expect services to be able to provide, it is important to identify the over-arching features of a high quality, integrated, patient-focused pathway to which all providers within *London Cancer* should aspire. These include strong leadership and a series of commitments to principles that support the optimum functioning of the pathway. We expect all providers participating within the pathway to commit to and embody these commitments in everything that they do.

Leadership

Each component of the pathway will have a named leader who takes responsibility for leading the local provider team or the specialist team and ensures system-wide collaborative working to ensure availability of relevant specialist expertise at local units and equitable access to best practice and research.

Commitment to partnership working

All providers work together as part of an integrated team, and demonstrate this commitment to partnership from the outset by working collaboratively to develop plans against the pathway specification that are focused on delivering the best outcomes and experiences for patients.

Commitment to audit, data collection and sharing

All providers collect data on clinical outcomes and patient experience (and other relevant metrics), and comply with requirements for submission to national audits (e.g. COSD) and other local/regional requests for performance and outcomes data.

Commitment to gathering and responding to patient feedback

All providers must demonstrate a practical commitment to elicit feedback from patients on a regular basis and use this intelligence systematically and routinely to inform service improvement.

Commitment to research and innovation

All providers within the system participate fully in the clinical trial and research portfolio, and carry out prospective audits of services and publish transparent outcomes data. They participate in tissue banking where relevant and support the use of research nurses, as well as promote research into improving patients' functional outcomes and rehabilitation therapies.

Commitment to education and training

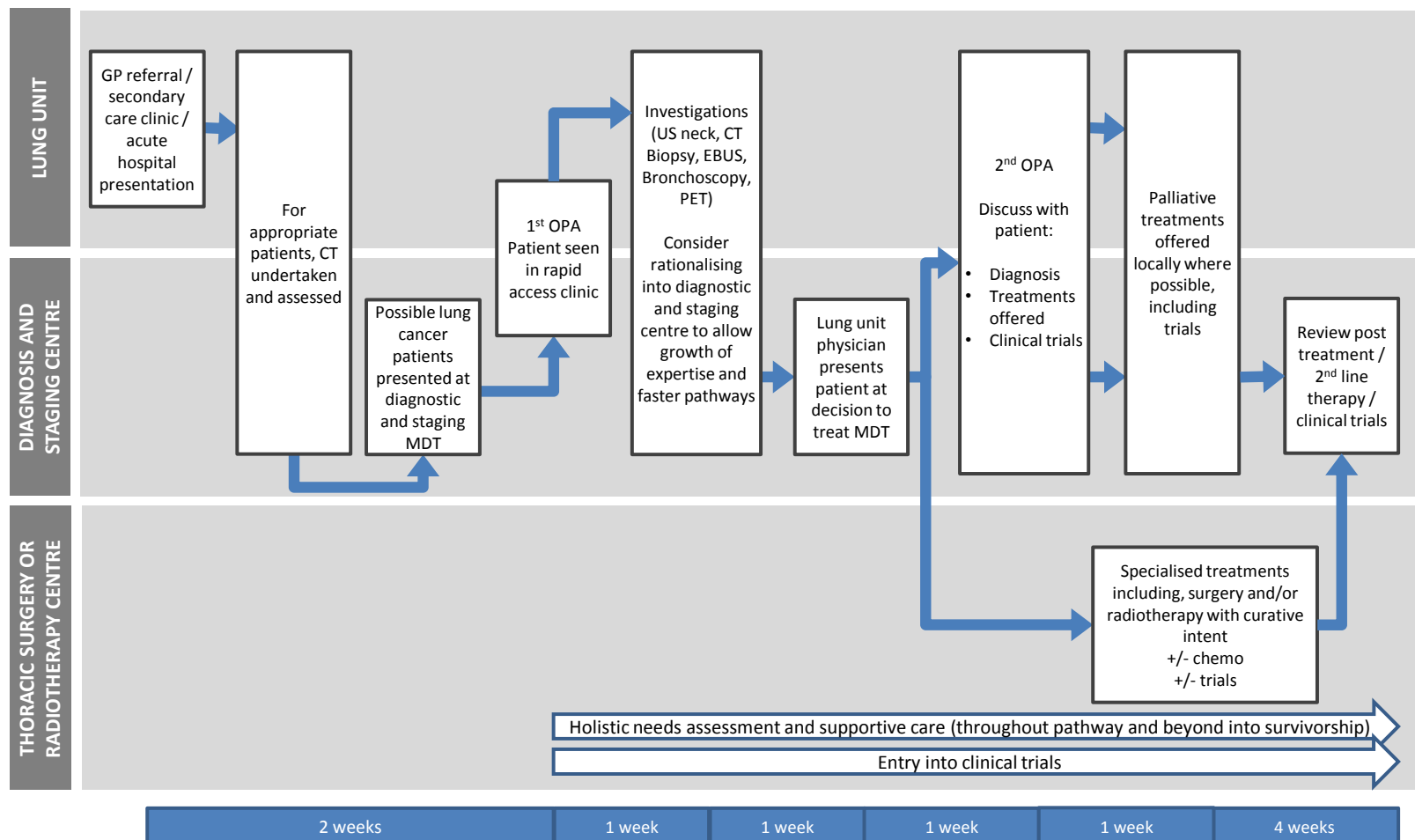
All providers should facilitate access to high quality training and development opportunities for staff and services—with centres working in partnership and undertaking joint training where appropriate in order to deliver education in efficient, joined-up way. Specifically:

- Training should be available for junior medical staff, nursing staff, allied health professionals (AHPs) and MDT co-ordinators.
- Recognition should be given to the importance of education for CNSs, and protected time should be offered to CNSs to enable them to access development opportunities.
- Level 2 psychological training should be available for all members of the MDT with at least one clinical core member of the MDT having completed it —with supervision in line with the requirements of Peer Review.
- All relevant staff should be supported to undertake Advanced Communication Skills Training (ACST)
- Level 1 Quit Smoking Training should be available to all members of the MDT
- Education and training activity should be subjected to ongoing monitoring and audit to establish what works and identify opportunities for improvement.

3. The lung cancer pathway

Lung cancer is a common cancer. Lung cancer services in *London Cancer* will therefore be delivered locally as far as possible. Local lung units will partner with a smaller number of diagnosis and staging centres. Between the lung unit and the diagnosis and staging centre patients will have access to all but the most specialist diagnostic equipment and procedures. Local unit physicians will present their patients at large multidisciplinary team (MDT) meetings hosted by diagnosis and staging centres. There will be separate treatment MDT meetings in which a wide range of knowledgeable and experienced clinicians will first confirm diagnosis and stage of lung cancer patients and then debate and decide on a treatment recommendation. Patients will benefit from improved decision-making and will be considered for all treatment options and clinical trials.

The pathway that patients will follow is outlined below.



4. Lung cancer pathway specification

| POINT IN THE PATHWAY | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|---|--|---|
| Relationship between services | <ul style="list-style-type: none"> • All acute trusts have a lung unit accepting two-week wait referrals from GPs (30%), A&E referrals (40%) and patients incidentally picked up on other scans (30%) • All lung units have dedicated chest physician(s) with an interest in lung cancer • All lung units develop a relationship with one or more diagnosis and staging centre(s) • Lung cancer chest physicians have one to two dedicated PAs per week at partner diagnosis and staging centre(s) for clinics and MDT attendance and procedure lists, as required by service / pathway changes • Lung Cancer Units must have a presence at the diagnosis and staging centre MDTs every week by the allocated unit chest physician or appropriate cover | <ul style="list-style-type: none"> • Not all trusts host a diagnosis and staging centre • All trusts hosting a diagnosis and staging centre also host a lung unit |
| Workload | <ul style="list-style-type: none"> • All patients referred as two-week waits (only 20-30% of referrals will be lung cancer) • A&E/ward referrals • Potentially incidental scan identified patients (these could be referred directly to diagnosis and staging centre MDT/OPD) | <ul style="list-style-type: none"> • All potential lung cancer patients for whom further investigation is required • Sees around 200 - 300 lung cancer cases per year |
| Prevention and smoking cessation | <ul style="list-style-type: none"> • All hospital and primary care health services staff have been trained in and have skills to deliver evidence-based smoking cessation interventions and are able to refer to smoking cessation services • All hospitals have on-site smoking cessation services as well as ability to refer to community services • All patients are offered evidence-based smoking cessation treatments as part of their consultation | |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|-----------------------------------|---------------------|--|--|
| Primary care | | <ul style="list-style-type: none"> • GP uses appropriate risk assessment tools and requests chest x-rays in patients presenting with symptoms raising possibility of lung cancer (as per NICE guidelines) • GP chest x-ray request includes smoking history, other risk factors and relevant past history • GPs give smoking cessation advice to all patients who are smokers and offer referral to a smoking cessation service | <ul style="list-style-type: none"> • Diagnostic centre will make specialist lung advice available to GPs by telephone and email |
| Radiology for primary care | | <ul style="list-style-type: none"> • Radiology department provides clear chest x-ray reports to GPs within 48 working hours of investigation • Report contains clear recommendations for action • Abnormal chest x-rays, suspicious of cancer, flagged with lung cancer unit and GP and expedite 2-week wait referral when needed | |
| Presentation | GP | <ul style="list-style-type: none"> • GPs use NICE 2-week lung referral criteria and <i>London Cancer</i> agreed forms • GP referral accompanied by result of chest x-ray (shared using IEP if available) • GP tells patient CT likely and checks renal function if required by local lung unit | |
| | Referral processing | <ul style="list-style-type: none"> • Appropriate patients to have contrast CT of lower neck, chest and upper abdomen arranged in advance of first outpatient appointment, if appropriate | |
| | Assessment of CT | <ul style="list-style-type: none"> • If cancer is not suspected, patient managed locally • If cancer is suspected, arrangements made for local chest physician to present patient at diagnostic and staging MDT at partner diagnostic and staging centre | |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|-----------------------------------|---|---|---|
| | Emergency presentation | <ul style="list-style-type: none"> Local chest physician or acute oncologist assesses chest x-ray and/or CT carried out on presentation and makes arrangements to present patient at diagnostic and staging MDT at partner diagnostic and staging centre | |
| | Patient identified by chance on other scans | <ul style="list-style-type: none"> Presented to diagnostic and staging MDT by chest physician from referring lung unit | |
| Timeliness of treatment | | <ul style="list-style-type: none"> Patients assessed and treated with minimum delay and at least within 62 days of urgent referral and 31 days of diagnosis | |
| Diagnostic and staging MDT | Meeting | <ul style="list-style-type: none"> Patients presented to meeting by clinician(s) from receiving lung unit | <ul style="list-style-type: none"> Hosted by diagnosis and staging centre Develop plan of investigations based on those that give most diagnostic and staging information with the least risk to patient Have endobronchial ultrasound (EBUS) list availability to institute a first test EBUS for those with thoracic disease only (see Lung-BOOST trial; Lancet Respiratory Feb 2015) within a week Decisions will be enacted depending on patient preference and performance status determined at first outpatient visit |
| | Membership | | <ul style="list-style-type: none"> Minimum of two chest physicians with an interest in lung cancer present at all meetings Chest physician with expertise in endobronchial ultrasound present A specialist thoracic radiologist present at all meetings (eg. Requiring specialist cover, with interventional experience) |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|----------------------------|-------------|--|---|
| | | | <ul style="list-style-type: none"> • A thoracic surgeon • Clinical nurse specialists as core members • A research nurse • Dedicated admin and audit support |
| | Information | | <ul style="list-style-type: none"> • Capacity for real-time electronic recording of discussions and decisions in a format compatible to that of the later decision to treat MDT meeting • Capacity for immediate information exchange with the referring lung units |
| Rapid access clinic | | <ul style="list-style-type: none"> • Patient attends lung unit (or diagnosis and staging centre) as outpatient and discusses outcome of diagnostic and staging MDT meeting • Occurs within two weeks of GP referral, presentation via A&E, or in hospital referral from chance finding on another scan • Capacity to perform spirometry • Performance status established • Comorbidities identified and treated to maximise lung function and improve performance status where possible • Patients advised on whether to stop anti-coagulation if biopsy or surgery likely • CT findings explained and biopsy arrangements discussed with patient • Assess smoking status (including use of CO monitoring where available) and give evidence-based brief smoking cessation advice and/or interventions to smokers and recent ex-smokers including, if accepted, referral to support and prescription of quit smoking therapies • Lung CNS present | |

| POINT IN THE PATHWAY | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|----------------------------------|---|------------------------------|
| | <ul style="list-style-type: none"> • Patient offered clear and concise written information as appropriate (in appropriate languages where this exists) | |
| Clinical nurse specialist | <ul style="list-style-type: none"> • Every patient has access to a named clinical nurse specialist and cover arrangements exist to ensure that a clinical nurse specialist is always available during normal working hours to provide support and information for patients and carers • Lung clinical nurse specialists work only in lung cancer care and are trained to screen/intervene with psychological and emotional distress (level 2 psychological support) and in communication skills (advanced communication skills training) • Clinical nurse specialists have caseloads of 80-100 patients • Clinical nurse specialists are competent in holistic assessment • Clinical nurse specialists have access to formal and informal level 3/4 psychological support | |
| Additional investigations | <ul style="list-style-type: none"> • Patients undergo only those investigations that give most diagnostic and staging information with least risk • As many of the necessary investigations as clinically possible performed within 1 week of rapid access clinic (some flexibility on the time-frame if patient's preference) • Capacity available within lung unit or at a partner diagnosis and staging centre for investigation (within 1 week) for: <ul style="list-style-type: none"> ▪ CT of neck, chest and abdomen ▪ Lung function ▪ CT/ultrasound-guided biopsy ▪ Endobronchial ultrasound (EBUS)/Endoscopic ultrasound (EUS) ▪ Bronchoscopy ▪ MRI if required • All bronchoscopy services to adhere to British Thoracic Society 'Quality Standards for Diagnostic Flexible Bronchoscopy in Adults' (Dec 2014)¹ • Regular audit of quality of investigations and reporting based on agreed local or national quality assurance | |

¹ Please see copy of quality standards in APPENDIX 2. Also available online - <https://www.brit-thoracic.org.uk/document-library/clinical-information/bronchoscopy/quality-standards-for-flexible-bronchoscopy-2014/> (Note: Final quality standards due to be published in September 2014. This guidance will be updated once they are available).

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | | <p>guidance</p> <ul style="list-style-type: none"> • Regular sharing of audit and quality assurance information with partner trusts, where appropriate • Clear and timely referral pathway in place for PET/CT for all patients who might benefit from radical treatment with report within 6 working days | |
| Pathology | | <ul style="list-style-type: none"> • State of the art molecular diagnostics, available for appropriate patients, with all tests performed in an accredited laboratory. Results not to be delayed by moving specimens between different labs for different tests, but to be carried out in laboratories able to complete all the required tests. • Results within 5 working days (multi-gene panel and ALK analysis) • Regular feedback on quality of all molecular testing and reporting • A requirement for the development of new tests as required | |
| Decision to treat MDT | Meeting | <ul style="list-style-type: none"> • Patients presented by chest physician from receiving lung unit | <ul style="list-style-type: none"> • Hosted by diagnosis and staging centre • Occurs within two weeks of first outpatient appointment, preferably one week • Results of all radiological and pathological investigations available |
| | Membership | | <ul style="list-style-type: none"> • Minimum of two chest physicians with an interest in lung cancer present at all meetings • Minimum of two specialist thoracic radiologists present at most meetings • Minimum of two specialist thoracic pathologists, with one present at all meetings, and expertise in cytology • Minimum of two chemo prescribing oncologists and two radiotherapy prescribing oncologists with expertise in radical treatments present at most meetings offering cross-modality cover and expertise • At least one thoracic surgeon present at all meetings (not via tele- or videoconference unless exceptional circumstances) and preferably two • Clinical nurse specialists as core members |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | | | <ul style="list-style-type: none"> • Member of palliative care team as core member • Dedicated admin and audit support • At least one oncologist with clinical trial protected time • Research nurse as core member • Extended team includes allied health professionals, social workers and psychological specialists (level 3/4) • Fulfils Peer Review minimum membership |
| | Treatment recommendation | | <ul style="list-style-type: none"> • Patient considered for the potential of entry into clinical trials (recruitment target to be above national average for every London Cancer MDT) • Treatment recommendation informed by patient choice, patient comorbidities and fitness rather than age • All patients considered for thoracic surgery – complex or borderline cases referred for discussion at one of the thoracic surgical centres • Patients potentially suitable for multimodality treatment assessed by an oncologist and thoracic surgeon |
| | Clinical trials | | <ul style="list-style-type: none"> • All patients have access to the same range of clinical trials • Every MDT discussion includes an assessment of eligibility for clinical trials • The majority of patients are offered a clinical trial or a clear reason why not is entered into the MDT notes • Information on open clinical trials and trial recruitment publicly available |
| | Information | | <ul style="list-style-type: none"> • Capacity for real-time electronic recording of |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
|---------------------------|----------------------------|---|---|
| | | | <p>discussions and decisions in a compatible format to that of the earlier diagnostic and staging MDT meeting</p> <ul style="list-style-type: none"> • Completes minimum dataset for all patients and publishes annual report of treatments and outcomes • Takes full part in National Lung Cancer Audit and Cancer Outcomes and Services Dataset - Results used to drive service improvement |
| | Teenagers and young adults | | <ul style="list-style-type: none"> • Lung cancer very rare occurrence in those under 26 • If patient of this age seen by trust with no age-appropriate service then patient referred to a unit that does, unless specialist care is needed and not available at these units (patient will still be discussed at teenage and young adult MDT) |
| Lung cancer clinic | Clinic visit | <ul style="list-style-type: none"> • Occurs at lung unit or diagnosis and staging centre, within one week of decision to treat MDT meeting, preferably within 24 hours | |
| | Diagnosis | <ul style="list-style-type: none"> • Patient informed of diagnosis • Clinical nurse specialist present at all diagnoses • Patient offered full written information about tumour type and treatment options (in appropriate languages where this exists) • Written confirmation of diagnosis and responsible consultant sent to GPs within 24 hours of patients being informed of new cancer diagnosis | |
| | Communication | <ul style="list-style-type: none"> • Clinical workforce with direct patient contact trained in advanced communication skills | |
| | Holistic care | <ul style="list-style-type: none"> • All patients offered holistic needs assessment at diagnosis or prior to treatment commencing and at other key points in the pathway (this can be carried | |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | | <ul style="list-style-type: none"> out by any member of the team) Where holistic assessment indicates a higher level of need, level 3/4 support is provided in the most appropriate context (i.e. within acute and community settings) Assess smoking status (including use of CO monitoring where available) and give evidence-based brief smoking cessation advice and/or interventions to smokers and recent ex-smokers including, if accepted, referral to support and prescription of quit smoking therapies | |
| | Treatment decision | <ul style="list-style-type: none"> Patients offered all appropriate treatment options Treatment recommendation informed by patient condition, comorbidities and fitness rather than age | |
| Treatment options: | | | |
| 1. Surgery with curative intent | | <ul style="list-style-type: none"> Patient seen by a dedicated thoracic surgeon at the Diagnosis and Staging centre or at thoracic surgical centre within 1 week, preferably 24 hours (see thoracic surgery pathway section below) | |
| 2. Radiotherapy with curative intent | Treatment | <ul style="list-style-type: none"> Delivered at any of <i>London Cancer's</i> radiotherapy centres Clear process for timely referral from potential diagnosis and staging centres, if they do not perform radiotherapy on site, and regular audit of timeliness of treatment Centres must deliver state-of-the-art radiotherapy and be represented at decision to treat MDT meetings Centres deliver radical radiotherapy for patients with stage I, II or III NSCLC with good performance status Stereotactic body radiotherapy considered for appropriate cases, either using external beam techniques or Cyberknife – referral pathways for these treatments are demonstrated CHART regimen available for patients with stage I, II or III NSCLC but medically inoperable, or if choose not to have an operation. | |
| | Timeliness | <ul style="list-style-type: none"> Patients receive radiotherapy with minimum delay and at least within two weeks for radical radiotherapy | |
| | Information | <ul style="list-style-type: none"> Provides electronic treatment summaries with accessible record of treatment for local units, GPs and patients Provision to collect and report on treatment outcomes, including death within 30 days of treatment Compliance with quality assurance programmes, where available | |

| POINT IN THE PATHWAY | | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | Clinical trials | <ul style="list-style-type: none"> All patients have equal access to a range of appropriate national and local clinical trials Information on open clinical trials and trial recruitment publicly available | |
| 3. Curative Combined Chemoradiation and Radiofrequency Ablation | Combined chemoradiation | <ul style="list-style-type: none"> Delivered at any of London Cancer's radiotherapy centres Clear process for timely referral from potential diagnosis and staging centres if they do not perform radiotherapy on site and regular audit of timeliness of treatment | |
| | Radiofrequency ablation | <ul style="list-style-type: none"> Delivered at diagnosis and staging centres, where available Clear pathway for referral if not available at diagnosis and staging centre Clear pathway for referral for treatment from decision to treat MDT | |
| 4. Following treatment with curative intent | MDT discussion | <ul style="list-style-type: none"> Discusses patients following completion of first-line surgical treatment and informs them of follow up or adjuvant treatments Re-stage patients following radio or chemo-radio treatments with curative intent | |
| | Information | <ul style="list-style-type: none"> Provides electronic treatment summaries with accessible record of treatment for local units, GPs and patients Provision to collect and report on treatment outcomes, including death within 30 days of treatment | |
| | Adjuvant treatment | <ul style="list-style-type: none"> Begin chemotherapy on patients with nodal disease found at surgery as soon as they are fit and always within 8 weeks Consider patients with T2-3 node negative tumours greater than 4cms in diameter for adjuvant chemotherapy Consider adjuvant radiotherapy if appropriate | |
| | Rehabilitation | <ul style="list-style-type: none"> Adheres to nationally-agreed NCAT rehabilitation care pathway Patients should have access to a health and wellbeing | |

| POINT IN THE PATHWAY | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | clinic/event | |
| | Follow-up <ul style="list-style-type: none"> Follow-up as per NICE guidelines Nurse-led follow-up where appropriate Consider a model of stratified follow-up Consider CT scan at 1 year post surgical treatment | |
| 5. Palliative active treatments | Timeliness <ul style="list-style-type: none"> All patients to have minimum delays to active palliative care treatments, with a maximum of 1 week. | |
| | Information <ul style="list-style-type: none"> Provides electronic treatment summaries with accessible record of treatment for local units, GPs and patients Provision to collect and report on treatment outcomes, including death within 30 days of treatment | |
| | Clinical trials <ul style="list-style-type: none"> All patients have equal access to a range of appropriate active palliative national and local clinical trials Information on open clinical trials and trial recruitment publicly available | |
| | Chemotherapy treatment <ul style="list-style-type: none"> All patients should be considered for clinical trials of first, second or third line therapies Patient should have the opportunity to enter phase 1/2 trials when appropriate Chemotherapy should be delivered locally when safe and appropriate. More complex regimens or clinical trials might be delivered at the diagnosis and staging centre | |
| | Palliative radiotherapy <ul style="list-style-type: none"> Delivered at any of <i>London Cancer's</i> radiotherapy centres Clear process for timely referral from potential diagnosis and staging centres if they do not perform | |

| POINT IN THE PATHWAY | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE | |
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| | | radiotherapy on site and regular audit of timeliness of treatment | |
| | Combined chemoradiation | <ul style="list-style-type: none"> Delivered at any of <i>London Cancer's</i> radiotherapy centres Clear process for timely referral from potential diagnosis and staging centres if they do not perform radiotherapy on site and regular audit of timeliness of treatment | |
| | Local bronchoscopic treatments | <ul style="list-style-type: none"> Clear pathway for referral from decision to treat MDT for treatment to the interventional bronchoscopy centre at UCLH or surgical centre if service offered | |
| | Radiofrequency ablation | <ul style="list-style-type: none"> Clear pathway for referral for treatment from decision to treat MDT | <ul style="list-style-type: none"> Delivered at diagnosis and staging centres, where available Clear pathway for referral if not available |
| | Treatment for pleural disease | <ul style="list-style-type: none"> Surgical pleurodesis available at thoracic surgical centres (see section on thoracic surgery) | <ul style="list-style-type: none"> Availability of indwelling catheters for those patients in whom pleurodesis is not an option, or a clear pathway for referral if not available or patient preference To be available at diagnosis or staging centre or partnered organisation |
| 6. Palliative best supportive care | Holistic needs | <ul style="list-style-type: none"> Following completion of holistic needs assessment, all patients have access to a range of support services such as psychological therapies and complementary therapies. | |
| | Allied Health Professionals | <ul style="list-style-type: none"> All patients to have access to the services provided by Allied Health Professionals, including Physiotherapy, Occupational Therapy and Speech & Language Therapy. | |
| | End of Life Care | <ul style="list-style-type: none"> All patients suitable for End of Life Care services to have these made available and made easily accessible | |
| Primary care | | <ul style="list-style-type: none"> Provides primary care with clear details of how to reaccess secondary care and full future plans when discharged from hospital follow-up <ul style="list-style-type: none"> Any follow-up chest x-ray or other tests needed Prognosis and if this has been discussed with | |

| POINT IN THE PATHWAY | LUNG UNIT | DIAGNOSIS AND STAGING CENTRE |
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| | <p>patient</p> <ul style="list-style-type: none"> ▪ Whether a referral to palliative care has been made ▪ End of life decisions that have been made with the patient ▪ Reasons for referral back if there are any particular anticipated late effects of treatment <ul style="list-style-type: none"> • Primary care specialists continue to provide holistic assessment and onward referral as required into survivorship | |
| Acute oncology | <ul style="list-style-type: none"> • Acute oncology service as specified by the <i>London Cancer Acute Oncology Expert Reference Group</i> | |
| Research and innovation | <ul style="list-style-type: none"> • Carries out prospective audit of service and publishes transparent outcomes data | <ul style="list-style-type: none"> • Access to multidisciplinary oncology service including: <ul style="list-style-type: none"> ▪ Clinical trial research ▪ Research nursing • Carries out prospective audit of service and publishes transparent outcomes data |
| Education and training | <ul style="list-style-type: none"> • Attends <i>London Cancer</i> Educational days and national meetings | |
| Patient travel | <ul style="list-style-type: none"> • Robust patient travel plan in place • Informs patients of support available for travel to lung units, diagnosis and staging centres, thoracic surgery centres and radiotherapy centres | |

Thoracic surgery pathway

| POINT IN THE PATHWAY | | THORACIC SURGICAL CENTRES |
|--------------------------------------|--------------|--|
| Relationship between services | | <ul style="list-style-type: none"> Trusts hosting thoracic surgical centres also host a diagnosis and staging centre and a lung unit (see lung cancer pathway specification) Thoracic surgical centres will therefore cater for the whole patient pathway but will be able to incorporate all surgical patients from other lung units and diagnosis and staging centres within <i>London Cancer</i> |
| Workload | | <ul style="list-style-type: none"> Thoracic surgical centres will provide services for all patients recommended for surgical resection by <i>London Cancer</i> lung cancer decision to treat MDTs – around 350 per year (rising to up to 500 in 3 years) Undertakes all thoracic surgery for cancer and benign diagnoses – currently 1,400 patients per year with projected growth to around 2,000 cases per year in 3 years |
| Workforce | Surgeons | <ul style="list-style-type: none"> Care will be consultant-led at all times, with input from the full multidisciplinary support team Specialised thoracic surgeons will lead the services augmented by cardiothoracic surgeons (in the short term at least) with a clear thoracic surgical interest defined as: <ul style="list-style-type: none"> Performing at least 1 full day operating list of thoracic surgery per week Attending at least 1 decision to treat MDT and the diagnostic lung cancer MDT per week Taking part in the emergency on-call rota for thoracic emergencies Attending at least 1 dedicated outpatient clinic per week with a lung cancer clinical nurse specialist in attendance Being revalidated in all thoracic surgical aspects of their job plans Appraisal should include specific reference to thoracic outcomes and activities Support from surgical trainees or specialty doctors 24/7 emergency cover provided by consultants with at least 4 on a rota who are able to deal with the full range of thoracic emergencies (cross cover of rotas by consultants from a purely cardiac practice or from other specialists who cannot be revalidated on these abilities is unacceptable) At least one surgeon attends all <i>London Cancer</i> lung cancer decision to treat MDTs, preferably two Cross cover for MDTs and continuing operation sessions during periods of surgeon leave must be maintained |
| | Support team | <ul style="list-style-type: none"> Specialist consultant anaesthetists Appropriately trained theatre staff with thoracic expertise Specialist thoracic ward and HDU nurses with patient emergency response team (PERT) support Specialist thoracic physiotherapy including pulmonary rehabilitation |

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| | | <ul style="list-style-type: none"> • Access to dietetics for all appropriate patients in line with national guidance • Specialist nursing support in areas such as pre- and post-operative assessment, post-operative pain control and palliative care • Sufficient lung cancer nurse specialists (preferably thoracic nurse specialists) for each to have a caseload of 100 to 150 patients • Nurse specialists available in clinics and to support inpatient care and discharge to referring destination • Adequate administrative and data monitoring support • In-house cover of thoracic surgical patients by specialty doctors and /or appropriately trained advance nurse practitioners • Service is supported by appropriate clinical and managerial leads |
| Thoracic surgery clinic | Clinic visit | <ul style="list-style-type: none"> • Occurs within one week of decision to treat MDT meeting, and preferably on the same day • Preferably a joint clinic with chest physicians and oncologists providing a 'one stop shop' |
| | Diagnosis | <ul style="list-style-type: none"> • Patient should have already been informed of diagnosis or potential diagnosis • Clinical nurse specialist present at all diagnoses delivered in this, and any other, setting |
| | Treatment decision | <ul style="list-style-type: none"> • Patients offered all appropriate surgical options with details of mortality and morbidity risk • Treatment recommendation informed by patient condition, comorbidities and fitness rather than age |
| | Communication | <ul style="list-style-type: none"> • Check patient has full information about tumour type and treatment options in the appropriate format (written, verbal, etc.) • Written confirmation of diagnosis and responsible consultant sent to GPs within 24 hours of patients being informed of new cancer diagnosis if not already confirmed by their referring physicians • Clinical workforce trained in advanced communication skills |
| | Holistic care | <ul style="list-style-type: none"> • All patients are offered a holistic needs assessment prior to treatment decision • Assess smoking status and give smoking cessation advice to smokers including, if accepted, referral to support and prescription of quit smoking therapies |
| Timeliness of treatment | | <ul style="list-style-type: none"> • Patients treated with minimum delay and at least within 62 days of urgent referral and 31 days of diagnosis • No patient should breach these timelines unless at the patient's choice • Capacity for rapid urgent palliation/diagnostic VATs on the next available list if indicated (and always within 2 days) |
| Surgery with curative intent | Surgical volumes | <ul style="list-style-type: none"> • Two thoracic surgical centres within <i>London Cancer</i>, at least in the short term • Both centres serving a combined resident population of 3.2 million • Carry out around 350 lung cancer resections per year (rising to up to 500 in 3 years) |

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| | <ul style="list-style-type: none"> Carry out a total of 1,400 (current) thoracic surgical cases per year (rising to up to 2,000 in 3 years) |
| Pre-assessment | <ul style="list-style-type: none"> Patients referred to appropriate cancer rehabilitation specialists prior to surgery Smoking cessation encouraged, but surgery not delayed while awaiting patient to stop Admission covered by Enhanced Recovery Programme |
| Theatre capacity | <ul style="list-style-type: none"> Appropriate theatre capacity to deliver this workload across two sites 1 whole day list per 200 patients seen annually - 7 whole day lists a week growing to 10 whole day lists per week (or 2 full time operating theatres per day) |
| Treatment | <ul style="list-style-type: none"> Centres offer patients with non-small cell lung cancer (and suitable for treatment with curative intent) minimal access lobectomy as a treatment choice supported by a full VATS programme Consider lung parenchymal-sparing operations (segmentectomy or wedge resection) for patients with borderline fitness and smaller tumours (T1a-b,N0,M0) Availability of specialised operations such as sleeve lobectomies Routine mediastinal lymph node dissection and clearance Availability of frozen sections for histologically unconfirmed cases where needed At least one of the centres able to provide, if appropriate, radical mesothelioma surgery, tracheal surgery, complex chest wall reconstruction, extended lung cancer resection, and lung volume reduction surgery |
| Monitoring of activity and outcomes | <ul style="list-style-type: none"> Mechanisms are in place for accurate prospective data collection of information on patients undergoing operative surgery (in line with the National Lung Cancer Audit and the Society for Cardiothoracic Surgeons UK and Ireland: Thoracic Surgical Register and Database projects) Outcome measures specified for monitoring: <ul style="list-style-type: none"> Overall surgical activity Resection rate for lung cancer (for stages 1–3a and performance status 0–1) In-hospital mortality for specific procedures Prolonged air leak >7 days after surgery Return to theatre for bleeding HDU and ITU readmission Need for ventilation Long-term stage specific survival after lung cancer surgery Positive resection margins Percentage of resections with, or upstaged to N2 disease Length of stay after lobectomy (used as a marker of quality) Waiting time for first surgical appointment and from outpatient appointment to surgery |

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| | | <ul style="list-style-type: none"> • Submission of data to the Society of Cardiothoracic Surgeons: Thoracic Surgical Register mandatory for the purpose of GMC re-licensing and revalidation • Regular audit, mortality and morbidity meetings, and a clear governance structure • Clear joint working between centres on specialised procedure availability, outcomes and improvements across the centres |
| | Clinical trials | <ul style="list-style-type: none"> • All surgeons within both centres must undertake routine sample collection for tissue banking with patient consent built into routine practice • Recruitment and leadership in clinical trials, both surgical and those run by <i>London Cancer</i> academic lung cancer physicians |
| | Readmission | <ul style="list-style-type: none"> • Surgical centres have process in place for rapid re-access within 24 hours, if necessary |
| Co-locations | Essential | <ul style="list-style-type: none"> • Readily available thoracic medicine opinion • Interventional bronchoscopy service with provision for treatment of airway obstruction • Specialist imaging • ITU and HDU • Multidisciplinary rehabilitation |
| Inpatient care | | <ul style="list-style-type: none"> • Adequate numbers of inpatient beds, recovery beds, and access to an ITU (with capacity to grow with surgical numbers) • Patients accommodated on single sex wards • Provision for day case admission and admission on the day of surgery • Bed capacity to be run at between 85 and 90% capacity to prevent cancellation of admission, or delay and cancellation of surgery |
| Following treatment with curative intent | Discharge | <ul style="list-style-type: none"> • Discharge carried out by skilled professional |
| | Information | <ul style="list-style-type: none"> • Provides electronic treatment summaries with accessible record of treatment for referring lung units, GPs and patients • Provides electronic operation note at the time of surgery for distribution to clinical teams, audit, data collection and coding |
| | MDT discussion | <ul style="list-style-type: none"> • Discusses patients following completion of first-line surgical treatment • Pathologically stage patients following surgery |
| | Outpatient attendance | <ul style="list-style-type: none"> • Post-operative outpatient appointment (preferably at diagnosis and staging centre in joint clinic with oncology) with surgeon and or physician to discuss MDT recommendation for adjuvant treatments |
| | Adjuvant treatment | <ul style="list-style-type: none"> • Begin chemotherapy on patients with nodal disease found at surgery as soon as they are fit and within 8 |

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| | | <p>weeks</p> <ul style="list-style-type: none"> • Consider patients with T2-3 node negative tumours greater than 4cms in diameter for adjuvant chemotherapy • Consider radiotherapy if appropriate |
| | Rehabilitation | <ul style="list-style-type: none"> • Adheres to nationally-agreed NCAT rehabilitation care pathway |
| | Follow-up | <ul style="list-style-type: none"> • Model of risk stratified follow up in place to reduce outpatient attendance and follow-up investigations to only those necessary as per NICE guidelines • Models of nurse-led follow-up considered for appropriate patients |
| Palliative treatments | Treatment for pleural disease | <ul style="list-style-type: none"> • Rapid surgical pleurodesis and provision of indwelling pleural catheters provided at thoracic surgical centres for palliation, therapy and diagnosis of effusions relating to lung and other cancers |
| | Information | <ul style="list-style-type: none"> • Provision to collect and report on treatment outcomes, including death within 30 days of treatment |
| Primary care | | <ul style="list-style-type: none"> • Provides primary care with clear details of how to re-access secondary care |
| Research and innovation | | <ul style="list-style-type: none"> • Access to multidisciplinary oncology service including: <ul style="list-style-type: none"> ▪ Clinical trial research ▪ Research nursing • Carries out prospective audit of service and publishes transparent outcomes data • Robust model of how the surgical units will increase surgical research activity and take a national role in lung cancer and mesothelioma research • Tissue banking in line with <i>London Cancer</i> lung cancer research units and National Mesobank Collection |
| Education and training | | <ul style="list-style-type: none"> • Commitment to training surgical trainees and all grades of nursing staff |
| Patient travel | | <ul style="list-style-type: none"> • Patient travel plan in place • Informs patients of support available for travel to other units, thoracic surgery centres and radiotherapy centres |

Appendix 1: *London Cancer Lung Pathway Board*

London Cancer Lung Pathway Board members

- Sam Janes (Chair) - *London Cancer Lung Pathway* Director and Consultant Chest Physician, University College London Hospitals
- Aniana Codeniera - Patient Representative
- Angshu Bhowmik - Chest Physician, Homerton University Hospital
- Catherine Docherty - Clinical Nurse Specialist, Royal Free Hospital
- David Feuer - Palliative Care, Barts Health and Homerton University Hospital
- Elizabeth Hadley - Chest Physician, Barking, Havering and Redbridge University Trust
- Julian Singer - Clinical Oncologist, North Middlesex University Hospital
- Karen Sennett - General Practitioner, NHS Islington
- Martin Forster - Medical Oncologist, University College London Hospitals
- Martin Hayward - Thoracic Surgeon, University College London Hospitals
- Michael Sheaff – Histopathologist, Barts Health
- Neal Navani - Chest Physician, University College London Hospitals
- Paula Wells - Clinical Oncologist, Barts Health
- Peter Schmid - Consultant Medical Oncologist
- Peter Szlosarek - Medical Oncologist, Barts Health
- Sara Lock - Chest Physician, The Whittington Hospital
- Sarah How – Pathway Manager, *London Cancer*
- Sharon Cavanagh - AHP Lead, *London Cancer*
- Stephen Burke – Radiologist, Homerton University Hospital
- Tracey Horey - Clinical Nurse Specialist, Princess Alexandra Hospital
- Tony Lawlor - Cancer Commissioning Team Representative, NELCSU

Appendix 2: BTS 'Quality Standards for Diagnostic Flexible Bronchoscopy in Adults'

British Thoracic Society

<https://www.brit-thoracic.org.uk/document-library/clinical-information/bronchoscopy/quality-standards-for-flexible-bronchoscopy-2014/>

The British Thoracic Society has been at the forefront of the production of Guidelines for best clinical practice in respiratory medicine since the Society was established over 25 years ago. Over the past 5 years especially, the methodology for the production of evidence-based Guidelines has evolved considerably and a manual setting out the detailed policy for the production of BTS Guidelines was approved in July 2010⁽¹⁾.

A statement on quality standards based on each BTS Guideline is a key part of the range of supporting materials that the Society produces to assist in the dissemination and implementation of a Guideline's recommendations.

A quality standard is a set of specific, concise statements that:

- act as markers of high-quality, cost-effective patient care across a pathway or clinical area, covering treatment or prevention.
- are derived from the best available evidence and are produced collaboratively with the NHS along with their partners and service users.

NICE Quality Standards were used as a model for the development of BTS Quality Standards and further information on the NICE Quality Standards process is available here: <http://guidance.nice.org.uk/qualitystandards/qualitystandards.jsp> ⁽²⁾

This document contains Quality Standards for diagnostic flexible bronchoscopy in adults. The Quality Standards do not apply to children. The Quality Standards are based on the BTS Guideline on diagnostic flexible bronchoscopy in adults published in 2013⁽³⁾ (<http://www.brit-thoracic.org.uk/guidelines>).

The Quality Standards also include the use of endobronchial ultrasound (EBUS) in relation to lung cancer, supported by the BTS Guideline for advanced diagnostic and therapeutic flexible bronchoscopy in adults (2011)⁽⁴⁾.

The purpose of the Quality Standards document is to provide commissioners, planners and patients with a guide to standards of care that should be met for flexible bronchoscopy procedures in the UK, together with measurable markers of good practice.

BTS quality standards are intended for:

Health care professionals to allow decisions to be made about care based on the latest evidence and best practice.

People undergoing a diagnostic flexible bronchoscopy and their families and carers, to enable understanding of what services they should expect from their health and social care provider.

Service providers to be able to quickly and easily examine the clinical performance of their organisation and assess the standards of care they provide.

Commissioners so that they can be confident that the services they are purchasing are high quality and cost effective.

Summary of Quality Statements

| Quality Statements for Flexible Bronchoscopy in Adults |
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| Access |
| 1a) All patients requiring urgent bronchoscopy and patients with suspected lung cancer be offered a procedure within 7 working days of decision to perform bronchoscopy. |
| Safety |
| 2a) All units collect appropriate data to enable them to continuously assess and maintain safe unit and operator performance, with protocols in place to ensure appropriate management of serious adverse events. |
| 2b) All units have a clearly defined safety checklist which is applied for each procedure. |
| 2c) All trusts have a multi-disciplinary sedation policy and all patients having bronchoscopy have their level of sedation monitored and recorded. |
| 2d) All units performing bronchoscopy are staffed safely with an appropriate skill mix. |
| 2e) All services providing bronchoscopy ensure effective decontamination of bronchoscopes and accessories. |
| Outcome measures |
| 3a) Each unit achieves a minimum diagnostic sensitivity rate of 85% for visible mucosal endobronchial tumour. Diagnostic samples contain sufficient material for molecular testing required to direct treatment. |
| 3b) All patients with suspected lung malignancy undergo an appropriate staging CT scan prior to a bronchoscopy procedure that is accessible during the bronchoscopy procedure. |
| Patient experience |
| 4a) All bronchoscopists provide patients (and carers) with clear and appropriate information about the procedure. Competent staff complete patient consent. |
| 4b) All units collect regular (at least once yearly) patient feedback on the bronchoscopy, the consent procedure and the written information. |
| EBUS - TBNA |
| 5a) All units achieve a diagnostic sensitivity for staging lung cancer of at least 88%. Operators ensure that sufficient diagnostic material is obtained to allow phenotyping and genotyping of tumours where appropriate. |
| 5b) EBUS-TBNA complication rates are recorded and audited to be <1%. |