

Guideline for the Referral, Diagnosis and Staging of Patients with Lung Cancer

Incorporating:

Guideline for the diagnosis and staging of patients with lung cancer detected within secondary care', guidelines for the diagnosis and staging of patients with lung cancer (secondary care to secondary care) and 'PET pathway in lung cancer'.

Version History

Version	Date	Comments
2	24.09.07	Endorsed by Governance Committee with amendments and chairman's approval
2.1	17.05.10	Circulated to the NSSG for review.
2.2	19.05.10	Following consultation with the NSSG.
2.3	16.06.10	With section on EBUS, trials and counselling added. Combined with additional guidelines relating to the diagnosis and staging of lung cancer. For review at the June NSSG.
2.4	24.06.10	For final electronic consultation with the NSSG
2.5	05.07.10	Following consultation. For submission to the guidelines Sub Group.
2.6	27.07.10	Approved with some minor changes and queries – to Arvind for final clarification then can be distributed.
3	20.08.10	With additional comments and final approval from Arvind Rajasekaran.

Date Approved by Network Governance	August 2010
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Date for Review	August 2013
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Summary of changes between version 2 and version 3

- Invasive procedures can be omitted in patients with peripheral tumours and negative mediastinal positron emission tomography (PET) images. However, in case of central tumours, PET hilar N1 disease, low fluorodeoxyglucose uptake of the primary tumour and LNs > or = 16 mm on CT scan, invasive staging remains indicated. PET positive mediastinal findings should always be cyto-histologically confirmed.
- Addition of a section on Endobronchial Ultrasound Scan (EBUS), clinical trials and counselling.

- Incorporation of the guidelines: ‘diagnosis and staging of patients with lung cancer detected within secondary care’, ‘diagnosis and staging of patients with lung cancer (secondary care to secondary care)’ and the PET pathway in lung cancer.

Please note that these form an interim guideline as new NICE guidance is in production. These will be compared with the new NICE guidelines, once they are published, in approximately 12 months.

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1. Scope of the Guideline

- 1.1 This guidance has been produced to support the following:
- a. The referral of patients for whom lung cancer is suspected
 - b. The diagnosis of patients with suspected lung cancer
 - c. The referral of patients diagnosed with lung cancer outside of a lung MDT
 - d. Diagnostic/staging, imaging and pathology of patients with lung cancer

2. Guideline Background

- 2.1 This guideline has been written in response to the publication of policy documents and those produced by professional bodies.
Its aim is to make sense of these documents within the context of the Pan Birmingham Cancer Network (PBCN), ensuring that more up to date research, current thinking, and local expert opinion have been incorporated.

Guideline Statements

3 Referral

3.1 Primary care referral of patients with symptoms suspicious lung symptoms

3.1.1 All patients with symptoms suspicious of lung cancer should be referred for an urgent chest x-ray.

3.1.2 Patients should be offered an urgent referral to a member of the lung cancer MDT, usually the chest physician, **while awaiting the result of a chest x-ray**, if any of the following are present:

- a. Persistent haemoptysis in smokers/ex-smokers over 40 years of age.
- b. Signs of superior vena cava obstruction.
- c. Stridor (consider emergency referral).

3.1.3 Criteria for immediate referral are:

- a. Signs of SVCO (swelling of face/ neck with fixed elevation of JVP) or CT evidence of SVC compression.
- b. Stridor.
- c. Suspicion of spinal metastases causing spinal cord compression with chest x-ray or CT evidence of a primary lung cancer. See PBCN metastatic spinal cord compression guideline⁴. **Referral by phone call for these patients is recommended:**
 - i. Please phone the on-call Spinal Registrar at the (ROH) (0121 685 4000) or the on-call Neuro-Surgical Registrar at the (QEH) (0121 627 1627) who will discuss the case with their on-call Consultant.
 - ii. Then fax form to: **0121 685 4146 (ROH) or 0121 697 8248 (QEH).**

See **Appendix 1** for the referral form.

3.1.4 Criteria for urgent referral (2 week wait) are any of the following;
a. Persistent haemoptysis (smokers or ex-smokers over 40 years).
b. A chest x-ray suggestive of lung cancer or mesothelioma (including pleural effusion and slowly resolving consolidation).

- c. A CT scan suggestive of lung cancer or mesothelioma (including pulmonary mass, unexplained pleural effusion or mediastinal lymphadenopathy).
- d. A normal chest x-ray with a high suspicion of lung cancer.

See **Appendix 2** for the referral form.

3.2 Referral of patients with an abnormal chest x-ray to a rapid access chest clinic

- 3.2.1 If a consultant radiologist identifies an abnormality on the chest x-ray suspicious of cancer, the patient should be given either an urgent appointment for a CT scan or an urgent referral to a chest physician who is a member of the lung cancer MDT.
- 3.2.2 Patients who have undergone a chest CT scan whose results suggest lung cancer (including pleural effusion and slowly resolving consolidation) should be offered an urgent referral to a chest physician who is a member of the lung cancer MDT.
- 3.2.3 The patient's GP should always be informed of a decision to refer the patient to a chest physician within 48 hours of the decision being made. This process may occur before the referral to the chest physician is made.
- 3.2.4 Communication with the primary health care team must not delay the referral to the chest physician for more than 48 hours, and patients should be reviewed by a member of the lung cancer MDT within 2 weeks of urgent referral by the consultant radiologist.

3.3 Referral of patients whose lung cancer is suspected/diagnosed by a secondary care/acute sector team.

- 3.3.1 There are many different routes by which a patient may arrive with a diagnosis of lung cancer, and it is recognised that as many as 50% do not follow the conventional pathway: referral via their GP with an abnormal chest radiograph, and then onwards to a respiratory physician for formal diagnosis¹. However it is desirable that all patients, regardless of referral route, receive a uniformly high standard of care².
- 3.3.2 Patients managed within secondary care (either inpatients or outpatients) with symptoms and/or chest x-ray features suggestive of lung cancer should have a staging CT thorax requested urgently, and be referred to a lung MDT.
- 3.3.3 Criteria for immediate referral are:
 - a. Signs of SVCO (swelling of face/ neck with fixed elevation of JVP) or CT evidence of SVC compression.

- b. Stridor.
- c. Suspicion of spinal metastases causing spinal cord compression with chest x-ray or CT evidence of a primary lung cancer. See PBCN metastatic spinal cord compression guideline⁴. **Referral by phone call for these patients is recommended:**
 - i. Please phone the on-call Spinal Registrar at the (ROH) (0121 685 4000) or the on-call Neuro-Surgical Registrar at the (QEH) (021 627 1627) who will discuss the case with their on-call Consultant.
 - ii. Then fax form to: **0121 685 4146 (ROH) or 0121 697 8248 (QEH).**

See **Appendix 1** for the referral form

3.3.4 Criteria for urgent referral (2 week wait) are any of the following:

- a. Persistent haemoptysis (smokers or ex-smokers over 40 years).
- b. A chest x-ray suggestive of lung cancer or mesothelioma (including pleural effusion and slowly resolving consolidation).
- c. A CT scan suggestive of lung cancer or mesothelioma (including pulmonary mass, unexplained pleural effusion or mediastinal lymphadenopathy).
- d. A normal chest x-ray with a high suspicion of lung cancer.

3.3.5 If a consultant radiologist identifies an abnormality on a chest x-ray or CT scan of thorax or abdomen (e.g. HRCT, CTPA, CTKUB) which raises the suspicion of lung cancer, there should be a system in place to alert the local lung MDT according to local protocol. For example, a copy of the abnormal report is faxed to the referring clinician with a recommendation to refer to a respiratory physician for an urgent opinion.

4. Diagnosis

- 4.1 Patients with known or suspected lung cancer should be offered a contrast enhanced chest CT scan to further the diagnosis and stage of the disease. The scan should be extended to include the liver and adrenals. **Chest CT should be performed prior to an intended fiberoptic bronchoscopy.**
- 4.2 For patients with **central lesions, bronchoscopy** should be performed on those patients who are able and willing to undergo the procedure.
- 4.3 For patients with peripheral lesions, bronchoscopy is unlikely to be diagnostic and other techniques, usually percutaneous lung biopsy, should be considered. This decision on how to proceed will normally be made following discussion at the MDT or local investigation day, taking into account

performance status, lung function, degree of emphysema, and accessibility of the lesion. Diagnostic options for peripheral lesions include:

- a. Percutaneous transthoracic needle biopsy
- b. Surgical biopsy
- c. Surgical resection
- d. Radiological follow-up

- 4.4 **Surgical biopsy** should be performed for diagnosis where other less invasive methods of biopsy have not been successful or are not possible. It may also be appropriate to proceed straight to surgical biopsy if imaging (CT and PET) suggests that the lesion is localised to the lung and the likelihood of cancer is moderate/high.
- 4.5 Where there is evidence of distant metastasis then biopsies should be taken from the metastatic site where possible.
- 4.6 **Sputum cytology** should be reserved for the investigation of patients with centrally placed nodules or masses, but unable to tolerate or unwilling to have bronchoscopy or other invasive tests.
- 4.7 A fluoro-deoxyglucose (FDG) positron emission tomography (**PET**) scan should be performed to investigate solitary pulmonary nodules according to the solitary pulmonary node guideline³. The decision to request a PET scan must be made at the multidisciplinary team meeting and it must be made clear how the results of the scan will influence the treatment decision (see **Appendix 3**).
- 4.8 **Endobronchial Ultrasound Scan (EBUS)\Endoscopic Ultrasound (EUS)**
- 4.8.1 Access to EBUS and EUS has increased within PBCN. These techniques increase the diagnostic yield in patients with mediastinal and hilar adenopathy especially where there is no visible endobronchial tumour.
- 4.8.2 EBUS and EUS offer a minimally invasive alternative to cervical mediastinoscopy and anterior mediastinotomy and where available should be considered as the first choice for mediastinal sampling when this is required as part of the staging process (see section 6.3). In addition both techniques can be used for sampling extra-bronchial lung masses which are not amenable to standard bronchoscopy or CT guided biopsy.
- 4.8.3 EBUS and EUS are relatively new techniques and the precise place in the diagnostic and staging algorithm is likely to evolve in the coming months to years.
- 4.8.4 A phase III multicentre UK trial evaluating EBUS and EUS as a first test after CT is currently recruiting (LUNG BOOST). See section 8 on clinical trials.

5 Staging - Small Cell Lung Cancer (SCLC)

Patients with SCLC should be staged by a contrast-enhanced CT scan of the chest, liver and adrenals and by selected imaging of any symptomatic area.

6. Staging - Non Small Cell Lung Cancer (NSCLC)

6.1 MRI scanning:

6.1.1 Should not routinely be performed to assess T-stage but can occasionally be useful when CT scanning results are equivocal.

6.1.2 Should only be used for detecting bone metastases when patients with localised signs or symptoms have a negative x-ray. In such cases a bone scan may be used in place of an MRI scan.

6.1.3 May be useful in the assessment of superior sulcus tumours immediately prior to surgery and following a MDTM discussion. However, the primary staging investigation is CT scanning. The CT scanners available within the PBCN can provide images on the coronal plane and provide adequate information in these cases.

6.2 PET scanning should be available for patients who:

- a. Are staged as candidates for surgery on CT to look for involved intra-thoracic lymph nodes and distant metastases;
- b. Are otherwise surgical candidates but with CT evidence of limited (1-2 stations) nodal disease of uncertain pathological significance;
- c. Are candidates for radical radiotherapy on CT.

See **Appendix 3** for the PET pathway in lung cancer.

6.3 Histological sampling

6.3.1 Histological/cytological investigation should be performed to confirm N2/3 disease where PET is positive unless there is definite distant metastatic disease identified or there is a high certainty that the N2/3 disease is metastatic, for example, if there is a chain of high FDG uptake in lymph nodes. This should be achieved by the most appropriate method: within PBCN this is either endobronchial ultrasound guided transbronchial needle aspirate, mediastinoscopy or anterior mediastinotomy.

6.3.2 In line with the European Association of Cardiothoracic Surgery Guidelines for Pre-operative Mediastinal Lymph Node Staging Invasive Staging³ is indicated in the following situations:

- a. All nodes > 16mm
- b. Central tumour

- c. PET positive hilar N1 disease
 - d. Low FDG uptake of the primary tumour
- 6.4 A CT or MRI scan should be performed for patients with clinical signs or symptoms of brain metastases.

7 Patient Information and Counselling

- 7.1 All patients, and with their consent, their will be given access to appropriate written information during their investigation and treatment, and on diagnosis will be given the opportunity to discuss their management with a clinical nurse specialist who is a member of the relevant MDT. The patient should have a method of access to the lung MDT at all times.
- 7.2 Access to psychological support will be available if required. All patients should undergo an Holistic Needs Assessment and onward referral as required.

8 Clinical Trials

- 8.1 Wherever possible, patients who are eligible should be offered the opportunity to participate in National Institute for Health Research portfolio clinical trials and other well designed studies.
- 8.2 Where a study is only open at one Trust in the Network, patients should be referred for trial entry. A list of studies available at each Trust is available from Pan Birmingham Cancer Research Network. Email: PBCRN@westmidlands.nhs.uk
- 8.3 Patients who have been recruited into a clinical trial will be followed up as defined in the protocol.

References

1. Lung cancer referral patterns – the Yorkshire experience NYCRIS 2000
2. Lung Cancer - The Diagnosis and Treatment of Lung Cancer, *Methods, Evidence and Guidance, February 2005*. Commissioned by NICE and published by the National Collaborating Centre for Acute Care at The Royal College of Surgeons of England, London.
3. ESTS guidelines for preoperative lymph node staging for non-small cell lung cancer. *Eur J Cardiothorac Surg.* 2007 Jul;32(1):1-8. Epub 2007 Apr 19. De Leyn P, Lardinois D, Van Schil PE, Rami-Porta R, Passlick B, Zielinski M, Waller DA, Lerut T, Weder W.

4 www.birminghamcancer.nhs.uk

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Approval Signatures

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Signature: 

Date:

Patient Management Information Form for Spinal Oncology Referrals

Please complete as fully as possible and fax to:

0121 685 4146 (ROH) or 0121 697 8248 (QEH)

Date and Time of Referral:- <i>An acknowledgement will be faxed back, please give the fax number:</i>
Emergency Referral (phone call already made)/Referral for urgent opinion* <i>Delete as appropriate</i>

Patient Details	Referring Consultant/GP/Oncologist
Surname	Consultant/GP
Forename	Contact No (Mobile)
D.O.B. Gender	Oncologist (If already diagnosed)
Address	Contact No (mobile)
	Is Oncologist aware of referral Y/N
Telephone No Postcode	Current Relevant Co-morbidities
NHS No	None
In / Out Patient	1
	2
	3
	4
Hospital and Ward	Hb Ca++ Alb
Direct Dial Number	Is patient anticoagulated? Y / N
Tumour Presentation (circle provisional diagnosis)	Prior Discussion at MDT Y / N
Previous known primary; probable mets	Hospital Date
Previous unknown primary; probable mets	Group
Probable musculo-skeletal primary	Patient understanding
Probable intradural primary	Has diagnosis and possible surgery been discussed with patient? Y / N
Estimated prognosis >3 months Y/N/not known	Does Patient wish to consider surgery? Y / N
Biopsy Y/N	Has an information booklet been provided for the patient ? Y / N
Result Date	Has an information booklet been provided for the carer ? Y / N

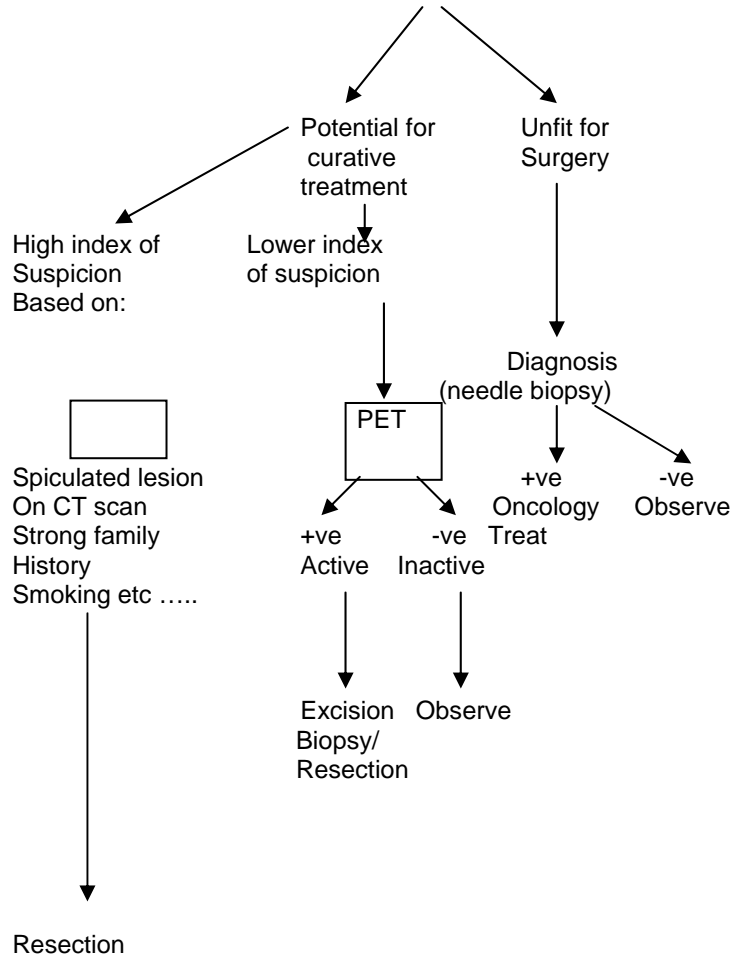
**Please send all available imaging and copies of reports
PLEASE COMPLETE NEXT PAGE**

Patient Management Information Form for Spinal Oncology Referrals

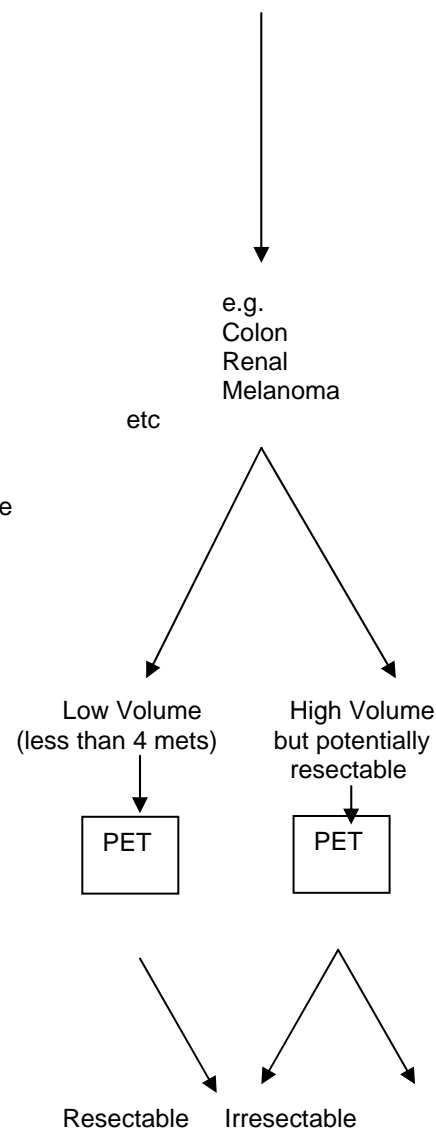
Patients Name:			DOB		
TUMOUR			SPINE		
Primary <i>(circle disease site)</i> Bronchus Breast Prostate Renal Thyroid Myeloma Lymphoma Uterine/Cx Melanoma GIT GU Unknown Other (specify) Date of diagnosis:			Presenting Complaint None Pain only Y / N since (date) Location; Type: Non specific Mechanical Postural Pattern: Nocturnal Diurnal Constant Neurological Symptoms Y / N since (date) Neurological Signs Y / N since (date)		
Primary Rx					
Adjuvant Rx 1 2 3			Walking Status Normal Unsteady since (date) Not ambulant since (date)		
Previous Metastases Y / N N Define			Incontinence Urinary Y / N since (date) Faecal Y / N since (date)		
Current Staging			Sensory Level Y/N Define Since		
Osseous Mets Y / N N demonstrated by: Isotope scan -date / Not done Plain Radiographs -date / Not done Sites:-			Lowest MRC grade 0 1 2 3 4 5 Muscle Group(s) Since		
			MRI (whole spine) Yes / Not done Location Date Time		
Visceral Mets Y / N demonstrated by: CT Chest /Abdo -date / Not done CXR -date / Not done Liver US -date / Not done Sites:-					
Other relevant information					
Details of clinician responsible for ongoing care of the patient following surgery.					
Name:-			Contact Number:-		

Selly Oak (UHBFT)	0121 627 2485	0121 460 5800
Walsall Manor	01922 721172 ext 6876 or 7227	01922 656773

UNDIAGNOSED SPN/SUSPECTED LUNG CANCER



2° LUNG NODULES



BIOPSY CONFIRMED 1° LUNG CANCER

