

# Clinical Record Review Report



Royal College  
of Surgeons  
of England  
ADVANCING SURGICAL CARE

## Report on fifty eight clinical records relating to thoracic surgical service on behalf of Belfast Health and Social Care Trust

Report issued: 28 March 2022

A clinical record review on behalf of:

The Royal College of Surgeons of England

The Society for Cardiothoracic Surgery

Review team:

[REDACTED]

[REDACTED]

[REDACTED]

**PRIVATE AND CONFIDENTIAL**

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## 1. Introduction and background

On 28 April 2021, Mr Chris Hagan, Medical Director for Belfast Health and Social Care Trust ('the Trust') wrote to the Chair of the Invited Review Mechanism (IRM) to request an invited clinical record review of fifty-nine <sup>1</sup>patient case records pertaining to the thoracic surgical service. This followed from an Individual Invited Review undertaken by the Royal College of Surgeons of England ('the College') whereby it was recommended that the Trust should audit all patients that have had a wedge resection between April 2018 and March 2020. The Trust's audit identified that 130 patients had undergone a wedge resection, 58 were for primary lung cancer and the remaining for other metastatic lung lesions and hamartomas. <sup>2</sup>The Trust, therefore, requested an expert review of the 59 cases identified in the audit to determine any concerns around clinical practice and/or patient care and treatment.

This request was considered by the Chair of the RCS England IRM and a representative of the Society for Cardiothoracic Surgery and it was agreed that an invited clinical record review would take place.

A review team was appointed and an invited review of the cases was arranged. The clinical records for the 58 patients were provided by the Trust to the review team in June and July 2021.

The appendices to this report list the members of the review team and supplementary information provided to the review team. This clinical record review was carried out with the purpose of meeting the terms of reference outlined in section two, and drew conclusions from the information provided in relation to the clinical record review only.

The review team conclusions are based on the information provided to them, which are outlined in section three. The notes made by the clinical reviewers with regard to the individual cases are detailed in Appendix A. These represent their initial views on each case while looking at them individually and do not necessarily reflect their final conclusions. The conclusions section of this report contains the review team's views on the care provided to these patients, and recommendations based on these conclusions are outlined in section four.

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<sup>1</sup> The review request highlighted 59 cases; this was subsequently reduced to 58.

<sup>2</sup> The review team noted that of the 58 cases, there were 17 cases outside of remit of this review. This is covered at the Conclusions section of the report.

## 2. Terms of reference for the review

The following terms of reference for this review were agreed prior to the review being undertaken between the Royal College of Surgeons of England ('the College') and Belfast Health and Social Care Trust ('the Trust')

### Review

The review will involve a clinical record review of fifty eight cases identified as patients who had undergone wedge resection for primary lung cancer during the period April 2018 to March 2020 to determine the appropriateness of the procedure and identify, if necessary any patient who needs to be reassessed or offered further treatment.

### Terms of Reference

In conducting the review, the review team will consider the standard of care provided as demonstrated in the clinical records provided by the Trust including with specific reference to:

1. Clinical assessment including history taking, examination and diagnosis.
2. Investigations and imaging undertaken.
3. The treatment provided, including:
  - (i) Clinical decision-making;
  - (ii) Case-selection;
  - (iii) The potential effectiveness based on best available evidence and compatibility with other treatments the patient was receiving;
  - (iv) Perioperative care; pre-operative, intra-operative and post-operative (including discharge planning);
  - (v) Outcomes and any complications.
4. Team working including MDT working, consultation and communication with colleagues within the service and other relevant clinicians/colleagues.
5. Communication with the patient, their family/carers and GP, including patient consent and (where applicable):
  - (i) Pathway(s) of care;
  - (ii) Respecting the patient's right to seek a second opinion.

### Conclusions and recommendations

The review team will, where appropriate:

- Form conclusions as to the standard of care provided and whether there is a basis for concern in light of the findings of the review.

- Make recommendations for the consideration of the Medical Director of Belfast Health and Social Care Trust as to courses of action which may be taken to address any specific areas of concern which have been identified or otherwise improve patient care.

The above terms of reference were agreed by the College, the healthcare organisation and the review team on 4 June 2021.

## 3. Conclusions

The following conclusions are based on the information provided to the review team from the clinical records reviewed and any other supplementary information provided.

### 3.1. Introduction

The review team were tasked with reviewing 58 clinical records regarding patients who had undergone wedge resection during the period April 2018 to March 2020. The review team noted that of the 58 cases, there were 17 cases<sup>3</sup> outside of remit of this review because the majority involved a lobectomy procedure, or where a wedge excision was taken for metastasis, or a benign condition, which was a satisfactory standard of treatment. In those cases, the review team only provided a general overview of whether the treatment and care of the patient was acceptable at Appendix A of the report.

A wedge resection (or sublobar resection) procedure is most commonly used in early stage lung cancer or where the patient's comorbidity is such that the patient is unable to tolerate a more radical procedure, such as a lobectomy. In some cases a wedge resection can be used to diagnose lung cancer by taking a tissue sample from a lung lesion, or to detect other lung conditions such as tuberculosis. The tissue sample / lump may be sent for a frozen section analysis during surgery to guide the required operative strategy.

A wedge resection is considered the least invasive procedure compared to a lobectomy (which involves removing one lobe of the lung) or a pneumonectomy (which involves removing the whole lung). Due to the nature of the operation, which involves removing a small segment from the lung, recovery time also tends to be faster with a wedge resection than other more extensive procedures.

Although a wedge resection is considered the least invasive procedure, it is not always suitable if, for instance, the tumour mass is too large or the mass is in a region of the lung that cannot be easily removed by wedge resection.

A lobectomy is considered to have a lower rate of recurrence from lung cancer and has a favourable survival rate compared to patients undergoing a wedge resection, and for this reason it is still the most commonly performed surgical procedure for lung cancer patients in the UK.<sup>4</sup>

A wedge resection may be used to confirm a diagnosis with the option of a definitive procedure at a later date (e.g. a primary lung cancer) or to determine treatment without further surgery (multiple metastatic lesions e.g. bowel cancer). The peri-operative morbidity and mortality of larger resections (lobectomy or pneumonectomy) increases in elderly patients or those with underlying comorbidity (cardiorespiratory disease) and for this reason, a wedge resection may be a more appropriate operation than a lobectomy for this group of patients.

Before a patient undergoes any lung surgery, their health would need to be thoroughly assessed, including: previous medical history (including any existing comorbidities), a physical examination, blood tests and pulmonary function tests (PFTs).

PFTs can be broken into three standard tests:

- i. Spirometry which measures the amount of air exhaled over certain times.
- ii. Lung diffusion testing which is concerned with determining the amount of functioning lung available for the exchange of oxygen and carbon dioxide.

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<sup>3</sup> Cases A3, A6, A15, A18, A22, A23, A30, A31, A35, A36, A37, A39, A43, A45, A49, A53, A57

<sup>4</sup> LCSG R Ginsberg LV Rubinstein Ann Thor Surg 60 615-622 [1995]

iii. Lung plethysmography which determines lung volumes and airflow throughout the breathing cycle.

Spirometry is the typical test undertaken. It measures 'vital capacity' (VC), 'forced vital capacity' (FVC) which is the volume of air that can be forcibly exhaled after taking as deep a breath as possible and the 'forced expiratory volume in one second' (FEV1) which is the volume of air that can be forcibly exhaled during the first second of the forced exhalation. A FEV1/FVC ratio is then calculated to determine whether the lungs are 'normal' or showing an obstructive or restrictive pattern. Clinicians use the 'Global Initiative for Obstructive Lung Disease' (GOLD) criteria to assess issues of lung capacity (see Fig 1).

I: Mild COPD	<ul style="list-style-type: none"> <li>• <math>FEV_1/FVC &lt; 0.7</math></li> <li>• <math>FEV_1 \geq 80\%</math> predicted</li> </ul>	At this stage, the patient may not be aware that their lung function is abnormal.
II: Moderate COPD	<ul style="list-style-type: none"> <li>• <math>FEV_1/FVC &lt; 0.7</math></li> <li>• <math>50\% \leq FEV_1 &lt; 80\%</math> predicted</li> </ul>	Symptoms usually progress at this stage, with shortness of breath typically developing on exertion.
III: Severe COPD	<ul style="list-style-type: none"> <li>• <math>FEV_1/FVC &lt; 0.7</math></li> <li>• <math>30\% \leq FEV_1 &lt; 50\%</math> predicted</li> </ul>	Shortness of breath typically worsens at this stage and often limits patients' daily activities. Exacerbations are especially seen beginning at this stage.
IV: Very Severe COPD	<ul style="list-style-type: none"> <li>• <math>FEV_1/FVC &lt; 0.7</math></li> <li>• <math>FEV_1 &lt; 30\%</math> predicted <i>or</i> <math>FEV_1 &lt; 50\%</math> predicted plus chronic respiratory failure</li> </ul>	At this stage, quality of life is very appreciably impaired and exacerbations may be life-threatening.

Fig.1: Spirometry for Health Care Providers, GOLD.

The review team were provided information, which included clinical referral letters, PFTs, multidisciplinary team meetings, histopathology and/or histology and operation notes, to assist in their decision-making and conclusions.

### 3.2. Clinical assessment including history taking, examination and diagnosis, and

### 3.3. Investigations and imaging undertaken.

The review took into account both clinical assessment and investigations undertaken to determine if acceptable action had been taken for each patient record.

From the 41<sup>5</sup> patient clinical records reviewed, the review team concluded that there was acceptable clinical assessment (including history taking, examination and diagnosis) and investigations and imaging undertaken in 38 cases<sup>6</sup>. In considering acceptable clinical

<sup>5</sup> Cases A1, A2, A4, A5, A7, A8, A9, A10, A11, A12, A13, A14, A16, A17, A19, A20, A21, A24, A25, A26, A27, A28, A29, A32, A33, A34, A38, A40, A41, A42, A44, A46, A47, A48, A50, A51, A52, A54, A55, A56 & A58

<sup>6</sup> Cases A1, A2, A4, A5, A7, A8, A9, A10, A11, A12, A14, A16, A17, A19, A20, A21, A24, A25, A26, A27, A29, A33, A34, A38, A40, A41, A42, A44, A46, A47, A48, A50, A51, A52, A54, A55 & A58

assessment and investigations, the review team took into account clear history and examination of the patient, the risks explained to the patient and the timeliness of the assessment and investigations in line with the National Institute for Health and Care Excellence (NICE) standard guidelines<sup>7</sup> relevant at the time of the cases reviewed.

In case [REDACTED]

The review team were critical of the clinical assessment for cases **A28** and **A32**. In relation to **A28**,

### **3.4. The treatment provided, including:**

- (i) Clinical decision-making;*
- (ii) Case-selection;*
- (iii) The potential effectiveness based on best available evidence and compatibility with other treatments the patient was receiving;*
- (iv) Perioperative care; pre-operative, intra-operative and post-operative (including discharge planning);*
- (v) Outcomes and any complications.*

From the 41 patient records reviewed, the review team concluded that there was acceptable overall treatment (which included clinical decision-making, case selection, the effectiveness of the treatment, care of the patient pre-operatively, peri-operatively, intra-operatively and post-operatively and outcomes and complications) in 28 cases<sup>8</sup>. In those cases, the review team took into account sound decision-making, the histology and adequacy by way of node sampling together with the standard of the care to the patient at all stages of the care pathway when reaching their decision.

The review team found there was room for improvement in cases **A12**, **A17**, **A24**, **A26**, **A27**, **A33** and **A47**. The review team had some concerns with the clinical decision-making in those cases as the patients appeared suitable for a lobectomy or alternative treatment.

In **A12**, [REDACTED]

<sup>7</sup> 'Suspected cancer referral – the patient is seen within the national target for cancer referrals (2 weeks at the time of publication of this guideline); Very urgent – the patient is seen within 48 hours' - <https://pathways.nice.org.uk/pathways/suspected-cancer-recognition-and-referral/suspected-cancer-recognition-and-referral-site-or-type-of-cancer#content=view-node:nodes-lung-and-pleural-cancers> [2015]

<sup>8</sup> Cases A1, A2, A4, A5, A7, A8, A9, A11, A14, A16, A25, A29, A34, A38, A40, A41, A42, A44, A46, A48, A50, A51, A52, A54 & A55.



[REDACTED]

In cases A13, A19, A20, A21, A28 and A32 the review team found that the treatment was unacceptable. [REDACTED]

[REDACTED]

■ Chronic obstructive pulmonary disease

- <sup>10</sup> Forced vital capacity – measure the ability to inhale and exhale with lung disease.
- <sup>11</sup> Computerised tomography (also known as a CT scan) – X-rays creating detailed images of inside of the body.
- <sup>12</sup> 'Tumour, Node, Metastasis' staging for non-small cell lung cancer. 'Node' denotes if cancer has spread to the lymph nodes. N1 = the cancerous cells have spread to the lymph nodes in the area where the lung joins the hilum (airway).
- <sup>13</sup> The patient was over 80 years of age and had a previous medical history of respiratory tract infections, including pneumonia.
- <sup>14</sup> Positron emission tomography (PET) – imaging test by injecting a radioactive tracer into the veins and his can be picked up by PET as to how the organs and tissues are functioning.
- <sup>15</sup> Cardiopulmonary Exercise Testing (also referred to as a VO2 max test) - measures the amount of oxygen and amount of carbon dioxide produced in the body on exercise (usually a stationary bike).
- <sup>16</sup> Pain in thigh, calf, or buttocks when walking due to inadequate blood flow/circulation.
- <sup>17</sup> A multivariable model that estimates the risk that a pulmonary nodule on CT scan is lung cancer.

### 3.5. Team working including MDT<sup>18</sup> working, consultation and communication with colleagues within the service and other relevant clinicians/colleagues.

From the 41 patient records reviewed, the review team concluded that there was acceptable team working in 37 cases<sup>19</sup>. In those cases, the review team commended the good communication between the clinical teams and/or discussion at MDT in the treatment and care for each patient.

The review team considered that for case, **A12**, there could have been better team-working because there should have been greater clarity for proceeding with a wedge resection, as opposed to a lobectomy, particularly when there was known [REDACTED]

[REDACTED]

In cases **A28** and **A32**, the review team did not agree with the MDT discussions that had taken place regarding proceeding to a wedge resection which the review team had concluded was unacceptable treatment in both cases.

In case **A17**, it was unclear whether any MDT discussion or team working had occurred so the review team could not make a grading on this clinical record.

### 3.6. Communication with the patient, their family/carers and GP, including patient consent and (where applicable):

(i) *Pathway(s) of care;*

(ii) *Respecting the patient's right to seek a second opinion.*

It is important that the consultant in charge of the patient's care communicates effectively with the patient throughout the care pathway in line with the General Medical Council's 'Good Medical Practice' guidelines<sup>21</sup>. From the 41 patient records reviewed, the review team concluded that there was acceptable communication with the patient in 36 cases<sup>22</sup>. The review team considered that in the cases that were deemed acceptable, the patient had been provided the appropriate information to make an informed decision about their treatments and they had understood the risks and complications of the operation.

However, the review team considered that there was room for improvement in cases **A12**, **A13** and **A17**. In **A12** [REDACTED]

[REDACTED]

<sup>18</sup> Multidisciplinary Team.

<sup>19</sup> Cases A1, A2, A4, A5, A7, A8, A9, A10, A11, A13, A14, A16, A19, A20, A21, A24, A25, A26, A27, A29, A33, A34, A38, A40, A41, A42, A44, A46, A47, A48, A50, A51, A52, A54, A55, A56 & A58.

<sup>20</sup> Procedure to diagnose types of lung cancer.

<sup>21</sup> <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-medical-practice/domain-3---communication-partnership-and-teamwork#paragraph-31>

<sup>22</sup> Cases A1, A2, A4, A5, A7, A8, A9, A10, A11, A14, A16, A19, A20, A21, A24, A25, A26, A27, A29, A33, A34, A38, A40, A41, A42, A44, A46, A47, A48, A50, A51, A52, A54, A55, A56 & A58.

[REDACTED]

In cases **A28** and **A32**, the review team deemed the communication with the patient to be unacceptable.

[REDACTED]

[REDACTED]

## 4. Recommendations

### 4.1. Urgent recommendations to address patient safety risks

The recommendations below are considered to be highly important actions for the healthcare organisation to take to ensure patient safety is protected.

1. The review team identified inadequate clinical assessment in cases **A28** and **A32**, inadequate treatment in cases **A13**, **A19**, **A20**, **A21**, **A28** and **A32**, and poor team working and communication with the patient, their family/carers and GP in cases **A28** and **A32**. The Trust should therefore immediately undertake a thorough audit of **A13**, **A19**, **A20**, **A21**, **A28** and **A32** to assess whether the overall standard of patient care meets the British Thoracic Society (BTS) and NICE guidelines relevant at the time<sup>23</sup>, and if further action is required.
2. The Trust should share this report with each of the consultant surgeons involved with patient cases **A13**, **A19**, **A20**, **A21**, **A28** and **A32** and discuss with them its contents, in the context of their wider practice. The consultant surgeons should reflect on the contents of the report and consider how they can learn from it and develop their practice. The Trust should also share relevant information from this report with the other members of the cardiothoracic surgical team for learning and development.

### 4.2. Recommendations for service improvement

The following recommendations are considered important actions to be taken by the healthcare organisation to improve the service.

3. The Trust should audit the standard of clinical documentation to ensure there are contemporaneous and comprehensive notes of patient care at each stage of the surgical pathway.

### 4.3. Additional recommendations for consideration

The following recommendations are for the healthcare organisation to consider as part of future efforts to improve patient care.

4. Although not considered to be urgent follow up, the review team recommends specific clinical follow up on a six monthly basis with the patient in cases **A5**, **A7**, **A11**, **A12**, **A14**, **A17** and **A47**.

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<sup>23</sup> BTS Guidelines 2010 Thorax 65 Suppl III & NICE guidelines CG121 (April 2011).

## 5. Guidance for the healthcare organisation

### 5.1. Responsibilities in relation to this report

This report has been prepared by The Royal College of Surgeons of England and the Society for Cardiothoracic Surgery under the IRM for submission to the healthcare organisation which commissioned the invited review. It is an advisory document and it is for the healthcare organisation concerned to consider any conclusions and recommendations reached and to determine subsequent action.

It is also the responsibility of the healthcare organisation to review the content of this report and in the light of these contents take any action that is considered appropriate to protect patient safety and ensure that patients have received communication in line with the responsibilities set out in the Health and Social Care (Reform) Act (Northern Ireland) 2009.<sup>24</sup>

### 5.2. Further contact with the Royal College of Surgeons of England

Where recommendations have been made that relate to patient safety issues, the Royal College of Surgeons of England will follow up with the healthcare organisation to request confirmation that timely action has been taken to address these recommendations.

If further support is required the College may be able to facilitate this. Additionally, if it is considered that a further review would help to assess improvements that have been made the College's Invited Review service may be able to undertake this.

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<sup>24</sup> Health and Social Care (Reform) Act (Northern Ireland) 2009:  
<https://www.legislation.gov.uk/nia/2009/1/contents?msclid=27a3d90eac5511ecaa04663a30c9797a>

## Appendix A - Clinical record review notes

The following notes were made by the clinical reviewers with regard to the cases under review.

### Case A1

#### Description



#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team had difficulty locating the relevant information within the clinical records, but the outpatient letters were deemed to be good.

In conclusion, the review team considered that this was a complex case and the appropriate course of action was taken. The review team considered that clinical follow up with the patient was not required, other than the usual routine care of all patients with lung cancer treated surgically by the Trust.

### Case A2

#### Description



#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations and treatment were acceptable. The review team particularly noted that there was good team working throughout and that, although the possibility of benign disease was not fully explored, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case. The clinical records were also deemed clear and legible.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the usual routine care of all patients with lung cancer treated surgically by the Trust.

### Case A3

#### Description

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication including consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team particularly commended the quality and safety of clinical care provided to the patient. The review team noted that there was no adjuvant treatment required and there was a 90% chance of five year survival.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the usual routine care of all patients with lung cancer treated surgically by the Trust.

### Case A4

#### Description

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that the clinical assessment, investigations and treatment were generally acceptable. Although, in the review team's opinion it was arguable whether a lobectomy should have been performed. However, given that the tumour was small in size and the frozen section showed a low grade malignancy (just excised on paraffin margins), the review team considered that decision for a wedge resection was acceptable.

The review team also noted that team working including MDT working, was generally satisfactory as there was information provided of a discussion following the histology results, but there was an absence of MDT outcomes.

Consent and communication with the GP, the patient and/or the patient's family was good.

In conclusion, the review team considered that clinical follow up with the patient was not required.

## Case A5

### Description

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team particularly noted that this was a complex case and that the operating surgeon's decision to opt for the lobectomy was the right one. The review team also regarded the clinical records to be clear and legible.

The review team also noted that the oncologist had decided against adjuvant chemotherapy following the first operation on fitness grounds and that the decision-making was satisfactory. However, the review team recommended that the oncology team followed up with the patient if this had not already occurred.

## Case A6

### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>25</sup> Node (2) – cancer spread to the lymph nodes and it is either located at the centre of the chest (mediastinum) on the same side of the affected lung or under where the windpipe branches off to the lung.

<sup>26</sup> A gas transfer test – helps monitor lung function and diagnosis lungs conditions, e.g. pulmonary fibrosis or COPD. Test involves checking the transfer capacity and uptake of carbon monoxide (CO) of the lung.



Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations were acceptable in this case on the wedge part crossing the fissure, which was noted to have been excised with a 15mm margin. The review team noted some clinicians may consider the best approach to be a segmentectomy, but the age of the patient coupled with a fair TLCO would suggest a wedge was the correct procedure.

The review team considered that the treatment was acceptable, noting that the post-operative retention of urine and short lived respiratory failure was managed appropriately.

The review team also considered that team working including MDT working and consent and communication with the GP, the patient and/or the patient's family was satisfactory. The review team noted that there was a complete resection and node negative, and the patient was referred for adjuvant chemotherapy on the grounds of the tumour mass.

In conclusion, the review team did not recommend clinical follow up with the patient as the oncology team were undertaking this.

2

**Case A7**

Description

[REDACTED]

Comments

In the review team's opinion, from the clinical records provided, the patient appeared to be more suitable for a left upper lobectomy and considered that the decision for a thoracoscopic wedge resection was not ideal.

The review team noted that information contained within the clinical records outlined that the patient was considered not fit for a lobectomy and that this had been communicated to [REDACTED] in the preoperative outpatient clinic.

The review team found that there had been many discussions at MDT whether SABR was a better course of treatment for the patient, given [REDACTED] comorbidity and age.

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<sup>27</sup> Measures aerobic fitness (maximum amount of oxygen the body uses during exercise).

The review team considered that, on the whole, the clinical records were clear, albeit for an absence of the histology records to evaluate appropriateness of wedge resection or margins, nor information that follow-up by either the chest physician or the operating surgeon had taken place.

In conclusion, the review team considered that the decision to undertake the wedge resection was appropriate, but recommended that there is close clinical follow-up of the patient regarding the resection margin in the left upper lobe; monitoring of the lesion on the right is also required.

**Case A8**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working and the consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team particularly noted that the [REDACTED] abnormality was fully addressed before lung surgery and that the decision-making was sound throughout, including at the frozen section. Although there had been intraoperative difficulty with adhesions, these were overcome to secure the wedge resection and identify the pathology. The review team found there was good team working, especially with the endocrinologist, and consent obtained from the patient, included the possibility of going on to lobectomy if the frozen section had proven malignant.

The clinical records were also considered by the review team to be clear and legible.

The review team considered that the patient made a satisfactory recovery and the decision for a wedge resection had been entirely appropriate for this type of pathology. In conclusion, the review team's overall view was that clinical follow up with the patient was not required, other than the usual routine care of all patients treated surgically by the Trust.

<sup>28</sup> Video-assisted thoracic surgery – minimally invasive surgery of the chest.  
<sup>29</sup> A rare, benign tumour that has developed in the adrenal gland.  
<sup>30</sup> Amyloid proteins that can build up in the organs, such as the heart, kidney and liver.

**Case A9**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team particularly noted that the history of the case was well documented in respect of the timescale of the lesion, which had been followed for some time. The patient was described in the clinical records as being very concerned about [REDACTED] and the preoperative clinic letter detailed that the operating surgeon had explained to the patient that there was only a small chance of it being a tumour. The review team considered that the treatment of the patient had been good, including standard investigations. As the patient was a [REDACTED], the review team noted that [REDACTED] lung function was very good and that this would have allowed for lower lobectomy surgery had the frozen section been positive for a tumour.

In conclusion, the review team considered there was satisfactory management of the patient and no long term follow-up was required.

**Case A10**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, the consent and communication with the GP, the patient and/or the patient's family was acceptable.

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<sup>31</sup> Severe inflammation of the white part (sclera) of the eyeball.

<sup>32</sup> Rare lung condition causing inflammation and scarring in small airways and airsacs in the lungs.

However, the review team highlighted that this case was unusual in that the clinicians appeared to have missed that the patient had suffered [REDACTED] at the time of CT guided biopsy of the lesion which showed [REDACTED], and [REDACTED] had required some time to recover on the intensive care unit (ITU).

Although the review team regarded that the decision to down grade the procedure from a [REDACTED] to [REDACTED] plus wedge resection was the right one, the amount of infiltration of the apical segment of the lower lobe had not been stated, nor were there details of a clear margin (of the tumour) at histology outlined in the records.

The review team considered that there had been good team working and consideration of adjuvant chemotherapy given the size of the tumour, but this was decided against as the patient was not fit enough for the treatment. There was one CT scan after the surgery as part of postoperative surveillance. The review team noted that consent was also considered by to be clear and the risks quoted to the patient were realistic (e.g. the records outlined there was 8-12% for mortality should the patient have been put forward for [REDACTED]).

The review team concluded that it was reasonably straightforward from the clinical records to understand the patient's treatment pathway, but recommended that clinical follow up was required to ascertain if the referring physician at the hospital and/or the oncologist (responsible for deciding not to treat the patient with chemotherapy) had communicated this with the patient.

## Case A11

### Description

[REDACTED]

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the limited clinical records provided, that the patient's history was clear and [REDACTED] had been evaluated closely.

The review team noted that the patient had been diagnosed with [REDACTED] and viewed that [REDACTED] may have also benefitted from haematological opinion, although there was not an urgent need given the [REDACTED] had been static for the past five years.

The review team were critical that there was not a clear rationale given on the operation note as to why there was a switch to a wedge resection intraoperatively as, in the review team's view, the tumour appeared quite large for that type of procedure. In addition, the review team noted there had been 'periods' of single lung ventilation intraoperatively and hypothesised that single lung ventilation may not have been possible on the day of surgery, but there were no anaesthetic records to confirm this.

Whilst the patient's histology had been discussed at MDT, the review team could not find any communication from the clinician to the patient postoperatively to inform them of the limited resection. The review team considered that this may have been because the patient had spent some time in ITU in the early postoperative period.

Although there was limited information on this clinical record, the review team was confident that the quality and safety to the patient has not been compromised. Nevertheless, the review team recommended close clinical follow up of the patient given there was poor ventilation in one lung at the time of surgery.

**Case A12**

Description

[REDACTED]

Comments

The review team considered that, from the limited clinical records provided, there was not a clear rationale intraoperatively to go ahead with a wedge resection rather than a lobectomy, when there was known [REDACTED] from preoperative investigation by endobronchial ultrasound (EBUS)<sup>37</sup> and the working diagnosis of [REDACTED], suggesting that there would be tumour left within the residual lobe. Despite the patient's known comorbidities, the review team considered that his lung function was good enough to withstand a lobectomy.

The review team considered that there should also have been greater clarity about the wedge resection versus a lobectomy at MDT or team discussion. The review team were also unable to find information that the family had been informed why a wedge resection had been undertaken, as opposed to more complex surgery, but accepted that there may have sound reasons for proceeding with the wedge resection.

In addition, the review team commented that there was no anaesthetic chart to assess whether there were intraoperative ventilation difficulties during the operation which had led to a decision

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<sup>33</sup> Swelling of the thyroid gland causing a lump to form in the neck.  
<sup>34</sup> Continuous positive airway pressure machine – it is designed to blow air through a mask worn at night and helps to keep the airway open during sleep.  
<sup>35</sup> Diffusing Capacity of the Lungs for Carbon Monoxide – type of PFT, used to assess extent of carbon monoxide can be diffused from the air to bloodstream.  
<sup>36</sup> Slow growing tumour.  
<sup>37</sup> Procedure allowing doctor to see inside the lungs.

for a wedge resection. In the review team's view, whilst sympathetic to the theatre team's decision to proceed to a wedge resection, from an oncology point of view the surgery was unsound.

The review team, however, were satisfied with the examination and diagnosis, as there was a working diagnosis of [REDACTED] which is a more aggressive cancer. The review team viewed that, following the preoperative investigations, the [REDACTED] should have been sampled.

In conclusion, the review team considered that the patient required regular CT scanning because of a theoretical risk of tumour being left behind, given the [REDACTED] status.

**Case A13**

Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the intraoperative decision-making was unclear. The review team noted an absence of information as to why a pneumonectomy was not considered given the patient's age and comorbidities. The review team could not find any evidence of rationale for a left lower lobectomy and wedge resection, instead of a pneumonectomy having been discussed at the outpatient clinic or in any of the postoperative communication with the patient. As such, the review team considered that the treatment and communication with the patient was unacceptable. The review team also noted that the degree to which the tumour infiltration of the left upper lobe was unclear, but fair lung parenchymal margins had been obtained.

The review team did, however, find that team working and clinical assessment and investigations with the patient was acceptable. Notably, there was a clear plan discussed between clinicians for a pneumonectomy to resect the very large tumour which had a histological diagnosis before the surgery and there was information that the patient was referred for adjuvant chemotherapy post-surgery.

The review team recommended clinical follow up with the patient for a completion upper lobectomy as, in the review team's opinion, there was a higher than normal risk of recurrence given the size of the primary tumour and the wedge resection of it into the lingula.

## Case A14

### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment and team working including MDT working were acceptable. The review team particularly noted that there appeared to be appropriate recognition of the previous [REDACTED] and it had been anticipated that the surgery would be more awkward and require [REDACTED]. The review team also appreciated the difficulties of the operation which they considered to be challenging. Having taken into account adhesions from previous [REDACTED], the absence of fissures and initial Trucut frozen section being indeterminate, the review team considered the right approach had been taken for a wedge resection as opposed to a completion lobectomy.

In addition, the review team noted there had been a dispute between the operating surgeon and other clinicians regarding a recommendation for completion lobectomy; the operating surgeon did not appear to have been present at the postoperative MDT where this decision had been made. Nevertheless, the operating surgeon had discussed completion lobectomy with the patient. However, the patient had elected for a watch and wait policy rather than further surgery, given the difficulties of the procedure.

In conclusion, the review team considered that clinical follow up with the patient was required given the tight parenchymal<sup>39</sup> margins found.

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<sup>38</sup> Procedure in which sterile talc with saline is inserted in to the lining of the lung to cause a reaction and prevent fluid build-up.

<sup>39</sup> The portion of the lung involved in gas transfer.

**Case A15**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable and there was good care overall.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up required for patients post-surgery.

**Case A16**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication including consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team particularly noted that the clinical assessment was completely appropriate, given the suspicion of advanced disease was known preoperatively with CT scan and consultation with

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<sup>40</sup> Lung mass containing linear strands.



the patient and [redacted] family. The review team deemed the MDT discussions to be of a high standard and that there had been clear communication with the patient on pathways of care.

In conclusion, the review team considered that the overall management of patient's case was acceptable and further clinical follow up with the patient was not required given [redacted] was having [redacted] for the advanced disease.

**Case A17**

Description

[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations were acceptable. The review team were in agreement that, as the patient was suffering from comorbidities at the preoperative outpatient clinic, it was appropriate for the patient to undergo a wedge resection.

The patient was also noted to have [redacted] lung function on exercise testing; however, the review team were not concerned by this and noted that all the appropriate investigations had been completed and the patient and their family had agreed to the procedure. The review team also noted that the clinical records were clear and legible and that there were no major complications postoperatively; the patient having stayed in hospital for [redacted] to recover prior to discharge.

However, the review team considered that there was room for improvement in respect of the treatment and communication with clinical staff. In particular, the review team viewed that a lobectomy, albeit a high risk procedure given the tight margins, could have been explored with the patient. The review team also considered that discussion with other surgeons may be been appropriate in this regard, but were unable to determine from the documentation provided if any discussions at MDT or otherwise had occurred. The review team also had some concerns that, while the large tumour was removed, there was a lack of lymph node sampling of what the review team considered was potentially [redacted], an [redacted] and a relatively tight margin of 13 mm. The review team, however, noted that the operating surgeon was willing to have the patient re-referred in case of recurrence.

In conclusion, the review team considered that, given the potential risk of recurrence, clinical follow up with the patient might be required in 6 monthly intervals in the first instance.

<sup>41</sup> Above normal lung function outcomes.

**Case A18**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case and there was good care overall.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up required for patients having had surgery at this hospital.

**Case A19**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that whilst clinical assessment and investigations, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable, there was no clear rationale for wedge vs lobectomy, especially given diaphragmatic invasion, and margins positive for tumour which was unacceptable.

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<sup>42</sup> Benign tumour in the lung.

Despite the review team's concerns about the treatment being unacceptable, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

#### Case A20

##### Description

[REDACTED]

##### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, team working including MDT working, and communication including consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

However, the review team did not consider the treatment of the patient to be acceptable because given that there was presence of cancer at diagnostic wedge, this should have proceed to a wedge, frozen section at first operation rather than a lobectomy.

Despite the review team's concerns about the treatment being unacceptable, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

#### Case A21

##### Description

[REDACTED]

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<sup>43</sup> 'Krogh's constant'; Carbon monoxide transfer coefficient – value is an expression of the gas transfer ability per unit volume of lung.

<sup>44</sup> Stage of tumour.

There were no nodes were sampled or histology provided in the medical records.

#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, team working including MDT working, and communication including consent and communication with the GP, the patient and their family was acceptable in this case.

However, the review team did not consider the treatment of the patient to be acceptable because [REDACTED] should have had wedge, frozen section and lobectomy. In review team's opinion the patient was fit for a lobectomy.

As there was a positive margin, the review team considered that, [REDACTED] or close clinical follow up with the patient was required.

#### **Case A22**

#### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

#### Comments

The review team considered, from the clinical records provided that this was a difficult dissection and regarded that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team noted the final diagnosis that the [REDACTED] was [REDACTED] and as such the case was not relevant to this review.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up required for patients having had surgery at this hospital.

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<sup>45</sup> Deep x-ray therapy.

<sup>46</sup> Surgical procedure to treat heart disease, this involves a healthy artery or vein being grafted to bypass the blocked artery/vein.

<sup>47</sup> Irregular heartbeat.

## Case A23

### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the clinical records provided, that this was a difficult case. The review team regarded that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication including consent and communication with the GP, the patient and/or the patient's family was acceptable in this case.

The review team noted that the patient was treated with a lobectomy and as such this case was not relevant to this review.

The review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

## Case A24

### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the clinical records provided that clinical assessment and investigations, team working including MDT working and the communication with the GP, the patient and the patient's family, including consent, was acceptable in this case. However, the review team

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<sup>48</sup> Cardio-pulmonary exercise testing – measures the function of heart and lungs and shortness of breath on exercise.

<sup>49</sup> Anaerobic threshold – measures how much oxygen is delivered on exercise.

considered that there was room for improvement regarding the treatment as the PFTs and CPET were deemed sufficient for the patient to withstand a lobectomy rather than a wedge resection.

Despite the review team's concerns, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

#### Case A25

##### Description

[REDACTED]

##### Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, communication including consent with the GP, the patient and their family was acceptable in this case.

In conclusion, the review team considered that routine follow-up only of the patient was required.

#### Case A26

##### Description

[REDACTED]

##### Comments

The review team considered, from the clinical records provided that the clinical assessment, team working including MDT working and communication with the GP, the patient and their family was acceptable in this case.

However, the review team considered there was room for improvement regarding the treatment because no nodes were sampled at the time of surgery.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up required for patients having had surgery at this hospital.

### Case A27

#### Description

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations were acceptable, although there appeared to be a long period of time between pre-operative clinic and surgery which the review team presumed might be because the patient was unsure whether to go ahead with surgery. The review team also could not find any rationale for proceeding with a wedge resection, as opposed to wedge frozen section and lobectomy. In addition no nodes were sampled at the time of surgery

The review team did not have any concerns regarding team working and communication with the GP, the patient and their family was acceptable in this case.

The review team considered that clinical follow up with the patient was not required, other than standard follow up post-surgery.

### Case A28

#### Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, the patient should have been considered for wedge, frozen section at first operation, notwithstanding the pre-operative concerns that this may not have been technically possible. In the review team's opinion, this would have prevented the need for a second operation. The review team therefore concluded that the overall management of this cases was unacceptable.

Despite the review team's concerns about the treatment being unacceptable, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

**Case A29**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and patient's family and/or carer were acceptable in this case.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up required for patients having had surgery at this hospital.

**Case A30**

Description

[REDACTED]

<sup>50</sup> Standard uptake value (SUV) – response of cancer to treatments.



[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication including consent and communication with the GP, the patient and the patient's family was acceptable in this case.

The review team did not have any further comments as this case was not relevant to the terms of reference for this review.

**Case A31**

Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided that clinical assessment and investigations, team working including MDT working, consent and communication including consent and communication with the GP, the patient and the patient's family was acceptable in this case.

The review team considered that there was room for improvement in respect of the treatment, in particular noting that the nodal dissection in the context of what was shown to be a [REDACTED] [REDACTED] could have been better. The review team therefore considered that the mediastinum may not have been fully staged.

The clinical notes were clear and legible.

The review team did not have any further comment on this case as it involved a middle lobectomy of the right middle lobe and wedge resection of right upper lobe for two separate lesions which was not considered to be relevant to this review.

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<sup>51</sup> TNM staging (1-4), T4 can have different meanings, such as the tumour is bigger than 7cm, it is in more than one lobe in the lung, or has spread to other structures in the body (such as the diaphragm).

### Case A32

#### Description

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that there was no reason given for not carrying out a lobectomy despite the diagnosis of cancer on frozen section. The review team considered that that the overall management of the patient's case was unacceptable.

Despite the review team's concerns about the treatment being unacceptable, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

### Case A33

#### Description

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, team working including MDT working, and communication with the GP, the patient, the patient's family was acceptable in this case.

The review team considered that, although a wedge resection was appropriate, there was room for improvement in respect of treatment because no nodes were sampled at the time of surgery

In conclusion despite the review team's concerns, the review team did not consider that clinical follow up with the patient was required other than the usual follow up post-surgery.

## Case A34

### Description

[REDACTED]

[REDACTED]

### Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, communication (including consent) with the GP, the patient and their family was acceptable in this case.

In conclusion, the review team considered that clinical follow up with the patient was not required.

## Case A35

### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### Comments

Although the review team considered this case to be outside the remit of the review, the review team noted, from the clinical records provided, that the clinical assessment and investigations, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case. In particular, the review team noted that there was a good history covering relevant issues for someone being considered for lung resection. The patient was examined and the diagnosis had been established, and [REDACTED] had been informed in good time prior to admission for surgery. In the review team's opinion, this type of patient could have also been considered for EBUS, but the fact that [REDACTED] was on [REDACTED] may have precluded this.

The review team considered that there was room for improvement in respect of treatment required, mainly because there was no lymph node sampling at operation. The review team regarded that overall the decision to operate was sound and this had been discussed with the patient.

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<sup>52</sup> WHO performance score classification: <https://www.nice.org.uk/guidance/ta121/chapter/appendix-c-who-performance-status-classification>

The patient was offered a middle lobectomy and wedge excision of the upper lobe. This patient was fit enough for a bilobectomy on lung function alone, but it was reasonable to formally conduct a lobectomy with a wedge resection given [REDACTED] on that side and the difficult dissection. However, the review team questioned why the surgeon did not perform adequate lymph node sampling given that the patient had PET activity in the [REDACTED] and had not had an EBUS pre-operatively. The review team viewed that this would have given more accurate staging and would have directed the post-operative management of the patient.

The operating surgeon appeared able to selectively ligate the vessels to the middle lobe so should have been able to sample the lymph node stations in the mediastinum (as per the British Thoracic Society (BTS) guidelines<sup>53</sup>). The review team were concerned that there was inadequate lymph node sampling, which is an essential to accurately stage for cancer, and a lack of documentation why this was not performed. The review team regarded that this is within the capability of all UK thoracic surgeons and a failure to sample lymph nodes, unless there is a good reason (i.e. technical difficulty, unstable patient), would demonstrate a lack of competence.

In light of the above, the review team considered that clinical follow up with the patient was required as there is an increased risk of local recurrence.

### Case A36

#### Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

#### Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP and the patient and their family, and the clinical records was acceptable in this case. In particular, the review team outlined that there was good history and examination, and diagnosis had been established prior to referral. The review team considered that the investigations were appropriate and performed in a timely fashion, with a timeline between diagnosis and surgery. Specialised testing in a marginal patient was also considered by the review team to be appropriate.

The review team considered that the surgery was appropriate and the decision to attempt parenchymal preserving surgery was in the best interests of the patient. The pre-operative, peri-operative and post-operative care was appropriate. Team working and communication with the patient and their GP, including information on associated risks involved, was also appropriate.

The hilar lymph nodes were sampled in accordance with the BTS guidelines. There was a prolonged [REDACTED] that was well managed and had resolved on outpatient review.

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<sup>53</sup> Guidelines on the Radical Management of Patients with Lung Cancer (BTS and SCTS), Thorax, October 2010, Vol 65, Issue Suppl III

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up expected following surgery.

**Case A37**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family and the record-keeping was acceptable in this case. In particular, the review team regarded that there was a good history, assessment and diagnosis attempted at biopsy. The subsequent investigations were also considered to be appropriate and undertaken in an acceptable timeframe.

In respect of the treatment, the review team commented that the patient appeared to be fit on exercise and could have therefore tolerated a VATS procedure. Therefore the decision to request a frozen section was appropriate and the result was acted on appropriately and no further lung resection was undertaken. This was the correct course of action and the best outcome for this patient.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up post-surgery.

**Case A38**

Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided that clinical assessment and investigations, treatment, team working including MDT working, consent and communication including consent and communication with the GP, the patient and the patient's family was acceptable in this case.

The review team particularly noted that the time from suspicion of lung tumour at the MDT to admission for lung surgery was appropriate.

The review team also noted that all investigations and imaging were undertaken in a thorough and timely fashion. The decision to perform a biopsy and await formal histology was clinically sound and in the best interests of the patient. Therefore, the review team viewed there was acceptable care of the patient overall.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard follow up post-surgery.

**Case A39**

Description

[REDACTED]

Comments

The review team did not comment further as this was a lobectomy and therefore not relevant to the terms of reference for this review.

**Case A40**

Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case.

The review team particularly noted that, although a needle biopsy was not attempted, there was enough concern from MDT to consider a surgical biopsy. All investigations and radiology performed appropriately and within an acceptable timeframe. The clinical decision-making was also sound.

In the review team's view, the surgeon was experienced enough to resect the area of concern, despite not being able to palpate the lesion. The review team noted that that there was a lesion felt once the specimen had been removed. The correct course was followed as a frozen section could not be relied on in these circumstances. Therefore, the review team considered there were no issue with any aspects of the pre-, peri- and postoperative care. The clinical records were also considered to be clear.

In conclusion, the review team noted that clinical follow up with the patient was already in place which was appropriate.

**Case A41**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case. The review team particularly noted that the clinic letters were accurate and informative and the investigations and radiology were performed appropriately and within an acceptable time frame. The clinical decision making was also sound.

The review team considered this to be a rare tumour and would have been a difficult procedure. Although the review team were not provided with the pre-operative histology, the review team noted that the resection dictated by intra-operative frozen section. The recurrent tumour was completely removed. The review team therefore had no issue with any aspects of the pre-, peri- and postoperative care. In conclusion, the review team noted that clinical follow up with the patient was already in place which was appropriate.

**Case A42**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case. The review team particularly noted the clinical decision-making was sound and that the previous medical history of [REDACTED] would have raised the suspicion of a [REDACTED] rather than a primary lung tumour. Therefore, the wedge excision and awaiting the formal histology was the correct course of action.

In conclusion, the review team noted that clinical follow up with the patient was already in place which was appropriate.

**Case A43**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case. The review team particularly noted the history from MDM letter was both accurate and informative. The review team found the assessment by history and examination at clinic including predictive postoperative lung function to be 'excellent'. There also was a detailed discussion around risks and benefits of treatments and confirmation that the patient understood these. Therefore the review team were content with the pre,

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<sup>54</sup> N2 means that there is cancer in the lymph nodes.



peri- and postoperative care. In addition, investigations and radiology was performed appropriately and within an acceptable time frame. The review team also found the clinical decision making to be sound and based on current guidelines. The absence of pre-operative histology also warranted excision and frozen section prior to lobectomy. The formal histology confirmed that the lesion had been excised completely and there was adequate staging by lymph node sampling and good compliance with BTS guidelines for lymph node sampling.

The review team commented that there was 'exemplary care' of this patient and that clinical follow up was already in place for the patient which was appropriate.

**Case A44**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case.

In particular, the review team noted that the clinical decision making was sound and based on current guidelines. The review team considered that the absence of the pre-operative histology warranted excision and frozen section prior to lobectomy. The formal histology confirmed that the lesion had been excised completely and there was adequate staging by lymph node sampling in line with BTS guidelines. Therefore the review team were content with the pre-, peri- and the postoperative care and there was good team working and communication with the patient as evidence in the clinical letters. The clinical records were also considered to be very clear.

In conclusion, the review team noted that there was also clinical follow up in place with the patient which was appropriate.

**Case A45**

Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family and the record keeping was acceptable in this case.

In particular, the review team noted that the assessment and investigations from MDM letter were accurate and informative, and done in a timely manner. The findings were also reviewed by consultant at pre-operative clinic with informed discussion. Clinical decision making was sound. There had been two previous attempts at a biopsy for suspicion of widespread [REDACTED]. Therefore, the review team were content with the pre-, peri- and postoperative care. The review team also found the communication and team working to be of a good standard.

In conclusion, the review team did not recommend that clinical follow up with the patient was required as it was noted that plans were in place for the patient to be managed by a [REDACTED] team.

**Case A46**

Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family and record keeping was acceptable in this case.

The review team particularly noted that the assessment and investigations from the MDM letter were accurate and informative, and done in a timely manner. The findings were also reviewed by consultant at pre-operative clinic with informed discussion. The history was confirmed, the patient examined and informed discussion about risks were recorded. An exercise test was also requested. The review team found that all the investigations and radiology were performed appropriately and within an acceptable time frame. The clinical decision making was also sound. Therefore the review team were content with the pre-, peri- and postoperative care. There was also good team working and communication throughout.

In conclusion, the review team did not recommend that clinical follow up with the patient was required as it was noted that plans were in place for the patient to be managed by the referring team.

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<sup>55</sup> Evaluates COPD and the progression of the condition.

**Case A47**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case.

However, the review team considered that there was room for improvement in respect of the treatment. In the review team's opinion, the presence of tumour in the [REDACTED] made this a [REDACTED] and therefore the patient should have, at the very least, been discussed at the MDT for sign off prior to any further operative treatment.

The review team were also not provided a copy of the pathology records to ascertain if the lymph node sampling performed at the time of the lobectomy was adequate. The review team considered that that the treatment received would need to be justified on an individual basis – i.e. limited disease with only one site of metastatic spread and careful oncological management. Therefore, the review team recommended clinical follow up with the patient was required as it was not clear what action had been taken.

**Case A48**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case. The review team particularly noted that the assessment and investigations from the MDM letter were accurate and informative, and done in a timely manner. The review team also concluded that the clinical decision making was justified by finding a [REDACTED] at the time of the VATS biopsy; the patient was only ever fit for a limited resection. There was also good team working and communication throughout and the clinical records were very clear regarding the decision making and patient pathway.

In conclusion, the review team did not recommend that clinical follow up with the patient was required, other than the standard follow up required post-surgery.

Case A49

Description

[REDACTED]

[REDACTED]

Comments

Although the review team viewed this case to be outside the remit of the review, they considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP and patient's family were reasonable in this case. In particular, the review team noted that the team working was of a good standard and the more advanced nature of the histology was explained to the patient at the first postoperative visit.

The review team, however, commented that – although reasonable action was taken to treat the patient - it was not possible to say from the operation note or histology how infiltrated the apical segment was and whether, retrospectively, an apical segmentectomy of the lower lobe should have been carried out in conjunction with the standard middle lobectomy.

Nevertheless, the review team noted the clinical records were acceptable and that the patient was recovering well postoperatively and [REDACTED] had been sent for adjuvant chemotherapy.

In conclusion, the review team considered that clinical follow up with the patient was not required, apart from the standard follow-up by oncology after adjuvant chemotherapy.

**Case A50**

Description

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted that the assessment and investigations from the MDM letter were accurate and informative, and completed in a timely manner. The review team understood that the patient had been reviewed at pre-operative clinic and informed discussion about risk was recorded. The review team therefore considered that all investigations and radiology were performed appropriately and within an acceptable time frame. In addition, the review team highlighted the good team working with colleagues and communication with the patient, and that there was good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend clinical follow up with the patient, other than the standard follow up required post-surgery.

**Case A51**

Description

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted that the assessment and investigations from the MDM letter were accurate and informative, and completed in a timely manner. The review team therefore considered that all investigations and radiology were performed appropriately and within an acceptable time frame. In addition, the review team highlighted the good team working with colleagues, including a plan for ongoing care with the oncology team, and communication with the patient, referring physician and GP. There was good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend clinical follow up with the patient, other than the standard follow up required post-surgery.

**Case A52**

Description

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted that the assessment and investigations from the MDM letter were accurate and informative, and completed in a timely manner. There was good history, examination and assessment of the patient's fitness for operation.

The review team also viewed the clinical decision making to be sound and justified by finding on formal histology [REDACTED]

In addition, the review team highlighted the good team working with colleagues, including a plan for ongoing care with the oncology and the [REDACTED] teams, and communication with the patient, referring physician and GP which included clearly explaining that the tumour mass could be [REDACTED] [REDACTED] or [REDACTED] to the patient. There was also good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend clinical follow up with the patient, other than the standard follow up required post-surgery.

Case A53

Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted that the assessment and investigations from the MDT letter were accurate and informative, and completed in a timely manner. There was a good pre-operative assessment of the patient's fitness. The review team therefore considered that all investigations and radiology were performed appropriately and within an acceptable time frame.

The review team also found there was sound clinical decision-making, noting that the management of the patient altered in light of operative findings and in the best interests of the patient. There was also good lymph node sampling [REDACTED].

In addition, the review team highlighted the good team working with colleagues, including a plan for ongoing care with the oncology team, and communication with the patient, referring physician and GP. There was good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend clinical follow up with the patient, other than the standard follow up required post-surgery.

Case A54

Description

[REDACTED]

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted that the assessment and investigations from the MDT letter were accurate and informative, and completed in a timely manner. There was a good pre-operative assessment of the patient's fitness and explanation of treatment options and the reasoning behind a wedge excision (treatment and diagnosis) over SABR (no diagnosis). The review team therefore considered that all investigations and radiology were performed appropriately and within an acceptable time frame.

The review team also found there was sound clinical decision-making, noting that at operation the nodule was felt to be fibrous at the time of the wedge, but a decision was taken to await formal histology which was appropriate. The patient's case was discussed at MDT and the outcome was that there was no adjuvant treatment or further surgery required – just surveillance which was acceptable.

In addition, the review team highlighted good team working with colleagues, including a plan for ongoing care with the oncology team, and communication with the patient, referring physician and GP. There was good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend clinical follow up with the patient, other than the standard follow up required post-surgery.

**Case A55**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was acceptable in this case.

In particular, the review team noted the clinical records were clear and legible, outlining that there was a good note by the specialist registrar in the preoperative clinic which clearly summarised the patient's case and outlining that preoperatively there was a lack of histology despite the CT guided biopsy. The review team also noted that there was a clear intraoperative plan once the frozen section came back as a benign cause. The review team viewed that there may have been justification for further samples for TB culture taken at this stage, but considered that this did not detract from the treatment of the patient which was considered to be acceptable overall.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than the standard care expected and this would include referral to a physician to consider the role of anti-tuberculous therapy.



**Case A56**

Description

[REDACTED]

Comments

The review team considered, from the clinical records provided, that the treatment and team working (including MDT working) was acceptable. In particular, the review team considered that the operation was reasonable in terms of a wedge resection for quite a small lesion in the upper lobe and for potential metastasis from the original lesion in the lower lobe.

However, the review team considered that there was room for improvement in respect of clinical assessment and investigations because the plan for both lesions did not clearly outline mortality risks and complications to the patient. The review team were not provided consent information, but regarded that the paperwork likely exists.

In conclusion, the review team considered that clinical follow up with the patient was not required, other than a standard referral to an oncologist or physician especially as patient was at [REDACTED]

**Case A57**

Description

[REDACTED]

Comments

The review team did not comment further as this case was a lobectomy, not a wedge resection and therefore not relevant to the terms of reference for this review.

**Case A58**

Description

[REDACTED]

<sup>50</sup> Cancer staging – IIIB means separate tumours in two ipsilateral lobes

[REDACTED]

Comments

The review team considered, from the clinical records provided, that clinical assessment and investigations, treatment, team working including MDT working, consent and communication with the GP, the patient and their family was reasonable in this case. In particular, the review team noted there was good history, examination and assessment of the patient's fitness for operation, and investigations and radiology were performed in an acceptable timeframe.

The review team also found there was sound clinical decision-making, noting that at operation, the tumour was crossing the fissure and therefore a wedge excision was performed.

In addition, the review team highlighted good team working with colleagues, including a plan for ongoing care with the oncology team, and communication with the patient, referring physician and GP. There was good practice overall in the clinical care of the patient.

In conclusion, the review team did not recommend further clinical follow up with the patient, as the patient was being managed by the oncology team.

## Appendix B – Documents received during the review

The following items of documentation were provided to the review team before, during or after the review visit. It is requested that the healthcare organisation responsible for commissioning the review retains a copy of all items of documentation for its own records, and to be in a position to make it available on request and to comply with information access requests. Once the RCS England issues the report, it will not keep a copy of this information indefinitely.

Case	Documentation
A1	Inpatient notes; Discharge notes, Investigation notes, MDT notes, Operation notes, Outpatient letters
A2	Inpatient notes; Discharge notes; Investigation notes; MDT notes, Operation notes; Outpatient letters
A3	Inpatient notes; Discharge notes; Investigation notes; MDT notes; Operation notes, Outpatient letters; Pre-Op checklist; Major care pathway + consent form
A4	Inpatient notes; Discharge notes; Investigation notes; MDT notes, Operation notes, Outpatient letters; Pre-Op checklist; Endocrinology notes, Eye Casualty notes.
A5	Clinical letters + MDT discussion; Investigations; Pain Clinic letters; Inpatient notes; Discharge notes;
A6	Inpatient notes; Discharge notes; Investigation notes; MDT notes, Operation + anaesthetic notes; Outpatient letters; Pre-op notes
A7	Inpatient notes; Discharge notes; Investigation notes; MDT notes,; Outpatient letters
A8	Inpatient notes; Discharge notes; Investigation notes; MDT notes, Operating notes; Clinical letters; Endocrinology notes
A9	Inpatient notes; Discharge notes; Investigation notes; MDT notes; Operation notes, Pre-Op checks; Clinical letters
A10	Inpatient notes; Discharge notes; Investigation notes; MDT notes; Pre-Op checks; Clinical letters; Theatre OP
A11	Clinical letters; Discharge notes; Operation notes; Histology report; PFTs; Referral letter
A12	Clinical letters; Discharge notes; Operation notes; Histology report; PFTs; Referral letter
A13	Clinical letters; Discharge notes; PFTs; Histopathology report; Thoracic ops notes
A14	Clinical letters; Discharge notes; PFTs; Histopathology report; Thoracic ops notes

A15	Clinical letters; Discharge notes; Operation notes + care pathway; Respiratory notes; MDT notes; ENT; Investigations; Pre-op checklist; Inpatient notes
A16	Clinical letters; Discharge notes; PFTs; Histology report; Referral letter; Operation notes
A17	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; MDT notes; Histopathology report
A18	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report
A19	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report
A20	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report
A21	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histopathology report; MDT notes
A22	Clinical letters; Discharge notes; Operation notes; Referral letter; Histopathology report; MDT notes
A23	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histopathology report; MDT notes
A24	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report
A25	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report
A26	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histopathology report; MDT notes
A27	Clinical letters; Discharge notes; Thoracic operating notes; PFTs; Referral letter; Histopathology report; MDT notes
A28	Clinical letters; Discharge notes; Thoracic operating notes; PFTs; Referral letter; Histopathology report; MDT notes
A29	Clinical letters; Discharge notes; PFTs; Referral letter; Histology report; CT chest + PET scan; Operation note
A30	Clinical letters; Discharge notes; PFTs; Referral letter; Histology report; CT chest + PET scan; Operation note
A31	Clinical letters; Discharge notes; Referral letter; Histology report; PET scan + extracranial cerebrovascular assessment; Operation note
A32	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histology report

A33	Clinical letters; Discharge notes; Referral letter; Histopathology report; Thoracic operating note
A34	Clinical letters; Discharge notes; Referral letter; Histopathology report; Thoracic operating note; PFTs
A35	Clinical letters; Discharge notes; Referral letter; Histopathology report; Thoracic operating note; PFTs; MDT letter
A36	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs; MDT letter
A37	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs
A38	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs
A39	Clinical letters; Discharge notes; Referral letter; Histopathology report; Thoracic operating note
A40	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note; Respiratory letter + PFTs; Thoracic operating note
A41	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs
A42	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs
A43	Clinical letters; Discharge notes; Referral letter; Histology report; Operation note; PFTs
A44	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note; PFTs; Thoracic operating note
A45	Clinical letters; Discharge notes; Referral letter; Histopathology report; Thoracic operating note
A46	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note; PFTs
A47	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note
A48	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note
A49	Clinical letters; Discharge notes; Operation notes; Referral letter; Histopathology report
A50	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note
A51	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note

A52	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note; PFTs
A53	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note
A54	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note; PFTs; Thoracic operating note
A55	Clinical letters; Discharge notes; Operation notes; Referral letter; Histopathology report
A56	Clinical letters; Discharge notes; Operation notes; PFTs; Referral letter; Histopathology report
A57	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operating note
A58	Clinical letters; Discharge notes; Referral letter; Histopathology report; Operation note

**Appendix C – Royal College review team**

[Redacted]

The Royal College of Surgeons of England

[Redacted]

[Redacted]

The Society for Cardiothoracic Surgery

[Redacted]

[Redacted]

The Society for Cardiothoracic Surgery

[Redacted]