Pleural procedure policy (Adults)

1. Background

2. Proposals
   a) Pneumothorax
      i) Following trauma
      ii) In a ventilated patient
      iii) Within office hours and excluding patients in the A&E Department and ITU
      iv) Outside of office hours and excluding patients in the A&E Department and ITU
      v) Competence and training requirements
      vi) Insertion technique to be used in medicine
      vii) Emergency situation
      viii) Complex cases in HDU/ITU setting
      ix) Post chest drain management setting
   b) Pleural Effusion
      i) Bedside ultrasound scanning requirements
      ii) Diagnostic aspiration in new effusions
      iii) Medical patients
      iv) Trauma patients
      v) Management within office hours
      vi) Management out of office hours
      vii) Competence and training requirements
      viii) Insertion technique
      ix) Emergency situation
      x) When to contact radiology for support
      xi) Post chest drain management setting
Policy Scope
This policy is for all medical staff who have competencies in the insertion of chest drains and for medical and nursing staff who manage patients with chest drains.

Policy Aims
The aim of this policy is to ensure the safe insertion of chest drains across all sites and departments in NHS Lothian.

Roles and Responsibilities
Consultants and senior nursing staff are responsible for ensuring that the policy is implemented in their individual departments. It is the individual responsibility of all medical and nursing staff to ensure that they implement and comply with this policy.

The pan-Lothian pleural group will convene every six months to review all reported critical incidents involving chest drains. This will be in addition to the existing process for the investigation of critical incidents. The pleural group will meet annually to review and update this policy.

1. Background

a) Pleural procedures (especially intercostal drain insertion) performed in the investigation and management of pleural effusion and pneumothorax can cause significant harm and should only be performed by a competent practitioner.

A competent practitioner is a healthcare professional who:
• Has received theoretical education in thoracic anatomy, respiratory physiology, pleural disease and pleural techniques
• Has attended skills workshops, been trained in pleural procedures and undertaken simulated pleural procedures
• Has been appropriately supervised and subsequently signed off as competent (by a competent practitioner) in the performance of pleural procedures and has evidence (e.g., formative and summative DOPS) to prove this

In the case of procedures for pleural effusion a competent practitioner must also be trained in thoracic ultrasound to Royal College of Radiologists (RCR) Level 1(1) or Focused thoracic ultrasound standard(2)

b. When these procedures are undertaken as part of training there must be appropriate education beforehand and close supervision of the trainee by a competent practitioner during the procedure.

c. This protocol describes the process of managing a patient with suspected pleural effusion and/or pneumothorax both within and outside of normal working hours, and includes details of the technique to be used to insert a chest drain (appendix 1), as well the guidelines for the general management of pneumothorax and pleural effusion (appendices 2 and 3).

d. Any patient in whom a chest drain has been inserted should be cared for on a ward with nursing staff trained in the care of chest drains and under the care (which may be joint) of a cardiothoracic surgeon, anaesthetist or chest physician.

e. There is a degree of risk associated with pleural procedures but with strict adherence to these guidelines it is hoped the risk should be minimised.

f. ‘Outside of Office Hours’ (OOH) will differ depending on specialty and site but for the purpose of this policy refers to situations where the pleural procedure and post care management cannot be carried out within daytime staffing hours.
2. Proposals

a. Pneumothorax

i. Following Trauma the recognition of a possible pneumothorax (PTX) is an indication for the urgent involvement of a registrar in A&E or cardiothoracic surgery at the outset.

ii. In a ventilated patient the presence of a PTX is an indication for the urgent involvement of consultant staff clinically responsible for the patient in that area. All areas where patients are ventilated must be able to provide resident staff trained to ATLS standard, or who have received appropriate training from another department (e.g., respiratory, cardiothoracics, ITU) and have subsequent recorded evidence of competence under clinical supervision.

iii. Within office hours and excluding patients in the A&E Department and ITU, all patients with PTX of a size sufficient for consideration of drainage should be referred either to the cardiothoracic team:
   • Traumatic PTX and Haemothorax
or to the respiratory medicine team (all others) for an opinion and further management.

In the A&E Department and ITU, competent practitioners will undertake initial emergency management in accordance with guidelines prior to referral if required.

Where there is extensive bullous disease or where there is doubt about the presence of a PTX a radiological opinion should be sought. CT-guided ICD insertion is sometimes the only safe procedure.

iv. Outside of office hours and excluding patients in the A&E Department and ITU

Patients with PTX of a size sufficient for consideration of drainage should be discussed either with the consultant physician on-call, the on-call respiratory consultant or the on-call respiratory registrar

unless (a) the patient is severely compromised (e.g. tension pneumothorax which should be treated emergently), or (b) there is a history of recent trauma (discuss with A+E or cardiothoracics). This includes patients being treated at the WGH and SJH sites.

In the A&E Department and ITU, competent practitioners will undertake initial emergency management in accordance with guidelines prior to referral if required.

Where there is extensive bullous disease or where there is doubt about the presence of a PTX a radiological opinion should be sought. CT-guided ICD insertion is sometimes the only safe procedure.

v. Chest drains should not be inserted unless the operator has been trained and deemed competent in the procedure. Each Directorate will approach the issue of training and competence in a fashion that reflects their specialty.

In A&E operators will have received ATLS training and been deemed competent following supervised procedures.

In Cardiothoracics operators will have received training and supervision in theatre and on the cardiothoracic ward by competent practitioners.

In medicine the operator will have received training by the Respiratory Medicine pleural procedures team or the clinical skills mastery team and been deemed competent by his/her supervising consultant. Other Directorates will make their own arrangements but must ensure that training has been provided, and that the operator has been formally assessed as being competent in the procedure, before being allowed to practice independently.
vi. In Medicine the technique used will be the seldinger technique described on the intranet for pleural effusions/PTX. In medicine, the respiratory team will also insert chest drains using the blunt dissection technique.

vii. In an emergency situation On all sites the duty medical registrar, or on-call respiratory registrar should be summoned – depending on the availability of a competent practitioner. In an acute emergency where the medical registrar is not competent and where the respiratory registrar cannot attend promptly, the on-call ITU team should be called. For tension PTX, a venflon should be inserted anteriorly in the 2nd intercostal space in the mid-clavicular line. This will give time for appropriately qualified staff to arrive, and where this is delayed, a blood giving set can be used to fashion an underwater seal.

viii. For patients on HDU and ITU in whom the PTX is loculated, or is failing to expand after insertion of a chest drain, the on-call radiologist may be contacted for consideration of a CT scan to localise the PTX and assist with drain placement.

ix. Following tube insertion the patient must be cared for in a facility where there are nursing staff trained to manage a chest drain. This includes the respiratory medicine wards, cardiothoracic wards, ITU, Neuro HDU, HDU, the acute receiving unit, combined assessment unit, Oncology and the A&E Department.

b. Pleural effusions

i. No pleural procedures should be performed for pleural effusion unless a bed-side USS of the thorax has been performed or supervised by a level 1 USS trained practitioner or a practitioner trained in focused ultrasound for pleural procedures.

ii. For all patients with a new pleural effusion a diagnostic tap or therapeutic aspiration of the fluid must be undertaken prior to proceeding to insertion of a chest drain.

iii. In medical patients it must be noted at the outset that pleural effusions usually take a long time to develop and that there is seldom urgency for these to be drained without time to obtain a specialist opinion from the respiratory medicine team.

iv. Following trauma the situation is completely different and the recognition of a possible effusion/haemothorax in this context is an indicator for the urgent involvement of a registrar in A&E or cardiothoracic surgery at the outset.

v. Within office hours Patients who can be ambulated should be referred to the respiratory registrar or consultant on-call who will either arrange therapeutic/diagnostic aspiration and ongoing outpatient follow-up or will arrange review at pleural clinic.

Patients requiring admission with a pleural effusion of a size sufficient for consideration of drainage should be discussed with the respiratory medicine team or the cardiothoracic team (according to indications described above).

This excludes: 1. patients with known malignant effusion who should be discussed with the relevant consultant oncologist for guidance with regard to the need for a pleural procedure. 2. patients with traumatic haemothorax in the A&E Department.

vi. Outside of office hours, there is virtually never a good indication for tube drainage of a pleural effusion. Ambulant, minimally symptomatic patients can be referred to the pleural service by contacting the on-call respiratory registrar at RIE by emailing pleuralservice.wgh@nhslothian.scot.uk at WGH or by contacting the on-call respiratory consultant at SJH. They will be booked for a diagnostic/therapeutic procedure within 1 week. Where a competent practitioner is available more symptomatic patients can be managed by therapeutic thoracocentesis. In the exceptional event that a drain is considered necessary, the case should be discussed with the consultant physician on call (medical patients),
respiratory registrar on-call or the cardiothoracic registrar (surgical patients) unless there is a
history of recent trauma. The exceptions to this would be (a) complicated parapneumonic
effusion (Empyema), which requires drainage within 24 hours. Out of hours tube drainage
must only be performed by competent personnel. At weekends this should be undertaken
during daylight hours if possible.

vii. A chest drain should not be inserted unless the operator has been trained and
deemed competent in the procedure. Each Directorate will approach the issue of training and
competence in a fashion that reflects their specialty.

In A&E operators will have received ATLS training and been deemed competent following
supervised procedures.

In Cardiothoracics operators will have received training and supervision in theatre and on the
cardiothoracic ward by competent practitioners.

In medicine the operator will have received training by the Respiratory Medicine pleural
procedures team (led at RIE by John McCafferty, at WGH by Andrew Leitch and at SJH by
Anna Lithgow) or the clinical skills mastery team and been deemed competent by his/her
supervising consultant. Other Directorates will make their own arrangements but must ensure
that training has been provided, and that the operator has been formally assessed as being
competent in the procedure, before being allowed to practice independently.

viii. The technique used should be that recommended by the British Thoracic Society which
is described on the intranet (3).

ix. In an emergency situation either the duty medical registrar, on-call respiratory registrar
or duty cardiothoracic surgery registrar should be summoned - who will be competent
according to one of the above criteria.

x. Ultrasound or further radiological support will be valuable even for USS-trained
practitioners and the duty radiologist should be contacted in the following situations:

- If there is doubt about the USS/radiological appearance
- If the effusion is loculated
- If there is significant bullous lung disease

xi. Following tube insertion the patient must be cared for in a facility where there are
nursing staff trained to manage a chest drain. This includes the respiratory medicine wards,
cardiothoracic wards, ITU, Neuro HDU, HDU, the acute receiving unit, combined assessment
unit, Oncology and the A&E Department.

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its development. The NHS Lothian Mastery Skills Team provided the ICD insertion guidelines
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Reference List

