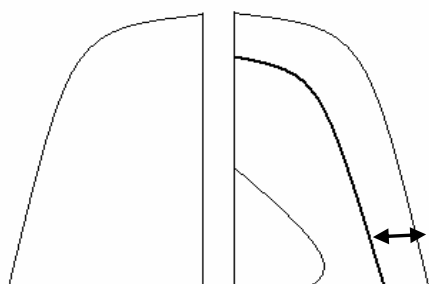
 <b>Musgrove Park Hospital</b>	<h2>Trust Guidelines</h2>
<b>Title: Management of Pneumothorax (Spontaneous &amp; Traumatic)</b>	
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<b>Ratified by:</b> Planned Care Division Governance Committee; Emergency & Urgent Care Divisional Governance Committee	<b>Active date:</b> 29/10/2009
<b>Ratification date:</b> 27/10/2009	<b>Review date:</b> 27/10/2011
<b>Applies to:</b> All adult patients	<b>Exclusions:</b> Children (i.e. those under 17)
<b>Purpose:</b> To standardise the care of adult patients with a pneumothorax	

### Key points

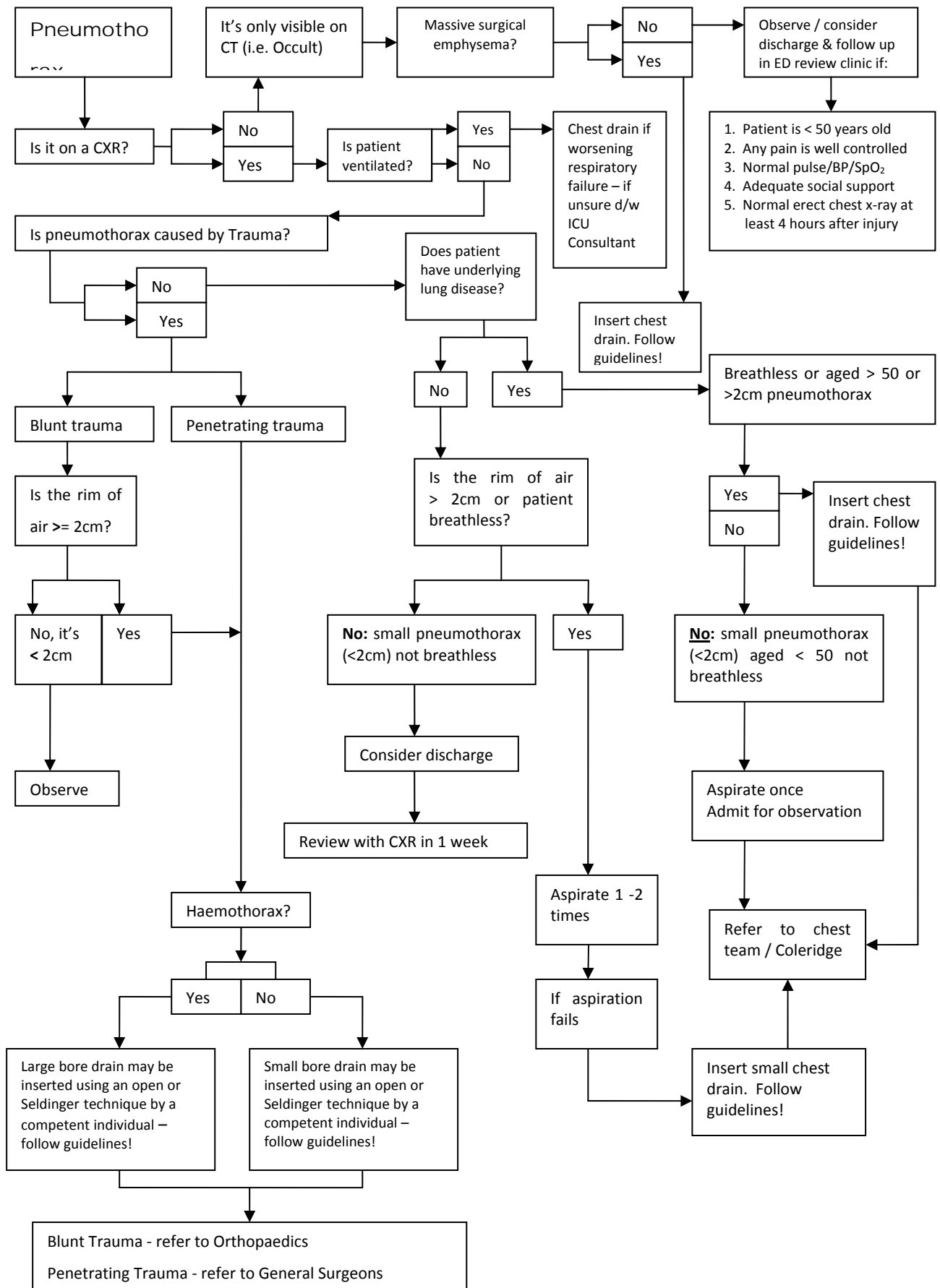
Is the rim of air more or less than 2 cm?



- Pneumothorax <2cm are usually <50% of the thorax by volume
- Pneumothorax >2cm are usually >50% of the thorax by volume

- These guidelines outline the management of patients with a pneumothorax spontaneous in nature or precipitated by trauma
- A quick reference flow chart can be found on page 2
- Not all pneumothoracies necessitate insertion of a chest drain but when a chest drain is required, it should be inserted in line with the Trust guidelines for chest drain insertion

**Flow chart for the management of spontaneous and traumatic pneumothorax – Oct 2009**



## **1.0 Introduction**

1.1 Small intrapleural collections of air or fluid are often asymptomatic. They are spontaneously absorbed and if they are noticed, they are generally managed conservatively.

Causes of pneumothorax are:

- Spontaneous
- Iatrogenic, such as central line insertion, surgery or positive pressure ventilation
- Trauma

## **2.0 Management of patients without underlying lung disease (i.e. primary spontaneous pneumothorax)**

2.1 Patients with a pneumothorax of > 2cm pneumothorax or breathless should be aspirated 1-2 times. A note should be made of the anaesthesia used; patient position; volume aspirated, complications/ failure

2.2 If aspiration fails, a small chest drain should be inserted and a referral to chest team / Coleridge ward should be made. On admission, smoking status, occupation, oxygen prescription (usually unlimited)% should be documented in the notes. Patients should be advised: no smoking; no flying for 6 weeks and no diving

2.3 If observing only, use oxygen to aid re-absorption (1.25% volume hemithorax/24 hours)

2.4 With a pneumothorax of < 2cm, patients who are not breathless should be considered for discharge and reviewed with CXR 1 week

## **3.0 Management of patients with underlying lung disease / iatrogenic (i.e secondary spontaneous pneumothorax)**

3.1 In patients who are aged over 50 years old and who are current or ex smokers, underlying lung disease is common

3.2 A chest drain should be inserted for patients who are breathless or aged > 50 or have a pneumothorax > 2cm. A note should be made of the anaesthesia used; patient position; volume aspirated, complications/ failure. Patients should be advised: no smoking; no flying for 6 weeks and no diving

- 3.3 For a small pneumothorax < 2cm in patients aged < 50 who are not breathless, one attempt should be made at aspiration; if this is unsuccessful a chest drain should be inserted and a referral made to the chest team / Coleridge ward. On admission, smoking status, occupation, oxygen prescription (usually unlimited)% should be documented in the notes
- 3.4 If observing only, use oxygen to aid re-absorption (1.25% volume hemithorax/24 hours)

#### **4.0 Management of a pneumothorax in a ventilated patient**

- 4.1 For some ventilated patients with a pneumothorax, the risks associated with insertion of a chest drain outweigh the benefits, particularly if it has been undiagnosed for a couple of days and the patient has not deteriorated.
- 4.2 A chest drain should be inserted in the event of worsening respiratory failure. Advice should be sought from the ICU Consultant if unsure.

#### **5.0 Traumatic Pneumothorax with other complications**

- 5.1 Patients requiring mechanical ventilation OR with ventilatory compromise (shortness of breath, increased respiratory rate, hypoxia etc) will require a chest drain
- 5.2 The following guidance applies to patients with an isolated pneumothorax, no ventilatory compromise and not requiring mechanical ventilation, following trauma (i.e. uncomplicated traumatic pneumothorax/haemothorax

#### **6.0 Occult pneumothorax**

- 6.1 Occult pneumothorax is a pneumothorax which has been detected incidentally on CT scan, or the presence of which has been inferred from surgical emphysema of the chest wall. Such patients will not have a pneumothorax visible on chest x-ray.
- Patients with massive surgical emphysema will require a chest drain
  - Other patients with occult pneumothorax do not require a chest drain
  - They should usually be admitted to hospital under the care of the Orthopaedic Surgeons for observation

6.2 They may be considered for discharge and follow up in the next ED review clinic if:

- they are <50 years old
- any pain is well controlled
- they have normal pulse/BP/SpO<sub>2</sub>
- they have adequate social support and
- they have had a normal erect chest x-ray at least 4 hours after their injury.

## **7.0 Pneumothorax / Haemothorax after Blunt Trauma**

7.1 For a pneumothorax visible on chest x-ray following a blunt chest injury:

- Obtain an erect CXR
- Measure the distance between the lung edge and the chest wall as described previously in this guideline
- If the rim is <2cm the patient does not require a chest drain and should be admitted under the Orthopaedic Surgeons for observation. Drainage should be undertaken if they become symptomatic or the pneumothorax enlarges.
- If the rim is  $\geq$ 2cm the patient will require a chest drain
- If a haemothorax is also visible on CXR, drainage should be with a large bore drain (eg: 28F) and an open technique, by a competent individual.
- If there is no haemothorax on erect CXR then a small bore drain may be inserted using an open or Seldinger technique by a competent individual
- These patients are admitted under the Orthopaedic Surgeons.

## **8.0 Pneumothorax / Haemothorax after Penetrating Injury**

8.1 This is associated with a higher rate of tension pneumothorax than that following blunt trauma. For patients with a visible pneumothorax on CXR following a penetrating injury:

- Obtain an erect CXR
- If there is no haemothorax on erect CXR then a small bore drain may be inserted using an open or Seldinger technique by a competent individual
- If a haemothorax is also visible on CXR, drainage should be with a large bore drain (eg: 28F) and an open technique, by a competent individual.
- Carefully assess the patient for cardiac, mediastinal and abdominal involvement. Have a low threshold for further imaging.
- These patients are admitted under the General Surgeons.