

# A trial to investigate whether pleuroscopy can be used to treat pleural infection

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<b>Registration date</b> 03/07/2017	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 30/12/2025	<b>Condition category</b> Respiratory	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

A pleural effusion is a collection of fluid between the lung and the chest wall. It commonly occurs as a result of pneumonia and can cause significant breathlessness. In about 10% of cases, this fluid can itself go on to become infected, which increases the chances of someone becoming unwell enough to need surgery, or even dying. It is important that the fluid is drained away completely soon after someone is diagnosed with pleural infection. This is usually done by inserting a small chest tube between the ribs and allowing the fluid to drain out over time. This treatment typically requires many days in hospital but is generally low risk. Medical thoracoscopy is a common technique used to diagnose and drain effusions, although it is not routinely used for pleural infection in the UK as it tends to be reserved for those who are suspected of having cancer. It involves inserting a small camera between the ribs into the fluid and can be done under local anaesthetic. The procedure is very safe but carries a slightly higher risk of complications than standard chest tube insertion. However, the main benefit of the procedure is that it can allow a patient to spend less time in hospital because the chest is drained completely all at once. The aim of this study is to evaluate whether hospitals are able to safely offer medical thoracoscopy to patients with pleural infection

### Who can participate?

Adults aged 18 and older who have pleural effusion.

### What does the study involve?

Eligible participants are asked to answer questions about their background and previous health. Participants are randomly allocated to one of two groups that determined how their infected fluid is drained. Those in the first group receive the standard treatment, whereby a small tube is inserted between the ribs under local anaesthetic and the fluid is drained. Those in the second group receive the study treatment, which involves placing a small camera between the ribs to inspect and drain the fluid away. Participants are discharged after a few days in hospital. During their stay, participants receive standard care and treatment, but are also asked to perform simple breathing tests and answer some questions about their symptoms and quality of life. Participants are followed up at their local hospital by the trial team after one month and three months, when further information about their recovery and symptoms is gathered to see how the treatment affects patients themselves, and whether it is effective at reducing patients' time

in hospital or their need for surgery. About half of the patients enrolled will also be invited to take part in a more in-depth interview about their experiences in the trial.

What are the possible benefits and risks of participating?

There are no notable benefits with participating however participants are reimbursed for travel expenses. There are no notable risks however, there is normally some risk associated with any medical procedure and this will be discussed in detail with participants depending which treatment they are asked to undergo.

Where is the study run from?

This study takes place at Southmead Hospital (UK) and takes place in seven other hospitals in the UK.

When is the study starting and how long is it expected to run for?

July 2016 to January 2019 (updated 03/07/2019, previously: July 2018)

Who is funding the study?

Academy of Medical Sciences (UK)

Who is the main contact?

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2. Dr Emma Keenan

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## Contact information

### Type(s)

Public

### Contact name

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## Additional identifiers

### Protocol serial number

33928

## Study information

### Scientific Title

Studying Pleuroscopy in Routine Pleural Infection Treatment Trial

### Acronym

SPIRIT

### Study objectives

Randomising patients with pleural infection to undergo either medical pleuroscopy or standard chest drain insertion is feasible and acceptable.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Yorkshire & The Humber - Sheffield Research Ethics Committee, 12/04/2017, ref: 17/YH/0074

### Study design

Randomised; Interventional; Design type: Treatment, Surgery

### Primary study design

Interventional

### Study type(s)

Treatment

### Health condition(s) or problem(s) studied

Specialty: Respiratory disorders, Primary sub-specialty: Respiratory disorders; UKCRC code/  
Disease: Respiratory/ Other acute lower respiratory infections

### Interventions

Those who agree to enrolled are first asked to answer questions about their background and previous health. Eligible participants are randomised in a 1:1 ratio using an online (computer-

based) system. Patients are randomised to receive one of two standard procedures. The intervention arm (medical pleuroscopy) entails a procedure lasting approximately 45 minutes. The control arm (chest drain insertion) consists of a procedure lasting approximately 15 minutes.

**Intervention arm:** Patients will undergo medical pleuroscopy on either the same or next day as they are diagnosed as needing a pleural intervention. They will have the procedure under light conscious sedation and local anaesthetic.

**Control arm:** Patients will undergo routine chest drain insertion on either the same or the next day as they are diagnosed as needing a pleural intervention. The procedure will be performed under local anaesthetic.

Patients with pleural infection can usually be discharged home after a few days in hospital. During their stay, participants receive standard care and treatment, but are also asked to perform simple breathing tests and answer some questions about their symptoms and quality of life. Participants are followed up at their local hospital by the trial team after one month and three months, when further information about their recovery and symptoms is gathered. About half of the patients enrolled will also be invited to take part in a more in-depth interview about their experiences in the trial.

## **Intervention Type**

Procedure/Surgery

## **Primary outcome(s)**

The feasibility of screening and enrolling patients into the study, and delivering the trial protocol is measured using the proportion of pre-screen failures, screen failures, and allocation failures compared to the total numbers of patients pre-screened, screened, and randomised (respectively).

## **Key secondary outcome(s)**

1. Duration of stay due to pleural infection is measured by the number of nights in hospital between enrolment and being recorded as medically fit for discharge
2. Total inpatient time is measured by the number of nights in hospital between enrolment and the end of the 90-day post-procedure follow-up period
3. Need for step-up therapy is measured by the difference in proportion of patients requiring intrapleural fibrinolytic therapy or referral for surgical debridement
4. Lung function is measured by the change in spirometry values (FEV1, FVC and FEV1:FVC ratio) at baseline and days 30 and 90
5. All-cause mortality is measured by the number of patients remaining alive at days 30 and 90 post procedure
6. Degree of pleural fluid septation is measured by the change in bedside thoracic ultrasound septation score at baseline and days one, three, seven, 30 and 90 post procedure
7. Pleural effusion size, is measured by the change in radiographic hemithorax opacification from enrolment to discharge, and days one, 30 and 90 post procedure
8. Microbiological yield is measured by the difference in proportion with positive culture or stain between the control and intervention arms at 90 days
9. Total costs of interventions is measured by the difference in total cost of treatment for pleural infection (from enrolment to being medically fit for discharge) between two arms at 90 days post procedure
10. Quality of life is measured by the change in EQ-5D subjective health score at baseline to days 30 and 90 post procedure

11. Patient experiences are assessed by exploring patients' perceptions and experiences of interventions before and after their procedure through semi-structured interviews at baseline and study end

**Completion date**

31/01/2019

## Eligibility

**Key inclusion criteria**

1. Pleural effusion due primarily to suspected pleural infection requiring chest tube drainage, defined as an effusion, in the appropriate clinical context, with one or more of the following characteristics:
  - 1.1. Fluid pH  $\leq$ 7.20 or visually contains pus
  - 1.2. Pleural fluid glucose  $\leq$ 3.4 mmol/L
  - 1.3. Positive bacterial or mycobacterial culture
  - 1.4. Positive gram stain or stain for acid-fast bacilli
2. Clinical team are able to perform a medical thoracoscopy, if allocated, on either the same or the next day as the effusion is diagnosed as requiring drainage
3. Clinical team are able to deliver the post-procedure trial schedule as detailed in the protocol
4. Patient is willing to consider trial entry and receive information sheet

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Sex**

All

**Total final enrolment**

12

**Key exclusion criteria**

1. Any contraindication, in the opinion of the trial team or lead clinician, to
  - 1.1. Medical thoracoscopy performed under conscious sedation
  - 1.2. Chest drain insertion
  - 1.3. Trial involvement
2. Patient is unable to provide informed consent
3. Thoracic imaging demonstrating septation or loculation to a degree whereby medical management alone would be inappropriate
4. Maximum pleural fluid depth of  $\leq$ 2cm on thoracic ultrasound
5. Ongoing sepsis requiring haemodynamic support beyond basic fluid resuscitation
6. Previous thoracic surgery on the side of the effusion

7. Age <18
8. Pregnancy or lactation
9. Expected survival  $\leq 3$  months

**Date of first enrolment**

01/08/2017

**Date of final enrolment**

30/04/2018

## Locations

**Countries of recruitment**

United Kingdom

England

Scotland

**Study participating centre****Southmead Hospital**

North Bristol NHS Trust

Southmead Road

Westbury-on-Trym

Bristol

England

BS10 5NB

**Study participating centre****Gloucester Royal Hospital**

Gloucestershire Hospitals NHS Foundation Trust

Great Western Road

Gloucester

England

GL1 3NN

**Study participating centre****John Radcliffe Hospital**

Oxford University Hospitals NHS Foundation Trust

Headley Way

Headington

Oxford

England

OX3 9DU

**Study participating centre****Wythenshawe Hospital**

University Hospital of South Manchester NHS Foundation Trust  
Southmoor Road  
Wythenshawe  
Manchester  
England  
M23 9LT

**Study participating centre****St Thomas' Hospital**

Guy's and St Thomas' NHS Foundation Trust  
Westminster Bridge Road  
London  
England  
SE1 7EH

**Study participating centre****Queen Elizabeth University Hospital Glasgow**

NHS Greater Glasgow and Clyde  
1345 Govan Road  
Glasgow  
Scotland  
G51 4TF

**Study participating centre****Royal Preston Hospital**

Lancashire Teaching Hospitals NHS Foundation Trust  
Sharoe Green Lane North  
Fulwood  
Preston  
England  
PR2 9HT

**Sponsor information****Organisation**

Southmead Hospital

**ROR**

## Funder(s)

### Funder type

Charity

### Funder Name

Academy of Medical Sciences

### Alternative Name(s)

The Academy of Medical Sciences

### Funding Body Type

Private sector organisation

### Funding Body Subtype

Universities (academic only)

### Location

United Kingdom

## Results and Publications

### Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be stored in a non-publicly available repository at North Bristol NHS Trust.

### IPD sharing plan summary

Stored in non-publicly available repository

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		10/12/2025	30/12/2025	Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Protocol file</a>	version 3.1	06/04/2018	24/08/2022	No	No