

Standard Operating Procedure

Referral for Surgical resection of proven or suspected primary lung cancer in Greater Manchester Cancer

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Referral for Surgical resection of proven or suspected primary lung cancer in Greater Manchester Cancer

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Refer to UHSM thoracic surgical team

Single point of referral:

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1. Objectives of this document

To optimise patient experience of the surgical referral pathway and surgical assessment process

To standardise the physiological work up of patients with suspected / proven lung cancer that is potentially operable across Greater Manchester

To standardise the staging pathway in patients with suspected/proven lung cancer that is potentially operable across Greater Manchester

To streamline the diagnostic work-up in line with the Optimal Greater Manchester Lung Cancer Pathway

To significantly reduce unjustifiable delay from first referral to surgery in patients with curative lung cancer

To increase the surgical resection rate across Greater Manchester and eliminate variation in surgical resection rate within the region through a standardised surgical assessment process and appropriate surgical intervention including carefully selected higher risk patients

To potentially improve survival in early stage lung cancer through rapid and efficient pathways

To ensure appropriate and equitable use of advanced physiological testing for all patients across Greater Manchester

To inform local pathways & agree regional guidelines to provide clear lines of responsibility that will assist cancer services and trusts in the management of patients

To provide clear lines of responsibility for the receiving trust in providing a responsive, equitable and high quality regional service

2. Background

Lung cancer is the single biggest cause of premature death in Greater Manchester. Surgical resection is the best treatment for early stage lung cancer and offers the best possible chance of long term cure. Improving the surgical resection rate in lung cancer is a key priority for Greater Manchester Cancer and will drive its ambitions to improve one year cancer survival to >75% by 2020 and preventing 1300 avoidable cancer deaths before 2021. However, an ageing population and the co-morbidities frequently present in patients with lung cancer can challenge a patient's ability to withstand thoracic surgery and rehabilitate to an adequate functional status post-operatively. For all patients with potentially resectable lung cancer, a robust and systematic physiological work-up is required to assess their suitability for surgery. This assessment compromises basic physiological testing that can be readily be performed in all hospital trusts and in selected cases more advanced physiological work-up, predominantly cardiopulmonary exercise testing, that is often limited to a smaller number of hospitals. The decision to operate in higher risk patients is made by a multi-disciplinary team comprising thoracic surgeons, thoracic anaesthetists and clinical oncologists (who provide the required information about alternative treatment strategies involving radiotherapy). In addition to the physiological work up, defining the suitability for surgical resection requires a systematic and robust staging pathway to exclude distant metastatic disease and define regional nodal status.

The Greater Manchester Cancer Lung Pathway Board has developed specific algorithms for the diagnostic work up of patients with suspected lung cancer that describe the required basic physiological testing and staging tests in different scenarios based on the initial CT scan appearances (Appendix 1). These algorithms and their relevance to surgical referrals can be summarised below:

Basic Physiology in all patients under consideration for surgery

- All patients require spirometry and diffusion capacity
- All patients require a basic functional assessment – either shuttle walk test or stair climbing test with oxygen saturations
- All patients require an cardiac examination and ECG
- Patients aged >70yr, or a history of IHD, or a murmur on examination, or an abnormal ECG or where there is the possibility of a pneumonectomy, all require an echocardiogram

Staging Tests in patients under consideration for surgery

- Where possible, pathological confirmation of lung cancer is recommended (either through nodal sampling or image-guide biopsy)

Staging Tests in patients under consideration for surgery

- All patients under consideration for surgery require FDG PET-CT
- Patients with enlarged (>10mm in short axis) or FDG avid hilar/mediastinal lymph nodes require a staging EBUS
- Patients with clinical stage III disease require contrast enhanced MR scan of brain

Why is a Staging EBUS needed for any enlarged / FDG avid lymph node?

There is no radiological modality that can accurately stage the mediastinum. Pathological confirmation is required if there is any nodal abnormality on CT or PET as positive predictive value is poor. The only circumstance when pathological nodal staging is not considered necessary is when CT and PET show no nodal abnormality at the hila or mediastinum. In such cases the negative predictive value for absent N2 disease is high (>95%) and therefore pathological sampling in all cases is not required. However, in cases of N1 disease (ipsilateral hilar nodal involvement) even when the mediastinum is normal on CT and PET the risk of occult N2 disease is 25%. In this instance, the identification of N2 disease does not preclude surgical resection but does allow consideration of the different treatment options (that also include chemoradiotherapy) and an opportunity for patients to know accurate staging, prognosis and meet the relevant treating teams when making treatment decisions.

Additional information is provided in Appendix 2: Review article on resectable N2 lung cancer written by Dr M Evison and the British Thoracic Society Lung Cancer Specialist Advisory Group

Why is image guided biopsy recommended prior to surgery?

The ideal scenario is to have pathological confirmation of lung cancer prior to embarking on a surgical approach. This is for a number of reasons:

- It can prevent surgery for benign lesions if a different pathology is identified on image-guided biopsy e.g. tuberculosis
- It can prevent the need for an intra-operative frozen section and the extra resource of theatre time, prolonged anaesthesia for the patient and pathological resource whilst the sample is analysed
- It can define the surgical approach (lobectomy versus sub-lobe resection). If a non-primary lung cancer or carcinoid tumour is identified pre-operatively it can define the type of surgical resection needed ensuring the best outcomes for the patient

It is clear there are times when pre-operative pathological confirmation is not possible, for example technical challenges or where the risks may outweigh these benefits, but where it is possible, pre-operative pathological confirmation is recommended

3. The Greater Manchester Cancer Structure & the need for a referral SOP

Greater Manchester has a population of approximately three million people and there are approximately 2500 new cases of lung cancer per year. Several surrounding areas also use the cancer services within Greater Manchester and include East and Mid-Cheshire. The University Hospital South Manchester is the sole Thoracic Surgery Unit for Greater Manchester and surrounding areas and performs approximately 450 lung cancer resections per year, one of the highest volume centres in the United Kingdom. Referrals for lung cancer resections are received from 10 NHS trusts around the region as well as from other cancer centres such as The Christie Hospital. For lung cancer, the hospitals of Greater Manchester work as sectors (North West, North East, Central and South Sectors). Patients in Greater Manchester often have tests performed at different hospitals during their diagnostic work up with 4 different staging EBUS centres, and three different PET-CT locations.

In order to have an efficient and productive surgical consultation at UHSM and an excellent patient experience for those travelling from around the region, the surgical team require a core set of information & source documents available at the moment of clinical review in order to progress patients care and make timely decisions. The addition of a new Complex Early Stage Lung Cancer MDT Clinic is being launched at UHSM from March 2018. This full day clinic will operate twice a week and provide a one-stop shop for advanced physiological testing (Cardiopulmonary Exercise Testing, CPET / CPEX) and prehabilitation services in the morning and an MDT clinic consisting of thoracic surgeons, anaesthetists and clinical oncologists in the afternoon. This process should allow

patients considered at higher risk from surgical resection to have advanced physiological testing, optimisation and specialist discussions in a single day and a treatment decision.

In order to optimise the patient pathway for surgical assessment for lung cancer in Greater Manchester this document sets out the standard operating procedure for surgical referrals in this region. It will set out what is required of referring teams (basic physiological work-up and staging) as well as the responsibilities of the surgical team or surgical/ clinical oncology team, as appropriate advanced physiological testing/rapid clinical review and listings for treatment).

The Greater Manchester Cancer Lung Pathway Board have developed treatment algorithms that define which patients are appropriate for the new complex MDT clinic using objective measures of physiology (Appendix 3). In order to appropriately list patients the service will require compliance with the minimum standards for referral described within this document by all referring teams.

4. Minimum requirements for referral to UHSM thoracic surgery for patients with suspected or proven primary lung cancer

All referrals to UHSM for assessment for surgical resection of primary lung cancer require the following information:

Diagnostic test results:

- ✓ Staging CT of the thorax and upper abdomen (source report)
- ✓ PET-CT (source report)
- ✓ Staging EBUS report and pathology results (source reports) – if applicable
- ✓ Image-guided lung biopsy report and pathology results (source reports)
 - if applicable
- ✓ Routine blood test results (source report: FBC/renal function/Liver Function Tests)
- ✓ Contrast-enhanced MR brain imaging if stage III lung cancer (source report)
 - if applicable

Physiological results

- ✓ Spirometry and DLCO (source report)
- ✓ Basic functional assessment (source report or described in referral letter).
- ✓ Echocardiogram (source report) – if applicable

Referral Letter (a suggested referral letter template has been provided in this document)

- Co-morbidities
- Performance status
- BMI
- Post-operative predicted lung function (*see appendix 4 for description of how to calculate post-operative lung function*)

There may be occasions when it is right and appropriate to seek a surgical opinion without the complete set of investigations suggested within this SOP. For example a patient might request a consultation without proceeding with detailed physiological assessment to provide information to help them decide whether to proceed with the formal assessment pathway. In these rare circumstances, please highlight this within the referral letter and contact the triage team to highlight this detail.

5. Suggested Referral Letter Template

A suggested referral letter template is provided below with suggested headings to cover all required information within this SOP.

Dear Thoracic Surgeons

(Named referral only in highly complex cases) to facilitate rapid pathway

(Every effort will be made to facilitate clinic review by the surgeons serving the MDT)

MDT agreed Staging:

Summary of Investigations

CT:

PET:

Staging EBUS: (if not performed, reasons why)

Image guided lung biopsy: (if not performed reasons why)

Physiology

Performance Status:

ppo-FEV1:

ppo-DLCO:

BMI:

Basic functional assessment (shuttle/stair climb): (if not performed, reason why)

ECG:

Echocardiogram (if applicable):

Co-morbidities:

MDT discussion: Including what consideration to the type of surgery and extent of resection required was discussed

Referral details / free text:

6. Standard Operating Procedure Algorithms

Referral for Surgical resection of proven or suspected primary lung cancer in Greater Manchester

Suspected lung cancer that may be amenable & appropriate for surgical resection



Diagnostic work-up as per GM Cancer Algorithms

Ensure:

Spirometry and diffusion capacity in all patients

Shuttle walk / stair climb in all patients

Echo if >70, IHD, murmur, abnormal ECG or ?pneumonectomy

PET-CT in all patients

Staging EBUS if any enlarged or FDG avid hilar/mediastinal lymph nodes

Pathological confirmation of lung cancer where possible



Following all of the above

- ✓ suspected or proven lung cancer that may be amenable & appropriate for surgical resection

Refer to UHSM thoracic surgical team

Single point of referral:

Email: smu-tr.rapidlungurgery@nhs.net

Fax: 0161 291 2919



Referral Checklist:

- ✓ Staging CT of the thorax and upper abdomen (source report)
- ✓ PET-CT (source report)
- ✓ Staging EBUS report and pathology results (source reports) – if applicable
- ✓ Image-guided lung biopsy report and pathology results (source reports) – if applicable
- ✓ Lung Function (source report)
- ✓ Basic functional assessment (source report or described in referral letter)
- ✓ Echocardiogram (source report) – if applicable
- ✓ Routine blood tests – FBC,U&Es, LFTs (Source report)
- ✓ Referral letter – including performance status, post-operative lung function, BMI, ECG result

Please include an nhs.net email in the referral to allow timely correspondence from the UHSM team

Triage of Surgical referrals of proven or suspected primary lung cancer in Greater Manchester

Referral received by surgical navigators at UHSM

Checklist reviewed to ensure all appropriate information received:

- ✓ **Staging CT of the thorax and upper abdomen (source report)**
- ✓ **PET-CT (source report)**
- ✓ **Staging EBUS report and pathology results (source reports) - if applicable**
- ✓ **Image-guided lung biopsy report and pathology results (source reports) - if applicable**
- ✓ **Lung Function (source report)**
- ✓ **Basic functional assessment (source report or described in referral letter)**
- ✓ **Echocardiogram (source report) - if applicable**
- ✓ **Referral letter - including performance status, post-operative lung function, BMI, ECG result**

If all information required is present - CARP accepted

If information is missing (and in the absence of clear reasoning why these tests are not able to be performed or are not required described within the referral letter) - CARP will be adjusted and only accepted using a date following the completion of any required additional tests or receipt of source documents. UHSM will facilitate expedited investigations and co-ordinate surgical assessment in a single visit, where possible. Wherever possible, any required additional tests will not delay surgical assessment >5 days.



Once all information received and CARP accepted the patient will be listed for the appropriate clinic

Patients with ANY of the following physiological parameters will be listed for the Complex Early Stage Lung Cancer MDT clinic (including same day CPET and prehabilitation):

- PS ≥2
- Age ≥80yrs
- Abnormal echocardiogram: moderate LV/RV dysfunction or moderate valve disease
- ppo-FEV1 ≤40%
- ppo-DLCO ≤40%
- BMI <20
- Shuttle walk <400m OR Stair climbing test <2 flights
- Possibility of pneumonectomy required

Patients with none of these physiological parameters will be listed for a standard surgical clinic assessment

If patients do not proceed with surgery and require radiotherapy, a referral and CARP will be made immediately following this treatment decision.

7. Quality Standards for the referral pathway

It is important that this referral pathway is monitored for performance on a regular basis. Quality standards can be separated to those expected of the referring team and those expected by the receiving team. The following quality standards are in line with the standards set out in the Greater Manchester Optimal Lung Cancer Pathway.

Quality standards for referring teams

- All patients referred for surgical assessment have undergone spirometry and diffusion capacity
- All patients referred for surgical assessment have undergone a basic functional assessment with a shuttle walk test or stair climbing assessment unless there are reasons preventing this assessment (e.g. severe arthritis) and these reasons are documented within the referral
- All patients referred for surgical assessment have undergone a cardiac examination and ECG
- All patients aged >70yr, with IHD, with a murmur or an abnormal ECG have undergone an echocardiogram
- All patients with enlarged or FDG avid hilar/mediastinal lymph nodes have undergone a staging EBUS
- All patients have had pathological confirmation from either lymph nodes or image guided lung biopsy where the sector MDT has deemed it feasible or reasons why a biopsy has not been performed is documented within the referral
- All referrals contain the required source documents in line with the standard operating procedure

Quality standards for receiving team - UHSM thoracic surgery

- Referring teams and patients will be contacted with their appointment time and date within 1 working day of UHSM receiving a referral. If any source documents are missing or additional tests required, the patient will be informed of next steps, and offered an appointment as soon as the referral is complete. Once complete, the CARP will be accepted.
- Patients will be seen within 5 days of a complete referral being received/CARP accepted
- Referring teams will receive clinic letters within 1 working day of the clinic encounter via NHS.net email
- Those patients accepted for surgery will undergo their operation within a maximum of 14 days of assessment. Referring teams and GPs will receive a discharge and treatment summary post-operatively within 7 working days of discharge via email

Quality standards targets:

50% compliance 2018 agree as long as the Multidisciplinary clinic is operational which will be key in facilitating timely decisions in fully worked up patients

75% compliance 2019

85% compliance 2020

Performance against these standards will be monitored on a quarterly basis and published through the Greater Manchester Cancer Lung Pathway Board

Quality standards audit Process:

A dedicated data manager will be recruited as UHSM as part of the Complex Early Stage Lung Cancer MDT clinic business case. Data will be recorded prospectively at the point of referral through nurse led triage and through the patient journey. Performance will be analysed against the quality standards described above and published through the Pathway Board.

8. Summary

This document sets out standards for patients with proven or suspected lung cancer being referred for surgical assessment in Greater Manchester. These standards are designed to deliver an efficient pathway, minimising unnecessary travel and optimising the patient experience and should help deliver the Greater Manchester Optimal Lung Cancer Pathway. **This ambitious pathway describes a 14 day pathway from treatment decision to commencing treatment.**

Key points for referring teams:

- Ensure the facilities and infrastructure that provide spirometry, diffusion capacity, basic functional assessment (shuttle walk / stair climbing) and ECG as soon as possible within the diagnostic pathway.
- Ensure timely access to echocardiogram for those patients that meet the criteria set out in this document.
- Ensure the referral checklist is reviewed for all referrals to ensure compliance with minimum referral data set. This will facilitate a prompt assessment and decision re-surgical treatment. Consequently, CARPs will only be accepted once all required information is received in line with the standards set out in this document

Key points for receiving team:

- UHSM will take responsibility for the advanced physiological testing required in higher risk surgical candidates – predominantly CPET but also including perfusion scintigraphy and dobutamine stress echo when required.
- To ensure the resource and infrastructure to facilitate same-day triage of referrals, clinic listing, and communication in line with the quality standards set out in this document
- To ensure the launch and delivery of the Complex Early Stage Lung Cancer MDT clinic through appropriate business planning and resource investment.
- UHSM will facilitate any required tests not performed by the referring team at the time of referral to minimise delay and communicate effectively with the patient (in the absence of clear reasons for tests not being required, described within the referral letter). The referring team will also be notified. A CARP will be adjusted/accepted once all the required basic physiology and staging tests have been completed and results available in line with the standards set out in this document.

The Complex Early Stage Lung cancer MDT is planned for launch March 2018 in line with the launch of the Optimal Greater Manchester Lung Cancer Pathway. To achieve the standards set out in this document in heavily reliant on the successful delivery of this clinical service, the business case for which is currently in submission and under review.