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Royal Cornwall Hospitals NHS Trust

Pleural Procedures Clinical Guideline

V3.0

June 2022

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

1.4. This version supersedes any previous versions of this document.

Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation

The Trust has a duty under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

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 using a rocket thoracentesis catheter – 6Fg should only be performed following discussion or review by a consultant, respiratory registrar, or pleural clinical nurse specialist. Caution should be taken if removing more than 1.5 litres at 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. A chest physician should be involved in the care of all patients requiring chest tube drainage for pleural infection. Clinicians should also ensure adequate nutrition in patients with pleural infection.

2.1.6 All patients requiring chest drain insertion should be under the care of a respiratory physician and transferred to Wellington, Roskear 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 suspected 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 92-96% 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, Roskear 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 a chest drain insertion which may require CT guidance. All patients should be discussed with a consultant respiratory physician.

2.3 Anticoagulation therapies

A current medication list must be reviewed for any anticoagulation therapies. See stopping guidance in table below:

Medication	**Stopping Guidance**
Warfarin	Usually stopped 5 full days before the procedure. Need INR blood test before the procedure to ensure INR is below 1.5. If warfarin cannot be stopped use alternative shorter-acting agent (usually LMW heparin) in the lead-up to procedure
Aspirin	Do not take on the morning of the procedure
Clopidogrel	Usually stopped 7 full days before the procedure

Medication	Stopping Guidance
Dipyridamole	Usually stopped 7 full days before the procedure
Ticagrelor	Usually stopped 7 full days before the procedure
Rivaroxaban	Usually stopped 2 full days before the procedure. Need INR blood test before the procedure to ensure INR is below 1.5.
Apixaban	Usually stopped 2 full days before the procedure. Need INR blood test before the procedure to ensure INR is below 1.5.
Dabigatran	Usually stopped 2 full days before the procedure
Dalteparin (injections)	Usually stopped 1 full day before the procedure
Enoxaparin (injections)	Usually stopped 1 full day before the procedure

2.3.1 If procedure is deemed urgent, discuss with haematology regarding correction

2.3.2 In an emergency (haemodynamic compromise; physiological (not radiological) evidence of “tension”; then procedure mat be performed if benefit outweighs risk; this may be better discussed with interventional radiology where there are also facilities for stopping bleeding from arterial puncture.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Safety and effectiveness of pleural procedures
Lead	Respiratory Consultants
Tool	Patient outcome, British Thoracic Society Audits
Frequency	Annual
Reporting arrangements	British Thoracic Society
Acting on recommendations and Lead(s)	Respiratory Department
Change in practice and lessons to be shared	Education of junior staff, disseminating audit results through Medicine and Emergency Department

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

Information Category	Detailed Information
Document Title:	Pleural Procedures Clinical Guideline V3.0
This document replaces (exact title of previous version):	Clinical Guideline for Pleural Procedures V2.0
Date Issued/Approved:	9 June 2022
Date Valid From:	June 2022
Date Valid To:	June 2025
Directorate / Department responsible (author/owner):	Sarah Coulter, Respiratory Consultant Natalie Zahan-Evans, Pleural CNS
Contact details:	01872 252058
Brief summary of contents:	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
Suggested Keywords:	Respiratory, Pleural, Pneumothorax
Target Audience:	RCHT: Yes CFT: No KCCG: No
Executive Director responsible for Policy:	Medical Director
Approval route for consultation and ratification:	Respiratory Governance Meeting
General Manager confirming approval processes:	Rachael Pearce

Information Category	Detailed Information
Name of Governance Lead confirming approval by specialty and care group management meetings:	Siobhan Hunter
Links to key external standards:	None
Related Documents:	1. British Thoracic Society Pleural Disease Guideline 2010 Thorax, Vol 65, Suppl 2. 2. National patient safety alert NPSA/2008/RRR003, 2008
Training Need Identified?	No
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet
Document Library Folder/Sub Folder:	Clinical / Respiratory

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
21 Jan 13	V1.0	Initial issue	Meme Wijesinghe, Consultant Respiratory
01 Feb 19	V2.0	Full review; updated format; no change to content	Sarah Coulter Respiratory Consultant
07 April 22	V3.0	Full review; updated format; minor changes to content	Natalie Zahan-Evans, Pleural CNS

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Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity & Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Pleural Procedures Clinical Guideline V3.0
Directorate and service area:	Specialist Medicine/Respiratory
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Natalie Zahan-Evans
Contact details:	01872 252058

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	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 each outcome?	See Section 3 of this guideline.
5. Who is intended to benefit from the policy?	Patients requiring pleural intervention

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Respiratory Governance Group
6c. What was the outcome of the consultation?	Approved
6d. Have you used any of the following to assist your assessment?	**National guidance from British Thoracic society pleural disease guidelines.**

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	
Marriage and civil partnership	No	

Protected Characteristic	(Yes or No)	Rationale
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Sarah Coulter, Respiratory Consultant

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis