

# Oxygen during activities in patients with lung scarring

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|----------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>21/03/2016   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol            |
| <b>Registration date</b><br>22/03/2016 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input checked="" type="checkbox"/> Results |
| <b>Last Edited</b><br>11/12/2018       | <b>Condition category</b><br>Respiratory          | <input type="checkbox"/> Individual participant data                                              |

## Plain English summary of protocol

### Background and study aims

Fibrotic Lung Diseases (FLD) are a group of long-term diseases which affect the way the lungs work. The most common form is idiopathic pulmonary fibrosis (IPF), with approximately 5,000 new cases diagnosed every year in the UK, and an average survival of two-three years after diagnosis. These conditions are characterised by widespread scarring inside the lungs (fibrosis), which prevent them from expanding fully. As the lung tissue becomes scarred and thicker, the lungs lose their ability to transfer oxygen into the bloodstream. This means that it can be difficult for a sufferer to get enough oxygen, as the amount that they can inhale is limited. The diagnosis tends to be made when a person becomes short of breath when exercise, which becomes progressively worse. Breathlessness triggered by activity can often be associated with a drop in oxygen levels in the blood (oxygen desaturation) from the normal level (more than 94%) to a critical level (less than 88%). Giving patients supplemental oxygen can correct this desaturation however there are no international guidelines for oxygen therapy in FLDs. This study aims to explore the benefits of ambulatory oxygen (portable oxygen treatment that can be used during activities, such as walking).

### Who can participate?

Adults with IPF or another FLD whose blood oxygen level falls below 88% in a six minute walk test.

### What does the study involve?

Following a two week run-in period (to ensure the patients are stable), participants receive either ambulatory oxygen or no portable oxygen devices for two weeks in a random order. The ambulatory oxygen is provided for patients at home and is delivered through a nasal cannula (tube which has two prongs which are placed in the nose that oxygen flows through) which is attached to an oxygen container. During the two weeks when the patient is allocated to receive ambulatory oxygen, they are asked to use the oxygen during any activity that makes him/her breathless (such as walking, gardening, housework). During the two weeks when the patient is allocated no oxygen, they are asked to carry out their normal day to day activities with no portable devices. Patients are given an activity monitor (a small band to be placed around the arm that records the number of steps taken and intensity of physical activity) to wear during the second week of each two week period. Patients are also asked to wear an oximeter for 48 hours

(a portable device like a watch that continuously measures oxygen levels and heart rate) in the week when they are wearing the armband. In addition to this, patients are asked to complete a diary of daily activities and complete a few weekly questions on the amount of oxygen used. Participants complete a number of questionnaires at the start of the study and at the end of each two week study period about their breathlessness, quality of life and mobility.

What are the possible benefits and risks of participating?  
Not provided at time of registration.

Where is the study run from?

1. Interstitial Lung Disease, Unit Royal Brompton Hospital (UK)
2. Liverpool Interstitial Lung Fibrosis Service, University Hospital Aintree (UK)
3. Bristol Interstitial Lung Disease (BILD) Service, Southmead Hospital (UK)

When is the study starting and how long is it expected to run for?  
April 2013 to December 2017

Who is funding the study?  
National Institute for Health Research (UK)

Who is the main contact?  
Dr Elizabeth Renzoni  
E.Renzoni@rbht.nhs.uk

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Elisabetta Renzoni

**Contact details**  
Interstitial lung disease unit  
Royal Brompton Hospital  
Sydney Street  
London  
United Kingdom  
SW3 6NP  
+44 207 3528121 ext 3367 or 8327  
e.renzoni@rbht.nhs.uk

**Type(s)**  
Scientific

**Contact name**  
Dr Dina Visca

**Contact details**  
ILD Unit Royal Brompton Hospital, Sydney Street  
London

United Kingdom  
SW3 6NP  
00442073528121  
d.visca@rbht.nhs.uk

## **Additional identifiers**

**Clinical Trials Information System (CTIS)**  
2013-004355-20

**ClinicalTrials.gov (NCT)**  
NCT02286063

**Protocol serial number**  
2013OE005B

## **Study information**

### **Scientific Title**

Randomised, controlled crossover trial to evaluate the Effects of Ambulatory Oxygen on health status in patients with Fibrotic Lung Disease (FLD)

### **Acronym**

AmbOx

### **Study objectives**

Ambulatory oxygen used during daily activities improves respiratory symptoms and quality of life in patients with fibrotic lung disease whose oxygen saturation drops<89% on a six minute walk test but who are not hypoxic on room air.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Ref: 14/LO/0258

### **Study design**

Multi-centre randomized crossover trial

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

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

Fibrotic lung diseases

### **Interventions**

The study will consist of a four week randomized crossover trial of ambulatory oxygen for use during physical activity, by patients with fibrotic lung disease whose oxygen saturation drops to  $\leq 88\%$  during a six minute walk test (6MWT). At the start of the trial, the effects of ambulatory oxygen on 6 Minute Walk Test (6MWT) performances will be evaluated on oxygen and on air-filled canisters, with the patient blind to the contents of the canister, to assess whether oxygen-induced improvements in 6MWT parameters can predict its effectiveness in day to day life. The 6MWT is a well-established and highly reproducible test validated in ILD patients, with significant prognostic implications. Patients meeting eligibility criteria and deemed clinically stable at the end of a two week run in period, will be assigned in random order to two weeks on ambulatory oxygen or not during the baseline visit.

Optimal oxygen flow rates will be determined during the screening visit on the basis of the entry 6 minute walk test (6MWT) on O<sub>2</sub>, so as to maintain oxygen saturation  $\geq 90$  for at least half of the 6MWT, where possible. Following receipt of the treatment arm assigned during the baseline visits for two weeks, patients will cross-over to receive the alternative treatment for further two weeks. Supplemental oxygen will be obtained through the Home Oxygen Order Form (HOOF), supplied by the different oxygen companies depending on the region in England, as per standard NHS clinical practice. The light-weight portable oxygen gas cylinders will be used across sites to standardise mode of delivery.

## **Intervention Type**

Other

## **Primary outcome(s)**

The difference between the two treatment arms in the total "health status" score as assessed by the King's Brief Interstitial Lung Disease (K-BILD) health status questionnaire at the end of each of the two week treatment periods.

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

Secondary outcomes will be measured at baseline, and at 2 and at 4 weeks. They include:

1. Dyspnoea scores, as assessed by the University of California, San Diego shortness of breath questionnaire
2. Respiratory-related quality of life scores, as assessed by the St George's Respiratory Questionnaire (SGRQ)
3. Anxiety and depression scores, as assessed by the Hospital Depression and Anxiety Score (HDAS) questionnaire
4. Global patient assessment
5. Objective activity parameters, as assessed by Sensewear armbands (which will be worn by patients for one of two weeks in each treatment period)
6. 48 hour oximetry measures including oxygen saturation and heart rate (oximeter worn by the patient for 48 hours during each of the two week intervention periods)
7. Patient reported hours of daily activity, as assessed by self-reported activity diaries, purpose-made for this trial
8. Patient reported oxygen cylinder use, cross-checked with oxygen company records where possible
9. In a subgroup of 20 patients, qualitative interviews conducted by a member of the research team trained in qualitative research, with the patients and their carers will take place at the end of the trial period, to gather information on patients' and carers' perspectives on the use of oxygen, its advantages and drawbacks

## **Completion date**

31/12/2017

## Eligibility

### Key inclusion criteria

1. Patients with a diagnosis of idiopathic pulmonary fibrosis (IPF), or with another fibrotic ILD
2. Aged between 18 and 99 years
3. Patients whose oxygen saturation (SaO<sub>2</sub>) at rest on room air is  $\geq 94\%$  and falls  $< 88\%$  on a baseline 6MWT (performed as part of their routine assessment)
4. Patients with stable symptoms and treatment during the period of four weeks prior to being recruited into the study, including the two week run in period

### Participant type(s)

Patient

### Healthy volunteers allowed

No

### Age group

Adult

### Lower age limit

18 years

### Sex

All

### Key exclusion criteria

1. Patients expected to change treatment over the time course of the study, and those meeting criteria for long term oxygen therapy, i.e. hypoxic at rest
2. Patients with connective tissue disease-associated ILD or with sarcoidosis with musculoskeletal /joint involvement/symptoms will be excluded due to the potential impact in relation to day-to-day mobility
3. Patients with significant communication or other locomotor difficulties, and/or severe co-morbidities
4. Current smokers in view of the potential risks associated with use of supplemental oxygen
5. Pregnancy
6. History of symptomatic ischaemic cardiac disease (exertion-induced chest pain)
7. Anaemia, Hb  $< 10\text{g/dl}$

### Date of first enrolment

01/08/2014

### Date of final enrolment

31/12/2016

## Locations

### Countries of recruitment

United Kingdom

England

**Study participating centre**  
**Interstitial Lung Disease Unit**  
Royal Brompton Hospital  
Sydney Street  
London  
United Kingdom  
SW3 6NR

**Study participating centre**  
**Liverpool Interstitial Lung Fibrosis Service**  
Aintree Chest Centre  
University Hospital Aintree  
Lower Lane  
Liverpool  
United Kingdom  
L9 7AL

**Study participating centre**  
**Bristol Interstitial Lung Disease (BILD) Service**  
Respiratory Medicine  
Southmead Hospital  
Westbury on Trym  
Bristol  
United Kingdom  
BS10 5NB

## **Sponsor information**

**Organisation**  
Royal Brompton and Harefield NHS Foundation Trust (RB&HFT)

**ROR**  
<https://ror.org/02218z997>

## **Funder(s)**

**Funder type**

Government

**Funder Name**

National Institute for Health Research

**Alternative Name(s)**

National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

United Kingdom

## Results and Publications

**Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Data sharing statement to be made available at a later date

**Study outputs**

| Output type                          | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|--------------------------------------|---------|--------------|------------|----------------|-----------------|
| <a href="#">Results article</a>      | results | 01/10/2018   |            | Yes            | No              |
| <a href="#">HRA research summary</a> |         |              | 28/06/2023 | No             | No              |