

Supplement 3

Manual of parameters for a lung cancer service in Europe- organisation

I. Organization of Lung Cancer Service

1. General Structure of Lung Cancer Service and adjacent Network
2. Multidisciplinary Team Structure
3. Patient- and Carer-centred Care
4. Evidence-based Lung Cancer Care Programme
5. Access to Care and Timeliness of Care
6. Documentation, Accessibility and Provision of Patient- and Care-related Information
7. Schedule of Meetings
8. Education for Healthcare Professionals, Patients and Carers
9. Clinical Cancer Registry
10. Collaboration with External Healthcare Professionals and other External Stakeholders
11. Quality Assurance and Quality Improvement, Risk Management

I. Organization of Lung Cancer Service	Derived from
1. General Structure of Lung Cancer Service and adjacent Network <p>Essential: The general structure of the lung cancer service must include a multi-disciplinary team composed of the disciplines and professions listed in detail in → I.2. However, the underlying organizational form may vary according to the respective national health care system as well as the regional and local needs.</p> <p>In principle, various structural solutions are conceivable to achieve the demanded comprehensive multidisciplinary structure. These could include but not limited to (see figure 1):</p> <ul style="list-style-type: none"> • all-on-one-site-solutions run by one provider • multiple-site-solutions run by one or more providers • one centralized site (i.e. PET CT, thoracic surgery service) and multiple satellite sites • clinical network solutions with all health care components addressing lung cancer care in a geographical region driven by a national health care system <p>The lung cancer service must describe its internal structure as well as potential involvement of its adjacent network.</p> <p>Besides, the Lung cancer service should provide some basic epidemiological facts about itself (i.e. number of new lung cancer cases per year and the size of the general population covered by the service).</p>	Good practice
<p>Advanced: According to regional or local needs, the lung cancer service should provide their expertise in lung cancer care to other neighbouring services who cannot fulfil all criteria of this catalogue. Provision of expertise could include among other things:</p> <ul style="list-style-type: none"> • Second opinion-services • Referral of patients from other services to the lung cancer service for certain diagnostics or treatment • Deployment of qualified personnel from the lung cancer service to other services • Teaching site for training of personnel of other services 	Good practice

<ul style="list-style-type: none"> Offering inclusion in clinical trials (regularly phase III optional early stage phase II or I) 	
2. Multidisciplinary Team Structure	
<p>Essential: The following disciplines and professions must be included the multidisciplinary team of the lung cancer service or available to in reasonable time:</p> <ul style="list-style-type: none"> Pulmonology Radiology Nuclear medicine Pathology/Molecular biology Thoracic Surgery Medical Oncology/Pneumo-oncology Radiotherapy Palliative care medicine Emergency medicine/Intensive care medicine Lung cancer specialised Nurse Physiotherapy service Psychology service Social work service Data collection management/clinical lung cancer registry <p>It is acknowledged that in certain national or regional health care settings specific disciplines or professions are not designated and/or their service portfolio is integrated in other disciplines or professions. In these particular cases, the lung cancer service should describe the equivalent alternative solution.</p>	Good practice
<p>Advanced: The following disciplines and professions should be included in the multidisciplinary team of the lung cancer service or should be available for access:</p> <ul style="list-style-type: none"> Nutrition counselling service Pain management service Hospice Patient pathway coordination Clinical research management (including study nurses) Quality management for continuous evaluation and improvement of lung cancer service quality <p>Depending on respective cultural habits, a separate Spiritual service could also be included in the multidisciplinary team of the lung cancer service.</p>	Good practice
3. Patient- and Carer-centred Care	
<p>Essential: The lung cancer service must give patient- and carer-centred care high priority and therefore install the following measures (if not already installed within superordinate institutional setting):</p> <ul style="list-style-type: none"> Implementing and regular training of a good communication between patients/carers and healthcare professionals within the lung cancer service which focusses on: <ul style="list-style-type: none"> Breaking bad news and informing patients and their carers on MDT discussions and recommendations (including incorporation of patient preferences) Shared decision-making Structured approach in the lung cancer service to discuss and support patients in advance decision making and formulation of patient advance care directive Incorporation of patient input 	Good practice

<ul style="list-style-type: none"> • Provision of information about the lung cancer services (i.e. access and contact data, recognition of and proper reaction to potential side effects of treatment) with input from patients and/or reviewed by patients which are issued through various communication channels (i.e. leaflets, website) for patients and their carers • Installation of a patient advocate/ombudsman • Installation of a complaint management system for patients and their carers (→ I.11) • Cooperation with local, regional and/or national patient organization if applicable • Organization of at least one annual patient event • 	
<p>Advanced: The lung cancer service should install the following patient- and carer-centres measures (if not already installed within superordinate institutional setting):</p> <ul style="list-style-type: none"> • Provision of translators for patients unable to speak native language of respective country of lung cancer service • Performance of patient satisfaction surveys with subsequent evaluation and if needed adaption of own processes (→ I.11) • Installation of a patient advocate/ombudsman • Installation of a complaint management system for patients and their carers (→ I.11) • Organization of an education programme for patients and their carers (→ I.8) • Consultation with patients on the design and development of new services within the lung cancer service 	<p>Good practice</p>
<p>4. Evidence-based Lung Cancer Care Programme</p>	
<p>Essential: The lung cancer service must build its own practices of care on valid scientific evidence, namely medical guidelines or other scientific evidence that is accepted by the international medical community* with the view to offer a personalised management plan to each patient. Accordingly, the lung cancer service must define one comprehensive guideline or separate guidelines as the valid scientific, internally consented basis for the following relevant parts within its covered lung cancer continuum:</p> <ul style="list-style-type: none"> • Diagnostics: <ul style="list-style-type: none"> ○ Initial Assessment ○ Functional Assessment, Appraisal of Fitness for Diagnostics and Therapy ○ Imaging ○ Endoscopy ○ Percutaneous Image-guided Biopsy Procedures ○ Mediastinoscopy ○ Medical Thoracoscopy, Video-assisted Thoracoscopy (VATS) ○ Tissue-based Tumour Sampling ○ Biofluid-based Tumour Sampling ○ Pathology and Molecular Diagnostics ○ TNM Description and Stage Grouping • Medical Decision-finding and Care Planning with Patients and within the Multidisciplinary Team • Tumour-specific Therapy <ul style="list-style-type: none"> ○ Thoracic Surgery ○ Systemic Therapy ○ Radiotherapy ○ Multimodal Therapy • Re-Staging and Follow-up during and after Therapy • Management of Progressive Disease and Relapse • End-of-life Care, Death and Bereavement Period • Survivorship 	<p>Good practice</p>

<ul style="list-style-type: none"> • Cross-pathway Care <ul style="list-style-type: none"> ○ Tumour- and Care-related Side Effect Management ○ Emergency Care ○ Palliative Care ○ Specialised Nursing ○ Physiotherapy and Rehabilitation ○ Social Work Service ○ Psychology ○ Nutrition Counselling ○ Pain Management ○ Smoking Cessation <p>The lung cancer service must check at least annually its underlying evidence basis for own practices of care on currentness and update as needed. An annual operational meeting of all multidisciplinary team members should be held for these updates to ensure that all services of the clinical network follow similar processes and meet quality standards.</p> <p>According to national, regional and local conditions, the lung cancer service must provide written standard operating procedures adapted from the above-mentioned underlying evidence to its individual needs and circumstances. Likewise, the lung cancer service must check at least annually its local standard operating procedures on currentness and update as needed.</p> <p><i>*If qualified guidelines on specific topics are unavailable or out-of-date, the lung cancer service should refer to up-to-date, peer-reviewed systemic reviews/meta-analysis as second best or single publications as third best source of evidence.</i></p>	
5. Access to Care and Timeliness of Care	
<p>Essential: Depending on its own capacities, the lung cancer service must ensure equal and rapid access to its care independent from gender, ethnicity and socio-economic status of patients.</p> <p>The lung cancer service should ensure reasonable internal timeliness and avoid waiting time whenever possible.</p> <p>However, at present, specific maximum waiting times with prognostic relevance cannot be justified.</p>	<p>Good practice</p> <p>Literature review and assessment</p>
<p>Advanced: For the purpose of improvement of quality of care, the lung cancer service should measure and evaluate the following time intervals within its internal lung cancer pathway in its patients at least on a sample basis:</p> <ul style="list-style-type: none"> • Time interval from date of admission to lung cancer services to date of first diagnosis • Time interval from date of diagnosis-confirming specimen collection to date of final pathology/molecular diagnostics report creation • Time interval from date of first diagnosis to date of MDT conference treatment recommendation • Time interval from date of first diagnosis to date of first treatment start 	<p>Good practice</p>
6. Documentation, Accessibility and Provision of Patient- and Care-related Information	
<p>Essential: The lung cancer service must provide an internal documentation and information system which is accessible to all of its healthcare professional and which provides all relevant patient- and care-related information, in compliance with national legal regulations.</p>	<p>Good practice</p>

7. Schedule of Meetings	
Essential: The lung cancer service must provide a schedule of meetings which includes all relevant modes of communication as well as meetings within the lung cancer service as well as between the lung cancer service and external healthcare professionals, patients and their carers and other external stakeholders	Good practice
8. Education for Healthcare Professionals, Patients and Carers	
<p>Essential: The lung cancer service should install a comprehensive educational and training programme as part of a professional development strategy.</p> <p>Beside national standards, the lung cancer service should also use the Thoracic Oncology HERMES syllabus and curriculum as basis for its own local training programme.</p> <p>Whenever possible, joint educational formats of multiple professions should be sought.</p>	Good practice
<p>Advanced:</p> <p>The lung cancer service could act as a training centre for other lung cancer specialists.</p> <p>The lung cancer service should offer a regular journal club for professionals.</p> <p>Preferably, the lung cancer service should be linked to a library or to electronic library services.</p> <p>The lung cancer service should install an educational programme for its patients and their carers.</p>	Good practice
9. Clinical Cancer Registry	
Essential: The lung cancer service must install a clinical cancer registry for documentation of its own lung cancer patients as well as quality of case ascertainment.	Good practice
<p>Advanced: If a national clinical lung cancer registry is already available, the lung cancer service should contribute its data derived from its own clinical cancer registry or use the national clinical cancer registry platform for its own needs according to applicable data security regulations.</p> <p>Beside national standards, the lung cancer service should also integrate the formulated standards for lung cancer registration within this ERS statement paper as basis of its own clinical lung cancer registry. However, duplication of registries should be avoided.</p>	Good practice
10. Collaboration with External Healthcare Professionals and other External Stakeholders	
Essential: The lung cancer service must identify and list its collaborating external healthcare professionals (if applicable) and other external stakeholders as well as describe the existing interfaces between the lung cancer service and the external healthcare	Good practice

<p>professionals/other external stakeholders.</p> <p>A good link to cooperating general practitioners should be sought in order to allow quick and complete transmission of patient information (i.e. MDT conference decision, treatment schedule)</p>	
<p>Advanced: The lung cancer service should aim to further develop its collaborations with external healthcare professionals via the following or similar measures:</p> <ul style="list-style-type: none"> • At least annual network meetings with external healthcare professionals • Joint quality improvement initiatives with external healthcare professionals or other external stakeholders • Contribution of own clinical lung cancer registry data to regional, national and international epidemiological and/or clinical cancer registries, based on national legal regulations 	Good practice
11. Quality Assurance and Quality Improvement, Risk Management	
<p>Essential: If no superordinate quality assurance/improvement systems are available, the lung cancer service must install a basic quality assurance and quality improvement system in order to assure regular evaluation and if needed optimization of processes.</p>	Good practice
<p>Essential: The lung cancer service must perform at least annual satisfaction surveys among patients, external healthcare professionals and own staff members.</p> <p>Timeliness of care should be regularly evaluated in order to adapt and optimize internal processes.</p> <p>A core set of quality performance indicators should be assessed, i.e. recording of stage, surgical resection rates, overall survival</p>	Good practice
<p>Advanced: The lung cancer service should use one or more of the following measures for internal quality assurance and quality improvement as well as risk management:</p> <ul style="list-style-type: none"> • Internal audits of the lung cancer pathway • Peer reviews • Regular internal morbidity and mortality conferences • Complaint management system for patients and their carers as well as external healthcare professionals • Risk management system • Regular evaluation of the own clinical lung cancer registry, including the set-up and usage of a comprehensive quality performance indicator system <p>Participation in external quality assurance/improvement programmes or external certification programmes including visits by external auditors or external lung cancer specialists</p> <p>The lung cancer service should publish an annual report providing core information on its performance and development as well its future plans.</p>	Literature review and assessment
	Good practice

II. Lung Cancer Care Pathway

1. Diagnostics

- i. Core Diagnostic Strategies
- ii. Initial Assessment
- iii. Functional Assessment, Appraisal of Fitness for Diagnostics and Therapy
- iv. Imaging
- v. Endoscopy
- vi. Percutaneous Image-guided Biopsy Procedures
- vii. Mediastinoscopy
- viii. Medical Thoracoscopy, Video-assisted Thoracoscopy (VATS)
- ix. Tissue-based Tumour Sampling
- x. Biofluid-based Tumour Sampling
- xi. Pathology and Molecular Diagnostics
- xii. TNM Description and Stage Grouping

2. Medical Decision-making and Care Planning with Patients and within the Multidisciplinary Team

3. Tumour-specific Therapy

- i. Core Strategies for Tumour-specific Therapy
- ii. Thoracic Surgery
- iii. Systemic Therapy
- iv. Radiotherapy
- v. Multimodal Therapy

4. Re-Staging and Follow-up during and after Therapy

5. Management of Progressive Disease and Relapse

6. End-of-life Care, Death and Bereavement Period

7. Survivorship

8. Cross-pathway Care

- i. Tumour- and Care-related Side Effect Management
- ii. Emergency Care, Intensive Care
- iii. Palliative Care
- iv. Specialised Nursing
- v. Physiotherapy and Rehabilitation
- vi. Social Work Service
- vii. Psychology Service
- viii. Spiritual Care Service
- ix. Nutrition Counselling
- x. Pain Management
- xi. Smoking Cessation
- xii. Clinical Research

II. Lung Cancer Care Pathway	Derived from
1. Diagnostics	
i. Core diagnostic strategies	
<p>Essential: The lung cancer service must provide written standard operating procedures which describe its diagnostic strategies covering:</p> <ul style="list-style-type: none"> How to generally discuss and decide with patients on their diagnostic strategies based on best evidence-based practices and their status as well as their needs and desires How to perform the initial assessment of patients 	Good practice

<ul style="list-style-type: none"> • How to perform functional assessment and appraisal of fitness for diagnostics and therapy in patients with curative and palliative therapy intent • How to decide in which patients to seek pathological confirmation of suspected lung cancer and in which to avoid it • How to seek pathological confirmation in suitable patients with suspected lung cancer, addressing both obtaining adequate tumour material and performing adequate pathological and molecular analyses • How to search for presence of and – if suspected or proven – how to stage extent of primary tumour, loco-regional lymph node metastases and distant metastases, respectively, as well as how to derive stage grouping out of the findings <p>Multidisciplinary team play in the diagnostic phase involves in particular pulmonology, thoracic surgery, radiology, nuclear medicine and pathology/molecular diagnostics – interdisciplinary interfaces must be described in written form within the named standard operating procedures.</p>	
<p>Advanced: Without slowing down processes, the lung cancer service should provide a rapid initial multidisciplinary appraisal of the imaging material and other findings by pulmonologist, thoracic surgeon and radiologist for uncertain or complicated cases to jointly specify the best diagnostic procedure for tumour sample collection in suitable patients. This recommendation should be based on patient-specific risk-benefit analyses for the eligible procedures and patient preferences.</p>	Good practice
<p>ii. Initial assessment</p>	
<p>Essential: The lung cancer service must ensure that in every patient as initial assessment a comprehensive patient history*, a multidimensional symptom assessment**, a complete physical examination*** and a blood analysis*** is performed and based on these findings a first fitness assessment for diagnostic and therapeutic procedures is made.</p> <p>*including occupational history, comorbidities, and socio-economic status **dimensions to be covered: physical, psychological, social and spiritual; Performance status and weight/height to be assessed ***including a focus on potential signs for paraneoplastic syndromes [i.e. sodium, calcium] and systemic inflammation [i.e. CRP and/or albumin]</p>	Guideline
<p>Functional Assessment, Appraisal of Fitness for Diagnostics and Therapy</p>	
<p>Essential: The lung cancer service must provide or have access to the following tests for functional assessment and appraisal of fitness for diagnostics and therapy (not all will apply in every patient):</p> <ul style="list-style-type: none"> • Blood gas analysis • Spirometry • Body plethysmography • Diffusing capacity for carbon monoxide (via breath holding or single breath method) • Electrocardiogram • Spiroergometry • Echocardiography 	Guideline
<p>Staff requirements: All functional assessment tests should be performed by specifically qualified and trained personnel (ordinarily, pulmonologists and respective medical assistance personnel; echocardiography: cardiologists).</p> <p>Staff quantity should be sufficient. However, at present, a specific</p>	Good practice

minimum number of staff cannot be justified.	
<i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of imaging tests with prognostic relevance cannot be justified.	Literature review and assessment
<i>Time standards:</i> All functional assessment tests should be available in reasonable time.	Good practice
However, at present, a specific maximum time with prognostic relevance for performance of functional assessment test cannot be justified.	Literature review and assessment
iii. Imaging	
<p>Essential: The lung cancer service must provide or have access to the following tests for imaging:</p> <ul style="list-style-type: none"> • Conventional x-ray • Computed tomography (CT) • Magnetic resonance imaging • Lung perfusion and ventilation scintigraphy • Bone scintigraphy • Positron emission tomography/Computed tomography (PET/CT) • Ultrasound • Fluoroscopy [also needed for endoscopy → II.1.v.] <p>The lung cancer service should provide a direct link between imaging and image-guided biopsies → II.1.vi</p>	Guideline
<p><i>Staff requirements:</i> All imaging tests should be performed by specifically qualified and trained personnel (ordinarily, radiologists and/or nuclear medicine specialists and respective medical assistance personnel; ultrasound, fluoroscopy: multiple qualified disciplines).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	Good practice
<i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of imaging tests with prognostic relevance cannot be justified.	Literature review and assessment
<i>Time standards:</i> All imaging tests should be available daily in emergencies or urgent cases, otherwise in reasonable time.	Good practice
However, at present, a specific maximum time with prognostic relevance for performance of non-emergency imaging tests cannot be justified.	Literature review and assessment
iv. Endoscopy	
<p>Essential: The lung cancer service must provide or have access to the following endoscopy procedures:</p> <ul style="list-style-type: none"> • Flexible and rigid bronchoscopy with: <ul style="list-style-type: none"> ○ Forceps biopsies for central bronchial lesions or peripheral pulmonary lesions (under fluoroscopy) ○ Transbronchial needle biopsies for central bronchial lesions or peripheral pulmonary lesions (under fluoroscopy or EBUS mini probe) ○ Brushing and washing ○ Bronchoalveolar lavage (BAL) • Endobronchial ultrasound (EBUS) 	Guideline

<ul style="list-style-type: none"> Endoscopic ultrasound (EUS) <p>Further, the lung cancer service must provide or have access to the following interventional endoscopic procedures (may already become relevant in diagnostic period; therapeutic period: → II.8.i.):</p> <ul style="list-style-type: none"> Recanalisation with one or more of the following procedures: <ul style="list-style-type: none"> Laser Electrocoagulation Cryotherapy Stenting 	
<p><i>Staff requirements:</i> All endoscopic procedures should be performed by specifically qualified and trained personnel (ordinarily, pulmonologists or thoracic surgeons and respective medical assistance personnel).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	Good practice
<p><i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of endoscopic procedures with prognostic relevance cannot be justified.</p>	Literature review and assessment
<p><i>Time standards:</i> All endoscopic procedures should be available daily in emergencies or urgent cases, otherwise within reasonable time.</p> <p>However, at present, a specific maximum time with prognostic relevance for performance of non-emergency endoscopic tests cannot be justified.</p>	Good practice Literature review and assessment
<p>Advanced: The lung cancer service should provide or have access to one or more of the following endoscopic procedures:</p> <ul style="list-style-type: none"> Flexible and rigid bronchoscopy with: <ul style="list-style-type: none"> Central cryobiopsy probe Peripheral transbronchial cryobiopsy probe (under fluoroscopy) Peripheral endobronchial ultrasound (EBUS) mini probe (under fluoroscopy) Navigational techniques 	Good practice
<p>v. Percutaneous Image-guided Biopsy Procedures</p>	
<p>Essential: The lung cancer service must provide or have access to either one or both of the following percutaneous image-guided biopsy procedures:</p> <ul style="list-style-type: none"> Ultrasound-guided biopsy Computed tomography-guided biopsy <p>among other things for:</p> <ul style="list-style-type: none"> Pleurocentesis Pericardiocentesis/pericardial drainage Peritoneocentesis Biopsy of pleural lesions Biopsy of pulmonary lesions Lymph node biopsy Liver biopsy Bone biopsy Renal biopsy Biopsy of cutaneous and subcutaneous lesions 	Guideline

<p>Staff requirements: All percutaneous image-guided biopsy procedures should be performed by specifically qualified and trained personnel (ordinarily, interventional radiologists, pulmonologists or thoracic surgeons as well as organ-specific disciplines and respective medical assistance personnel).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	Good practice
<p>Volume of care: At present, a specific minimum individual or institutional volume threshold for number of percutaneous image-guided biopsy procedures with prognostic relevance cannot be justified</p>	Literature review and assessment
<p>Time standards: All percutaneous image-guided biopsy procedures should be available in reasonable time.</p> <p>However, at present, a specific maximum time with prognostic relevance for performance of percutaneous image-guided biopsy procedures cannot be justified.</p>	Good practice Literature review and assessment
vi. Mediastinoscopy	
<p>Essential: The lung cancer service must provide or have access to mediastinoscopy as a diagnostic procedure.</p>	Guideline
<p>Staff requirements: Mediastinoscopy should be performed by specifically qualified and trained personnel (ordinarily, thoracic surgeons and respective medical assistance personnel).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	Good practice
<p>Volume of care: At present, a specific minimum individual or institutional volume threshold for number of mediastinoscopies with prognostic relevance cannot be justified.</p>	Literature review and assessment
<p>Time standards: Mediastinoscopy should be available in reasonable time.</p> <p>However, at present, a specific maximum time with prognostic relevance for performance of mediastinoscopy cannot be justified.</p>	Good practice Literature review and assessment
vii. Medical Thoracoscopy, Video-assisted Thoracoscopy (VATS)	
<p>Essential: The lung cancer service must provide or have access to video-assisted thoracoscopy as a diagnostic and therapeutic [→ II.8.i] procedure.</p>	Guideline
<p>Essential: If the lung cancer service provides additionally medical thoracoscopy as a diagnostic and therapeutic [→ II.8.i] procedure, patient selection criteria for each of the two procedures should be consented in written form by the pulmonology and the thoracic surgery department.</p>	Good practice
<p>Staff requirements: Medical thoracoscopy and video-assisted thoracoscopy (VATS) should be performed by specifically qualified and trained personnel (ordinarily, thoracic surgeons or pulmonologists and respective medical assistance personnel).</p>	Good practice

Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.	
<i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of medical thoracoscopies or video-assisted thoracoscopies (VATS) with prognostic relevance cannot be justified.	Literature review and assessment
<i>Time standards:</i> Medical thoracoscopy and video-assisted thoracoscopy (VATS) should be available daily in emergencies or urgent cases, otherwise within reasonable time.	Good practice
However, at present, a specific maximum time with prognostic relevance for performance of medical thoracoscopy and video-assisted thoracoscopy (VATS) cannot be justified.	Literature review and assessment
viii. Tissue-based Tumour Sampling	
<p>Essential: Tissue-based tumour sampling can be performed by various methods. The lung cancer service must provide written standard operating procedures addressing in particular performance of and post-interventional sample handling in the following procedures:</p> <ul style="list-style-type: none"> • bronchoscopic forceps probes, central and peripheral • bronchoscopic needle probes, central and peripheral • bronchoscopic cryobiopsy probes, central and peripheral (if applied) • EBUS probes, central and peripheral • EUS probes • Percutaneous ultrasound-guided probes • Percutaneous computed tomography-guided probes • Mediastinoscopic probes • Medical thoracoscopic probes (if applied) • Video-assisted thoracoscopic (VATS) probes 	Guideline
ix. Biofluid-based Tumour Sampling	
<p>Essential: Biofluid-based tumour sampling can be performed by various methods. The lung cancer service must provide written standard operating procedures addressing in particular performance of and post-interventional sample handling in the following procedures:</p> <ul style="list-style-type: none"> • Blood sample • Bronchoalveolar lavage (BAL) • Brushing and washing • Sputum sample • Pleurocentesis • Pericardiocentesis • Peritoneocentesis • Spinal tap 	Guideline
<p>Advanced: The lung cancer service should provide the option to use blood or urine to obtain tumour samples for molecular diagnostics. Accordingly, the lung cancer service should provide written standard operating procedures addressing in particular performance of these specific biofluid-based tumour sampling methods and their post-interventional sample handling.</p>	Guideline
x. Pathology and Molecular Diagnostics	

<p>Essential: The lung cancer service must provide or have access to the following methods for pathology and molecular diagnostics:</p> <ul style="list-style-type: none"> • Light microscopy • Immunohistochemistry • First generation sequencing (i. e. Sanger polymerase chain reaction [PCR]) • Fluorescence in situ hybridization (FISH) (depending on molecular testing strategies) <p>Written standard operating procedures must be provided by the lung cancer service for each of these methods as well as the general diagnostic strategy with regard to pathology and molecular diagnostics.</p>	Guideline
<p>Advanced: The lung cancer service should provide the following method for molecular diagnostics:</p> <ul style="list-style-type: none"> • Next generation sequencing (NGS) 	Good practice
<p>Essential: The lung cancer service must apply the 2015 World Health Organization Classification of Lung Tumours for pathological subtyping of lung cancer.</p>	Guideline
<p>Essential: The lung cancer service must be capable to detect the following routinely treatable molecular alterations within its molecular diagnostics or have access to an appropriate external cooperation partner:</p> <ul style="list-style-type: none"> • EGFR mutations • EML-4-ALK rearrangements (alternatively, immunohistochemistry can be used as equivalent alternative to FISH) • ROS1 rearrangements <p>as well as the common alteration (if needed in sequential testing for molecular alterations):</p> <ul style="list-style-type: none"> • KRAS mutations <p>Besides, the lung cancer service must be capable to detect the following treatment-relevant marker:</p> <ul style="list-style-type: none"> • PD-L1 	Guideline
<p>Advanced The lung cancer service should be capable to detect the following routinely treatable molecular alterations within its molecular diagnostics or have access to an appropriate external cooperation partner:</p> <ul style="list-style-type: none"> • RET rearrangements • MET exon 14 splice mutations • C-MET amplification • HER2 alterations 	Guideline
<p>Essential: The pathology report of the lung cancer service must include the following core information:</p> <p>a) small biopsy:</p> <ul style="list-style-type: none"> • Macroscopic findings (quantity, localisation and diameter (in mm) of lesions) • Microscopic findings • Pathological subtyping according to the 2015 World Health Organization Classification of Lung Tumors • ICD-O-3 code • Immunohistochemical findings (according to 2015 World Health Organization 	Guideline

<p>Classification of Lung Tumors)</p> <ul style="list-style-type: none"> • Molecular diagnostics findings (as listed above) <p>a) Surgical resection specimen:</p> <ul style="list-style-type: none"> • Macroscopic findings (quantity, localisation and diameter (in mm) of lesions; infiltration of adjacent structures; infiltration of surgical margins) • Microscopic findings • Pathological subtyping according to the 2015 World Health Organization Classification of Lung Tumors • ICD-O-3 code • Immunohistochemical findings (according to 2015 World Health Organization Classification of Lung Tumors) • Molecular diagnostics (as listed above) • Intrapulmonary, hilar and mediastinal lymph nodes with lymph node stations (quantity of positive lymph nodes, quantity of dissected lymph nodes) • Residual tumour classification • TNM-classification and stage grouping according to UICC 8 	
<p>Essential: The lung cancer service should be able to perform autopsies.</p>	<p>Good practice</p>
<p><i>Staff requirements:</i> Pathology and molecular diagnostics should be performed by specifically qualified and trained personnel (ordinarily, pathologists and/or molecular biologists and respective medical assistance personnel).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	<p>Good practice</p>
<p><i>Institutional requirements:</i> Pathology and molecular diagnostics in the lung cancer service should participate in ring trials or other external accreditation measures for target-specific test-approvals.</p>	<p>Guideline</p>
<p><i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of pathological and molecular diagnostics with prognostic relevance cannot be justified.</p>	<p>Literature review and assessment</p>
<p><i>Time standards:</i> Final results of pathology and molecular diagnostics should be available in reasonable time.</p> <p>However, at present, a specific maximum time with prognostic relevance for performance of pathology and molecular diagnostics cannot be justified.</p>	<p>Good practice</p> <p>Literature review and assessment</p>
<p>xi. TNM Description and Stage Grouping</p>	
<p>Essential: The lung cancer service must apply the UICC 8 version for TNM Description and Stage Grouping in lung cancer.</p>	<p>Guideline</p>
<p>2. Medical Decision-finding and Care Planning with Patients and within the Multidisciplinary Team</p>	
<p>Essential: The lung cancer service must define its modes of medical decision-finding and care planning throughout the entire lung cancer pathway in a written standard operating procedure. This standard operating procedure must take into account the related communication within the multidisciplinary team as well as between members of the multidisciplinary team and patients/carers.</p>	<p>Guideline</p>

<p>Essential: One core element of the medical decision-finding and care planning within the multidisciplinary team is the multidisciplinary team conference in which patient cases are presented and discussed among a multidisciplinary panel as well as recommendations with regard to diagnostic and therapeutic questions are consented.</p> <p>The lung cancer service must install and run a multidisciplinary team conference at least on a weekly basis. The multidisciplinary conference should be directed by a coordinator.</p> <p>The following disciplines must be present at each multidisciplinary team conference either in person or virtually via a web-conference tool (or equal measure):</p> <ul style="list-style-type: none"> • Pulmonology • Radiology • Nuclear medicine • Pathology, Molecular biology • Thoracic Surgery • Medical Oncology/Pneumo-oncology • Radiotherapy <p>Other disciplines or professions (i.e. palliative care medicine, lung cancer specialised nurse) may participate in the multidisciplinary team conference at any time or may be invited to join this meeting in selected cases.</p> <p>The following medical indications in patients with proven or suspected lung cancer lead to a case presentation in multidisciplinary team conference:</p> <ul style="list-style-type: none"> • All patients with a first diagnosis of lung cancer • All lung cancer patients after surgical lung resection with curative intent with regard to adjuvant therapy • All lung cancer patients with a newly diagnosed relapse of their disease after treatment with curative intent • Selected patients with proven or suspected lung cancer with problems or specific multiprofessional questions during diagnostics or tumour-specific treatment <p>Every case in the multidisciplinary team conference should be presented to the multidisciplinary panel by the doctor who knows the patient and his previous course of disease best. To provide all relevant information to everybody in the multidisciplinary panel for proper preparation, a registration system is mandatory in the lung cancer service.</p> <p>Every discussed MDT conference-case will be protocolled in written form. The written protocol must be made available to patients and their general practitioners or other referring physicians if requested and if also approved by the patient.</p>	<p>Good practice</p>
<p>Advanced: The lung cancer service should implement and run a tool for regular quality assessment of the multidisciplinary team conference (i.e. concordance rates of MDT conference recommendations and actual applied treatments as well reasons for deviation) and subsequent quality improvement.</p>	<p>Good practice</p>

3. Tumour-specific Therapy	
i. Core Strategies for Tumour-specific Therapy	
<p>Essential: The lung cancer service must provide written standard operating procedures which describe its strategies for tumour-specific therapy modalities covering:</p> <ul style="list-style-type: none"> • How to generally discuss and decide with patients on their tumor-specific therapeutic strategies based on best evidence-based practices and their status as well as their needs and desires • How to select patients for specific thoracic surgical procedures and how to best perform these thoracic surgical procedures covering pre-, peri- and postoperative phase • How to select patients for specific systemic therapies including targeted therapies and immunotherapies and how to best perform these systemic therapies • How to select patients for specific radiotherapies and how to best perform these radiotherapies • How to select patients for multimodal therapies and how to best perform these multimodal therapies <p>Multidisciplinary team play in the phase of tumour-specific therapies involves in particular thoracic surgery, oncology/pneumo-oncology, radiotherapy, pulmonology, radiology and pathology/molecular diagnostics – interdisciplinary interfaces must be described in written form within the named Standard operating procedures.</p>	Guideline
ii. Thoracic Surgery	
<p>Essential: The lung cancer service must provide or have access to the following thoracic surgical procedures:</p> <ul style="list-style-type: none"> • Wedge resection • Open segmentectomy • VATS-Segmentectomy • Open lobectomy • VATS-lobectomy • Pneumonectomy • Sleeve-lobectomy • Sleeve-pneumonectomy • Video-assisted mediastinoscopic lymphadenectomy (VAMLA) <p>Complete lymph node dissection should be ensured in anatomical resections.</p>	Guideline
<p>Staff requirements: Thoracic surgery should be performed by specifically qualified and trained personnel (ordinarily, general thoracic surgeons and/or cardiothoracic surgeons and respective medical assistance personnel).</p> <p>Proof of individual experience could be furnished by a logbook, a personal catalogue of performed operations or similar measures.</p> <p>Anaesthetists specialised in narcosis in thoracic surgery and pain management, physiotherapists and intensive care professionals are in particular essential throughout the pre-, peri- and postoperative phases of patients undergoing thoracic surgery.</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	Good practice

<i>Institutional requirements:</i> Thoracic surgery should be performed in dedicated general thoracic surgery services and/or cardiothoracic surgery services adequately covering the pre-, peri- and postoperative phases.	Good practice
<i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of thoracic surgical procedures with prognostic relevance cannot be justified.	Literature review and assessment
<i>Time standards:</i> Thoracic surgery should be available daily in emergencies or urgent cases, otherwise within reasonable time. However, at present, a specific maximum time with prognostic relevance for performance of thoracic surgery cannot be justified.	Good practice Literature review and assessment
iii. Systemic Therapy	
Essential: The lung cancer service must provide or have access to the following types of systemic therapies or their combinations: <ul style="list-style-type: none"> • Chemotherapies • Targeted therapies • Immunotherapies <p>The lung cancer service should be capable to offer systemic therapies on an out-patient and in-patient basis.</p>	Guideline
<i>Staff requirements:</i> Systemic therapies including targeted therapies and immunotherapies should be performed by specifically qualified and trained personnel (ordinarily, oncologists and/or pneumo-oncologists and respective medical assistance personnel). Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.	Good practice
<i>Institutional requirements:</i> Systemic therapies including targeted therapies and immunotherapies should be performed in dedicated oncology services and/or pulmonology services.	Good practice
<i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of systemic therapies including targeted therapies and immunotherapies with prognostic relevance cannot be justified.	Literature review and assessment
<i>Time standards:</i> Systemic therapies including targeted therapies and immunotherapies should be available in reasonable time. However, at present, a specific maximum time with prognostic relevance for performance of systemic therapies including targeted therapies and immunotherapies cannot be justified.	Good practice Literature review and assessment
iv. Radiotherapy	
Essential: The lung cancer service must provide or have access to the following types of radiotherapy/radiotherapy techniques: <ul style="list-style-type: none"> • Stereotactic body radiotherapy • Intensity modulated radiotherapy (i.e. volumetric modulated arc therapy [VMAT]) • Motion management 	Guideline
<i>Staff requirements:</i> Radiotherapy should be performed by specifically qualified and trained personnel (ordinarily, radiation-	Good practice

<p>oncologists/clinical oncologists, radiotherapists and medical physicists).</p> <p>Staff quantity should be sufficient. However, at present, a specific minimum number of staff cannot be justified.</p>	
<p><i>Volume of care:</i> At present, a specific minimum individual or institutional volume threshold for number of radiotherapies with prognostic relevance cannot be justified.</p>	<p>Literature review and assessment</p>
<p><i>Time standards:</i> Radiotherapy should be available in reasonable time.</p> <p>However, at present, a specific maximum time with prognostic relevance for initiation of radiotherapy cannot be justified.</p>	<p>Good practice</p> <p>Literature review and assessment</p>
<p>v. Multimodal Therapy</p>	
<p>Essential: The lung cancer service must provide written standard operating procedures for treatment situations in which multidisciplinary discussion and consent finding as well as multimodal treatment in a multidisciplinary team are essential. Amongst others, examples are:</p> <ul style="list-style-type: none"> • NSCLC, stage IA • NSCLC, stage IIIA • NSCLC, stage IIIB - Pancoast • NSCLC, oligometastatic lung cancer disease • SCLC, limited disease 	<p>Guideline</p>
<p>4. Re-Staging and Follow-up during and after Therapy</p>	
<p>Essential: The lung cancer service must define as a written standard operating procedure and apply validated tools for re-staging of patients under or after treatment (i.e. RECIST 1.1, iRECIST).</p> <p>The lung cancer service must define and apply as a written standard operating procedure a joint follow-up strategy during and after therapy taking into account therapy response as well as assessment of general patient status and tumour- and therapy-related side effects. This follow-up strategy should be coordinated among concerned disciplines and ensure that patients are not lost to follow-up through the lung cancer service.</p>	<p>Guideline</p>
<p>5. Management of Progressive Disease and Relapse</p>	
<p>Essential: The lung cancer service must define as a written standard operating procedure and apply a structured approach for the management of progressive disease and relapse to its patients based on best evidenced-based practices as well as their needs and preferences.</p>	<p>Guideline</p>
<p>6. End-of-life Care, Death and Bereavement Period</p>	
<p>Essential: The lung cancer service must define as a written standard operating procedure and apply a structured approach for the management of end-of-life care and death of a patient as well as for the support of carers throughout the bereavement period.</p>	<p>Guideline</p>
<p>7. Survivorship</p>	
<p>Essential: The lung cancer service must define as a written</p>	<p>Guideline</p>

standard operating procedure and apply a structured approach for the management of patients who have achieved survivorship addressing amongst other things physical rehabilitation, psychological support, resilience and social reintegration.	
8. Cross-pathway Care	
i. Tumour- and Care-related Side Effect Management	
<p>Essential: The lung cancer service must provide written standard operating procedures on the management of the following tumour- and care related side effects:</p> <p>a) Tumour-related</p> <ul style="list-style-type: none"> • Dyspnoea • Pain • Superior vena cava syndrome • Endotracheobronchial obstruction • Haemoptysis • Tracheobronchial-oesophageal fistula • Pleural effusion • Hoarseness • Cough • Fatigue • Bone metastases • Brain metastases • Spinal cord compression and neurological deficits • Cachexia/muscle wasting • Venous thromboembolic disease • Hypercalcaemia • Hyponatraemia/ syndrome of inappropriate antidiuretic hormone secretion (SIADH) <p>b) Therapy-related</p> <ul style="list-style-type: none"> • Post-thoracotomy pain • Pneumonia • Respiratory failure • Adverse cardiac events • Prolonged airleak • Bronchopleural fistula • Empyema • Pneumonitis/pulmonary fibrosis induced by radiotherapy or systemic therapies • Oesophagitis induced by radiotherapy or systemic therapies • Nausea/vomiting • Anaemia • Neutropenia • Thrombopenia • Dermatitis • Mucositis • Endocrinological disorders (i.e. hypophysitis, thyroiditis) • Allergic reactions or other autoimmune reactions • Extravasate 	Guideline
ii. Emergency Care, Intensive Care	
<p>Essential: The lung cancer service must provide or have access to an emergency care service for its patients as well as access to intensive care.</p>	Guideline

<p>The lung cancer service must define as a written standard operating procedure and apply a structured approach for the management of its lung cancer patients in case of medical emergencies taking into account best evidence-based practices as well as patient needs and preferences (i.e. potential pre-formulated limitations of therapeutic measures).</p> <p>Equally, the lung cancer service should offer psychological, social and spiritual support in case of respective crises.</p>	
iii. Palliative Care	
<p>Essential: The lung cancer service must provide or have access to a palliative care service for its patients seeking integration of palliative care throughout the entire lung cancer continuum depending on respective patient symptom load.</p> <p>Palliative care within the lung cancer service must include at least one of the following elements*:</p> <ul style="list-style-type: none"> • Palliative care ward • In-patient palliative care liaison service • Out-patient palliative care liaison service • In-patient palliative care nurse • Out-patient palliative care nurse • Hospice <p>*Collaboration with external palliative care services/hospices could be an alternative</p>	Guideline
iv. Spiritual Care Service	
<p>Essential: Depending on respective cultural habits, the lung cancer service should provide or have access to a spiritual care service for its patients.</p>	Good practice
v. Specialised Nursing	
<p>Essential: The lung cancer service should provide or have access to nursing specialised in lung cancer care for its patients. A nurse specialised in lung cancer care should have knowledge and understanding of the lung cancer pathway and treatments in order to facilitate support for patients and their carers.</p> <p>Advanced: The majority of patients should be seen by a specialised lung cancer nurse.</p>	Guideline
vi. Physiotherapy and Rehabilitation	
<p>Essential: The lung cancer service must provide or have access to a physiotherapy service for its patients. A collaboration with rehabilitation services should be sought.</p> <p>Patients after completion of first line therapy should be offered a disease-adequate rehabilitation measure.</p> <p>The lung cancer service must define as a written standard operating procedure and apply a structured multi-professional approach for the management of its lung cancer patients with the aim to achieve fitness for therapy with curative intent when potentially reversible causes have been identified in so far unfit patients.</p>	Guideline

vii. Social Work Service	
<p>Essential: The lung cancer service must provide or have access to a social work service for its patients.</p> <p>Every patient with a first diagnosis of lung cancer should be offered counselling by a social work service member or qualified professional.</p>	Guideline
viii. Psychology Service	
<p>Essential: The lung cancer service must provide or have access to a psychology service for its patients.</p> <p>Every patient with a first diagnosis of lung cancer should be offered counselling by a psychology service member or qualified professional (i.e. specialised lung cancer nurse).</p>	Guideline
<p>Advanced: The lung cancer service should apply a validated tool to systematically screen lung cancer patients for their psychological support needs.</p> <p>Supervision of multidisciplinary team services as well as individual burnout screening/prevention and support measures for professionals should be provided by the psychology service or other qualified professionally</p>	Good practice
ix. Nutrition Counselling	
<p>Essential: The lung cancer service must provide or have access to a nutrition counselling service for its patients.</p>	Guideline
<p>Advanced: The lung cancer service should apply a validated tool to systematically screen lung cancer patients for their nutritional status.</p>	Guideline
x. Pain Management	
<p>Essential: The lung cancer service must provide or have access to a pain management service for its patients.</p>	Guideline
<p>Advanced: The lung cancer service should apply a validated tool to systematically screen lung cancer patients for pain.</p>	Guideline
xi. Smoking Cessation	
<p>Essential: The lung cancer service must provide or have access to a smoking cessation programme for its patients.</p>	Guideline
xii. Clinical Research	
<p>Essential: Every patient with lung cancer should be considered for local, national or international trials.</p> <p>Advanced: The lung cancer service should provide or have access to a clinical research service for its patients.</p>	Good practice

Glossary of terms used in the manual of lung cancer services

Terminology used in the manual of lung cancer services	Definition	Other terminology
Carer	a family member or paid helper who regularly looks after a sick person	
Clinical cancer registry	an information system designed for the collection, storage and analysis of epidemiological and clinical data on patients with cancer	
Clinical research	a branch of science which explores efficacy and safety of medicines and other preventional, diagnostic or treatment regimens in patients	
Hospice	"An inpatient hospice admits patients in their last phase of life, when treatment in a hospital is not necessary and care at home or in a nursing home is not possible." [1]	
Lung cancer specialist	a physician specialised in lung cancer	
Medical Oncology	a medical discipline concerned with the prevention, diagnosis and treatment of cancer	Oncology
Medical physicists	"an individual who is competent to independently provide clinical professional services in one or more of the subfields of medical physics. <ul style="list-style-type: none"> • Therapeutic Medical Physics • Diagnostic Medical Physics • Nuclear Medical Physics • Medical Health Physics • Magnetic Resonance Imaging Physics" [2] 	
Nutrition counselling	a service in which health professionals assess the dietary habits of individuals and provide qualified advice and information if change seems necessary	
Oncologist	a physician specialised in medical oncology	Medical oncologist
Pain management	a service in which health professionals assess the origin as well as the quality and quantity of pain in individuals and provide qualified advice, information and treatment modalities to overcome pain	
Palliative care	"an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual" [3]	
Pneumo-oncologist	a physician specialised in pneumo-oncology	
Pneumo-oncology	a medical sub-discipline concerned with the prevention, diagnosis and treatment of cancer in the field of pulmonology	Thoracic oncology
Psychology service	a service in which health professionals provide mental health care for	

	individuals and their carers	
Pulmonologist	a physician specialised in pulmonology	Chest physician Pneumologist
Pulmonology	a medical discipline concerned with the anatomy, physiology, and pathology of the lungs and airways	Pneumology Respiratory care
Radio-oncologist	a physician specialised in radiotherapy	Clinical oncologist
Radiotherapist	an allied health professional who works in the field of radiotherapy	Radiation therapist
Radiotherapy	a medical discipline concerned with the treatment of diseases with radiation	Radio-oncology Radiation oncology
Social work service	a service in which health professionals provide socio-legal counselling, concerning reorganisation of occupational matters, securing of financial integrity as well as care and supply needs, and psychosocial counselling, addressing emotional needs and support, stigma, coping strategies, understanding of new/alterd roles and relationships, and importance of social networks	
Specialised lung cancer nurse	a nurse who has knowledge and understanding of the lung cancer pathway and treatments facilitating support for patients and their carers	
Spiritual care service	a service in which health professionals provide mental health care for individuals and their carers	
Thoracic surgeon	a physician specialised in thoracic surgery	
Thoracic surgery	a medical discipline concerned with prevention, diagnostics, surgical treatment of diseases, malformations and injuries of the lung, bronchi, pleura, mediastinum and chest wall as well as the adjacent parts of the heart	

References

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2. Medicine AAoPi. Definition of a Qualified Medical Physicist. 2017 [cited 27.11.2017]; Available from: https://www.aapm.org/medical_physicist/fields.asp
3. Care EAfP. White Paper on standards and norms for hospice and palliative care in Europe: part 1+2. 2010 [cited 2014 11.04.2014]; Available from: <http://www.eapcnet.eu/Themes/Organisation/EAPCStandardsNorms.aspx>

Underlying evidence for lung cancer service parameter catalogue

Part of Lung Cancer Care Pathway	Chapter	Evidence
Initial assessment	II.1.ii.	ACCP [68], German lung cancer guideline [69], NICE [70]
Functional Assessment, Appraisal of Fitness for Diagnostics and Therapy	II.1.iii.	ACCP [71], BTS [72], ESTS/ERS [54], German lung cancer guideline [69], NICE [70]
Imaging	II.1.iv.	ACCP [73], ESR/ACR [53], German lung cancer guideline [69], NICE [70]
Endoscopy	II.1.v.	ACCP [73, 74], BTS [75], ESGE/ERS/ESTS [76], German lung cancer guideline [69], NICE [70], WABIP [77]
Percutaneous Image-guided Biopsy Procedures	II.1.vi.	ACCP [73, 74], German lung cancer guideline [69], NICE [70]
Mediastinoscopy	II.1.vii.	ACCP [73, 74], German lung cancer guideline [69], NICE [70]
Medical Thoracoscopy, Video-assisted Thoracoscopy (VATS)	II.1.viii.	ACCP [73, 74], German lung cancer guideline [69], NICE [70]
Tissue-based Tumour Sampling Biofluid-based Tumour Sampling Pathology and Molecular Diagnostics	II.1.ix. II.1.x. II.1.xi.	ACCP [73, 74], German lung cancer guideline [69], IASLC [78], NICE [70], WHO [79]
TNM Description and Stage Grouping	II.1.xii.	IASLC [80-85], UICC [86]
Medical Decision-finding and Care Planning with Patients and within the Multidisciplinary Team	II.2.	German lung cancer guideline [69], NICE [70]
Core Strategies for Tumour-specific Therapy	II.3.i.	BTS [72], German lung cancer guideline [69], NICE [70]
Thoracic Surgery	II.3.ii.	BTS [72], ESTS [55], German lung cancer guideline [69], NICE [70]
Systemic Therapy	II.3.iii.	ESMO [87-89], German lung cancer guideline [69], NICE [70]
Radiotherapy	II.3.iv.	BTS [72], EORTC [62], ESTRO/ACROP [64], German lung cancer guideline [69], NICE [70]
Multimodal Therapy	II.3.v.	BTS [72], German lung cancer guideline [69], NICE [70]
Re-Staging and Follow-up during and after Therapy	II.4.	German lung cancer guideline [69], iRECIST [90], NICE [70], RECIST [80]
Management of Progressive Disease and Relapse	II.5.	German lung cancer guideline [69], NICE [70]
End-of-life Care, Death and Bereavement Period	II.6.	EAPC [65], German lung cancer guideline [69], NICE [70]
Survivorship	II.7.	German lung cancer guideline [69], NICE [70]
Cross-pathway Care	II.8.	EAPC [65], German lung cancer guideline [69], NICE [70]

Legend: ACCP: American College of Chest Physicians, ACR: American College of Radiology, ACROP: Advisory Committee on Radiation Oncology Practice, BTS: British Thoracic Society, EAPC: European Association for Palliative Care, EORTC: European

Organisation for Research and Treatment of Cancer, ERS: European Respiratory Society, ESGE: European Society of Gastrointestinal Endoscopy, ESMO: European Society for Medical Oncology, ESR: European Society of Radiology, ESTRO: European Society for Radiotherapy and Oncology, ESTS: European Society of Thoracic Surgeons, IASLC: International Association for the Study of Lung Cancer, NICE: National Institute for Health and Care Excellence, UICC: Union Internationale Contre le Cancer, WABIP: World Association for Bronchology Interventional Pulmonology

