Pleural Procedures Clinical Guideline

V2.0

February 2019
1. **Aim/Purpose of this Guideline**

1.1. Pleural disease remains common and presents a significant contribution to patients attending the Emergency Department and Medical Admissions Unit. The inappropriate investigation and management of pleural disease is associated with significant mortality and morbidity.

1.2. This guideline on pleural procedures is based on recommendations from the British Thoracic Society Pleural Disease Guideline 2010. The purpose of this guideline is to assist in pleural procedures ensuring a prompt diagnosis and facilitating safe and effective treatment.

1.3. The areas covered are:
   - Management of a unilateral pleural effusion
   - Management of:
     - Primary spontaneous pneumothorax
     - Secondary spontaneous pneumothorax

2. **The Guidance**

2.1 **Management of a unilateral pleural effusion**

2.1.1 All patients should have a full clinical assessment and history. Bilateral effusions are most commonly due to heart failure and aspiration should not be performed unless there are atypical features or they fail to respond to diuretic therapy.

2.1.2 All patients should have a posteroanterior (PA) chest x-ray (CXR). Pleural aspiration should only be performed within normal working hours unless the patient is compromised. Bedside ultrasound should always be done before pleural aspiration to confirm the presence of the effusion and the site, to reduce the errors associated with blind aspiration. In some situations where the effusion is large and simple, an ultrasound can be performed to mark an appropriate position for aspiration later.

2.1.3 A diagnostic pleural fluid sample should be aspirated with a fine bore (21G) needle and a 50 ml syringe.

2.1.4 Therapeutic pleural aspiration should only be performed following discussion or review by a consultant or respiratory registrar. Pleural aspiration sets can be used but no more than 1.5 litres should be drained at any one time.

2.1.5 Where there is evidence of pleural infection (purulent or turbid/cloudy pleural fluid, presence of organisms identified on gram stain, pleural fluid pH <7.2 in patients with suspected pleural infection) a small bore chest drain 10-14F should be inserted by a trained clinician or radiologist under ultrasound guidance.
2.1.6 All patients requiring chest drain insertion should be under the care of a respiratory physician and transferred to Wellington or critical care as soon as possible.

2.2 Management of Pneumothorax

2.2.1 A full clinical assessment and history should be performed. Age, evidence of underlying lung disease and significant smoking history must be assessed in all patients.

2.2.2 A standard CXR in inspiration is required to diagnose a pneumothorax. However a CXR should not delay emergency needle decompression in patients with a tension pneumothorax.

2.2.3 Based on CXR findings, pneumothoraces should be divided into “large” where there is a visible rim of more than 2cms between the lung margin and the chest wall (at the level of the hilum) and “small”.

2.2.4 Supplemental oxygen should be given to keep SpO2 94-98% in patient without risk of hypercapnic respiratory failure and SpO2 88-92% to those who are at risk. In patients admitted for observation with a small, undrained, secondary pneumothorax and no risk factors for CO2 retention, high inspired oxygen concentration may hasten resolution.

2.2.5 Patients who are under 50 years of age, do not have a significant smoking history and have no evidence of underlying lung disease on clinical assessment or CXR should be managed as a primary spontaneous pneumothorax (PSP). All other patients should be managed as a secondary spontaneous pneumothorax (SSP).

2.2.6 Primary Spontaneous Pneumothorax

2.2.6.1 Patients with a small PSP who are asymptomatic may be considered for discharge and reviewed in OPD in 2 weeks.

2.2.6.2 Patients with a large PSP and/or who are breathless require aspiration. This should be done with needle (14-16G) aspiration in the triangle of safety. If needle aspiration fails, a small bore (<14F) chest drain should be inserted and attached to an underwater seal bottle All patients with a chest drain should be under the care of a respiratory physician and managed on Wellington or critical care, or transferred there as soon as possible.

2.2.7 Secondary Spontaneous Pneumothorax

All patients with a SSP should be admitted to hospital for at least 24 hours. Patients with a small SSP should be observed and treated with controlled supplemental oxygen therapy. Patients with a large SSP will need aspiration or chest drain insertion which may
require CT guidance. All patients should be discussed with a consultant respiratory physician.

2.3 References


3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Safety and effectiveness of pleural procedures</th>
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<tbody>
<tr>
<td>Lead</td>
<td>Respiratory Consultants</td>
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<tr>
<td>Tool</td>
<td>Patient outcome, British Thoracic Society Audits</td>
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<td>Frequency</td>
<td>Annual</td>
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<tr>
<td>Reporting arrangements</td>
<td>British Thoracic Society</td>
</tr>
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<td>Acting on recommendations and Lead(s)</td>
<td>Respiratory Department</td>
</tr>
<tr>
<td>Change in practice and lessons to be shared</td>
<td>Education of junior staff, disseminating audit results through Medicine and Emergency Department</td>
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4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Inclusion & Human Rights Policy' or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
## Appendix 1. Governance Information

<table>
<thead>
<tr>
<th>Document Title</th>
<th>Pleural Procedures Clinical Guideline V2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>January 2019</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>February 2019</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>February 2022</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Sarah Coutts, Respiratory Consultant</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872 252799</td>
</tr>
<tr>
<td>Brief summary of contents</td>
<td>The purpose of this guideline is to assist in pleural procedures ensuring a prompt diagnosis and facilitating safe and effective treatment. The areas covered are: Management of a unilateral pleural effusion Management of: • Primary spontaneous pneumothorax • Secondary spontaneous pneumothorax</td>
</tr>
<tr>
<td>Suggested Keywords:</td>
<td>Respiratory, Pleural, Pneumothorax</td>
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<tr>
<td>Target Audience</td>
<td>RCHT CFT KCCG</td>
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<tr>
<td>Executive Director responsible for Policy:</td>
<td>Medical Director</td>
</tr>
<tr>
<td>Date revised:</td>
<td>January 2019</td>
</tr>
<tr>
<td>This document replaces (exact title of previous version):</td>
<td>Clinical Guideline for Pleural Procedures V1.0</td>
</tr>
<tr>
<td>Approval route (names of committees)/consultation:</td>
<td>Respiratory Consultants, MAU consultants, Divisional Director, Thoracic Radiologists</td>
</tr>
<tr>
<td>Divisional Manager confirming approval processes</td>
<td>Anola Daniell</td>
</tr>
<tr>
<td>Name and Post Title of additional signatories</td>
<td>Not Required</td>
</tr>
</tbody>
</table>
**Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings**

Name: Jonathan Myers, Respiratory Consultant

**Signature of Executive Director giving approval**

{Original Copy Signed}

**Publication Location (refer to Policy on Policies – Approvals and Ratification):**

Internet & Intranet ✓ Intranet Only

**Document Library Folder/Sub Folder**

Clinical / Respiratory

**Links to key external standards**

None

**Related Documents:**

None

**Training Need Identified?**

No

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### Version Control Table

<table>
<thead>
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<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
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<tr>
<td>21 Jan 13</td>
<td>V1.0</td>
<td>Initial Issue</td>
<td>Meme Wijesinghe, Consultant Respiratory Medicine</td>
</tr>
<tr>
<td>01 Feb 19</td>
<td>V2.0</td>
<td>Full review; updated format; no change to content</td>
<td>Sarah Coulter Respiratory Consultant</td>
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**All or part of this document can be released under the Freedom of Information Act 2000**

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

**Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy for the Development and Management of Knowledge, Procedural and Web Documents (The Policy on Policies). It should not be altered in any way without the express permission of the author or their Line Manager.
## Appendix 2. Initial Equality Impact Assessment Form

### Name of Name of the strategy / policy / proposal / service function to be assessed

### Pleural Procedures Clinical Guideline V2.0

<table>
<thead>
<tr>
<th>Directorate and service area:</th>
<th>Is this a new or existing Policy?</th>
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<td>Specialist Medicine/Respiratory</td>
<td>Existing</td>
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### Name of individual completing assessment:

<table>
<thead>
<tr>
<th>Sarah Coulter, Respiratory Consultant</th>
<th>Telephone:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01872 253799</td>
</tr>
</tbody>
</table>

### 1. Policy Aim*

Who is the strategy / policy / proposal / service function aimed at?

The purpose of this guideline is to assist in pleural procedures ensuring a prompt diagnosis and facilitating safe and effective treatment.

### 2. Policy Objectives*

Safe and effective treatment

### 3. Policy – intended Outcomes*

As above

### 4. *How will you measure the outcome?*

See Section 3 of this guideline.

### 5. Who is intended to benefit from the policy?

Patients requiring pleural intervention

### 6a Who did you consult with

<table>
<thead>
<tr>
<th>Workforce</th>
<th>Patients</th>
<th>Local groups</th>
<th>External organisations</th>
<th>Other</th>
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<tr>
<td>X</td>
<td></td>
<td></td>
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</table>

Please record specific names of groups

| Respiratory Consultants |

### 7. The Impact

Please complete the following table. **If you are unsure/don’t know if there is a negative impact you need to repeat the consultation step.**
Are there concerns that the policy *could* have differential impact on:

<table>
<thead>
<tr>
<th>Equality Strands</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
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<tr>
<td>Age</td>
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<td></td>
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<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
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<td></td>
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<tr>
<td>Race / Ethnic communities / groups</td>
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<td>Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.</td>
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<tr>
<td>Religion / other beliefs</td>
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<td>Marriage and Civil partnership</td>
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<td>Pregnancy and maternity</td>
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<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
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</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:
- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation - this excludes any policies which have been identified as not requiring consultation. or
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended. | Yes | No | ✓ |

9. If you are not recommending a Full Impact assessment please explain why.

No adverse effect on any of the protected characteristics.

Signature of policy developer / lead manager / director
Sarah Coulter

Date of completion and submission
31/01/2019

Names and signatures of members carrying out the Screening Assessment
1. Sarah Coulter
2. Human Rights, Equality & Inclusion Lead
Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa,
Truro, Cornwall, TR1 3HD

This EIA will not be uploaded to the Trust website without the signature of the
Human Rights, Equality & Inclusion Lead.

A summary of the results will be published on the Trust’s web site.

Signed _Sarah Coulter_____
Date _____31/01/2019_____

Appendix 3. Management of Spontaneous Pneumothorax – Copyright © 2010, BMJ Publishing Group Ltd and the British Thoracic Society, used with permission

BTS Pleural Disease Guideline 2010
MANAGEMENT OF SPONTANEOUS PNEUMOTHORAX

Spontaneous Pneumothorax
If Bilateral/Haemodynamically unstable proceed to chest drain

Primary Pneumothorax

Size > 2cm and/or breathless

Aspirate 16–18G cannula Aspirate <2.5l

Success (< 2cm and breathing improved)

Consider discharge review in OPD in 2–4 weeks

* In some patients with a large pneumothorax but minimal symptoms conservative management may be appropriate

Secondary Pneumothorax

Age > 50 and significant smoking history Evidence of underlying lung disease on exam or CXR?

Size 1–2 cm

Aspirate 16–18G cannula Aspirate <2.5l

Success Size now <1cm

Admit

High flow oxygen (unless suspected oxygen sensitive) Observe for 24 hours

> 2 cm or breathless

Chest drain
Size 8–14Fr Admit

# Measure the interpleural distance at the level of the hilum