# Percutaneous Lung Biopsy – Safety and Diagnostic Adequacy.

**Descriptor:**

An audit of image – guided percutaneous lung biopsy to evaluate results in terms of sample adequacy for histological diagnosis and for safety.

**Background:**

Percutaneous lung biopsy is a procedure performed widely by Radiologists in the UK, usually using CT guidance, but sometimes using ultrasound or fluoroscopy. It is good practice for operators to regularly audit their practice with regard to diagnostic adequacy, accuracy and complication rates and guidelines have been prepared recently for this procedure [1].

## The Cycle

**The standard:**

• All patients should have a recent CT of the chest and upper abdomen before the procedure

• Patients should have full blood count, clotting (PT, APPT) checked pre-procedure and documented in the notes

• Patients should have recent spirometry (FEV <35% needs MDT review)

• All patients should have evidence of written consent documented in the notes (This should be undertaken by a responsible clinician, although evaluation of this aspect of the consent process is beyond the scope of the audit)

• Documentation of procedure itself should include:

   - mode of image guidance (CT,US,Fluoroscopy)

   - needle gauge

   - technique – core biopsy/FNAC

   - number of passes at time of procedure

   - number of operators and range in number of procedures performed

• Post-procedure – chest radiograph (or focal CT) should be performed 1 hour post procedure

• Diagnostic adequacy should be high and in line with published literature

• Complication rates should be low and in line with published literature

**Target:**

• 100% for each aspect of documentation and procedure

• Diagnostic adequacy – 90% of samples should be sufficient for histological diagnosis

• Sensitivity for malignancy 85-90% for lesions >2 cm

• False positive rate <1%

• Complication rates:

   - Pneumothorax < 20%

   - Pneumothorax needing drainage< 3%

   - Haemoptysis < 5%

   - Death < 0.15% (this is important to record, but numbers of patients included in the audit are unlikely to be sufficient for true representative data)

## Assess local practice

**Indicators:**

Each component of audit questionnaire to be completed.

**Data items to be collected:**

• Data to be collected over 1 calendar year

• Interrogate departmental database to collect a breakdown of all lung biopsies performed over the set time period

• Collect patient notes – review details of consent, clotting documentation, procedural details, details of post-procedural complications and post procedural imaging and correlate with final histology report

**Suggested number:**

A minimum of 20 cases per year operator is suggested. Further recommendations are included on this in the guidelines.

**Suggestions for change if target not met:**

The main issues will be:

   - Diagnostic yield

   - Complication rates

It is accepted that certain patients are at risk of complications e.g. (COPD). Patient selection and mode of image guidance is important.

Operators should review:

   - All aspects of their technique, including needle size/number of passes, core biopsy or FNAC and whether facility for cytology technician could be available

   - The number of cases they are performing a year – it is suggested that increasing number of cases may reduce complication rates

In extreme cases the possibility of further training at a specialist unit could be considered or smaller numbers of operators thereby performing more cases.

**Resources:**

Involves chest radiology lead, audit facilitator

Time for data collection, analysis and tabulation and writing report

**References:**

1. Manhire A, Charig M, Clelland C (et al). Guidelines for Radiologically Guided Lung Biopsy. British Thoracic Society Guidelines. Thorax 2003; 58: 920 – 936.

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