

## BLOOD PLEURODESIS

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

### Introduction

The intrapleural instillation of autologous blood may be used to treat patients with pneumothorax with persistent air leak who are deemed unfit for surgical management. It is often reserved for those patients where talc pleurodesis has failed, where prompt resolution is desirable and in pneumothorax complicating ARDS (Rinaldi et al 2009).

**This guideline is for use by the following staff groups :**

**Pleural specialists**

### Lead Clinician(s)

Clare Hooper

Consultant Physician, Respiratory Medicine

Approved by *Respiratory Directorate* on:

4<sup>th</sup> April 2023

This guideline should not be used after end of:  
 This is the most current document and should be used until a revised version is in place

4<sup>th</sup> April 2026

### Key amendments to this guideline

Date	Amendment	Approved by:
June 2019	New Document approved	Respiratory DMB
April 2023	Document reviewed and approved	Respiratory DMB

## **BLOOD PLEURODESIS**

### **Introduction**

Give a more in depth introduction to the guideline, including the reason for its production and why it is important.

### **1. BLOOD PLEURODESIS**

**1.1** Pleurodesis of any sort should only be used in patients with recurrent pneumothorax or persistent air leak (at least more than 5 days) who are unable to undergo surgery. Specialist opinion and recommendation is essential.

**1.1.1** Blood pleurodesis has several theoretical advantages over Talc. It can be used even if the lung is not fully expanded, it reportedly causes less pleural thickening and adhesions, it is readily available, and it does not cause pain or long term sequelae. It is also the only non-surgical technique which has been associated with a rapid resolution of persistent air leak (Ando et al 1999).

**1.1.2** Prolonged air leaks are undesirable as they prolong the duration of chest tube drainage with associated pain and risk of infection and prolong hospitalisation (Cagirici et al 1998).

**1.1.3** The mechanism of action of autologous blood patch pleurodesis is unknown. It is possible that the air leak is directly sealed by the formation of a clot and subsequently the fibrogenic activity of the blood creates a pleurodesis by pleural irritation and inflammation (Manley et al (2012).

**1.1.4** The volume of blood used varies in practice. Studies however suggest that 100ml is more effective than 50ml (Andreotti et al 2007)

### **Details of Guideline**

### **PROCEDURE**

#### **EQUIPMENT REQUIRED**

- **3 x 50ml luer lock syringe**
- **Green needle**
- **Sterile gloves**
- **Dressing trolley**
- **2 x Sterile field**
- **apron**
- **Chlorhexidine**
- **2 x 3 way taps with fir tree connectors**
- **extension tubing for chest drain**
- **Drip stand**
- **20ml saline flush**
- **Large saline flush (50ml) (in case of thrombus formation – tension pneumothorax)**
- **Spare chest drain kit (in case of emergency)**

PROCEDURE	RATIONALE	WHO
Discuss procedure with patient and provide reassurance	To gain patients consent and co-operation	Pleural specialist
Position patient in lateral or sitting position	To ensure comfort during procedure	Pleural specialist
Record baseline observations/ NEWS score	To enable assessment of patients condition during/ after the procedure	Staff nurse
Wash hands, apply apron and sterile gloves	To minimise risk of infection	Pleural specialist
Prepare a sterile area around the patient placing the chest drain on a sterile field	To enable access to the drain and ensure sterility	Pleural specialist
Add extension tubing between the chest drain and the underwater seal drain using a 3 way connector with fir tree adaptors	To minimise the risk of blood clotting in the tube and possible tension pneumothorax and to retain the autologous blood in the pleural cavity and allow any air to escape.	Pleural specialist
Take 50-100ml of the patients Own blood under aseptic conditions	To use as pleurodesis agent	Pleural specialist
Sterilise the chest drain 3 way tap with chlorhexidine and immediately inject the patients blood into the pleural cavity	To minimise risk of infection and administer pleurodesis agent	Pleural specialist
Follow with 20ml saline flush	To minimise risk of thrombus in the tube causing tension pneumothorax	Pleural specialist
Loop the extension tubing over the drip stand	To minimise the risk of blood clotting in the tubing and possible tension pneumothorax	Pleural specialist
Inform Staff nurse of procedure and perform	To monitor for adverse reaction/tension	Pleural specialist/ Staff Nurse

**30 minute NEWS recording  
for 4 hours****pneumothorax****After 4 hours shorten the  
drainage tube to its original  
length and leave overnight****Staff nurse****If no further bubbling, perform  
CXR****To check for resolution****Pleural specialist****If bubbling continues  
consider a limit of 3 instillations  
maximum**

## Monitoring Tool

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: <i>(Responsible for also ensuring actions are developed to address any areas of non-compliance)</i>	Frequency of reporting:
	<b>WHAT?</b>	<b>HOW?</b>	<b>WHEN?</b>	<b>WHO?</b>	<b>WHERE?</b>	<b>WHEN?</b>
	Procedure performed in accordance to protocol	Analysis of patient case notes	annual	ANP	Dr C Hooper	Yearly

**References** (Bullet point all references listed)

All references should be 'Harvard' referenced, eg,

*A book by a single author:*

- Seedhouse, D. (1997) *Health promotion: philosophy, prejudice and practice*. Chichester, John Wiley.
- 1. Ando M, Yamamoto M, Kitagawa C et al (1999) Autologous blood-patch pleurodesis for secondary spontaneous pneumothorax with persistent air leak *Respiratory Medicine* 93:432-4
- 2. Andreetti C, Venuta F, Anile M et al (2007) Pleurodesis with an autologous blood patch to prevent persistent air leaks after lobectomy *Journal of Cardiovascular Surgery* 133: 759-62
- 3. Cagirici U, Sahin B, Cakan A, Kabayas H, Budunelli T. 1998) Autologous blood patch pleurodesis in spontaneous pneumothorax with persistent air leak. *Scand Cardiovasc J.* , 32: 75-8. 10.1080/14017439850140210. [View ArticlePubMedGoogle Scholar](#)
- 4. Lang-Lazdunski L, Coonar AS: (2004) A prospective study of autologous 'blood patch' pleurodesis for persistent air leak after pulmonary resection. *Eur J Cardiothorac Surg.* 26: 897-900. 10.1016/j.ejcts.2004.07.034.
- 5. Manley K, Coonar A, Wells F et al (2012) Blood patch for persistent air leak: a review of the current literature. *Current Opinion Pulmonary Medicine* 18:333-8
- 6. Rinaldi S, Felton T, Bentley A (2009) Blood pleurodesis for the medical management of pneumothorax *Thorax* 64:3 258-60

**Contribution List**

This key document has been circulated to the following individuals for consultation;

Designation
Dr Clare Hooper
Heather Lloyd

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Respiratory DMB

## Supporting Document 1 - Equality Impact Assessment Tool



### Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form

Please read EIA guidelines when completing this form

#### Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	x	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

<b>Name of Lead for Activity</b>	<b>Heather Lloyd/Dr Clare Hooper</b>
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<b>Details of individuals completing this assessment</b>	<b>Name</b>	<b>Job title</b>	<b>e-mail contact</b>
	Heather Lloyd	Pleural Lead Nurse	heather.lloyd5@nhs.net
<b>Date assessment completed</b>	<b>17/05/2024</b>		

#### Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	<b>Title:</b> Blood Pleurodesis		
What is the aim, purpose and/or intended outcomes of this Activity?	To definitively manage pneumothorax with persistent air leak		
Who will be affected by the development & implementation of this activity?	<input type="checkbox"/> Service User <input checked="" type="checkbox"/> Patient <input type="checkbox"/> Carers <input type="checkbox"/> Visitors	<input type="checkbox"/> Staff <input type="checkbox"/> Communities <input type="checkbox"/> Other _____	



Is this:	<input checked="" type="checkbox"/> Review of an existing activity <input type="checkbox"/> New activity <input type="checkbox"/> Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.)	No barriers or negative impacts identified
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Procedure is only performed in selected cases and under specific circumstances
Summary of relevant findings	No barriers or negative impacts identified

### Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale.**

Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		Yes		N/A
Disability		Yes		N/A
Gender Reassignment		Yes		N/A
Marriage & Civil Partnerships		Yes		N/A
Pregnancy & Maternity		Yes		N/A
Race including Traveling Communities		Yes		N/A
Religion & Belief		Yes		N/A
Sex		Yes		N/A

Equality Group	Potential <u>positive</u> impact	Potential <u>neutral</u> impact	Potential <u>negative</u> impact	Please explain your reasons for any potential positive, neutral or negative impact identified
<b>Sexual Orientation</b>		Yes		N/A
<b>Other Vulnerable and Disadvantaged Groups</b> (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		Yes		N/A
<b>Health Inequalities</b> (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		Yes		N/A

## Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	None identified			
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

## Section 5 - Please read and agree to the following Equality Statement

### 1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the

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diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

<b>Signature of person completing EIA</b>	Heather Lloyd
<b>Date signed</b>	17/05/2024
<b>Comments:</b>	
<b>Signature of person the Leader Person for this activity</b>	
<b>Date signed</b>	
<b>Comments:</b>	

**Supporting Document 2 – Financial Impact Assessment**

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	<b>Title of document:</b>	<b>Yes/No</b>
<b>1.</b>	Does the implementation of this document require any additional Capital resources	No
<b>2.</b>	Does the implementation of this document require additional revenue	No
<b>3.</b>	Does the implementation of this document require additional manpower	No
<b>4.</b>	Does the implementation of this document release any manpower costs through a change in practice	No
<b>5.</b>	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval