



Respiratory Service – Diagnostic tests





Introduction

The Respiratory Department provides care and support for patients with a range of acute and chronic lung diseases. A multidisciplinary team of Consultants, Junior Doctors, Specialist Nurses, Respiratory Physiologists, Respiratory Physiotherapists, Pulmonary Rehabilitation Specialist Physiotherapists and Exercise Practitioners provide care across a wide range of these conditions.

There are dedicated one stop clinics for Lung Cancer, Sleep Service and Bronchiectasis. There is also a joint Respiratory and Rheumatology clinic for those patients diagnosed with interstitial lung conditions.

The Respiratory Department are aligned with various tertiary centres for Lung Cancer, interstitial Lung Disease and Difficult Asthma requiring specialist biologic interventions. These include Harefield, Papworth, St Mary's London and Royal Brompton Hospital.

Support while you wait

The Respiratory Department has been significantly affected by the COVID-19 pandemic. Our staff have worked tirelessly through the pandemic to meet unprecedented levels of demand, and unfortunately this has impacted our ability to deliver planned care within a specified time frame. Though we must continue to prioritise the most critically unwell patients, we are doing everything we can to address the backlog of appointments with extra clinic sessions when possible.

We know that you may have experienced a long wait for your hospital appointment or treatment and understand how distressing this must be. We would like to apologise for this and assure you we are working hard to offer an appointment as soon as we are able to. We are exploring all possible options for increasing activity safely to bring wait times down.

To support you while you wait and to let you know that we are still here for you, we have provided this information and advice. It is designed to help you manage your condition and your overall health, so you arrive for your appointment in the best possible physical and mental health.

Respiratory diagnostics

The Respiratory Department offers a variety of diagnostics, including bronchoscopy, endobronchial ultrasound, lung function tests, sleep diagnostics and treatment such as continuous positive airway pressure devices and non-invasive ventilation; pleural aspiration and diagnostic Services, cardiopulmonary exercise testing and hypoxic inhalation challenge tests

These tests support the consultants in making a diagnosis and optimising treatment plans during your consultation.



Bronchoscopy

This is an examination of your trachea and the bronchi (the main branches of your airway) leading to the lungs. A long thin tube will be passed through your nose or mouth to capture images. The procedure itself will last roughly 10-20 minutes in total.

A bronchoscopy examination could take place for a number of reasons as stated below:

Diagnostic – to check for any problems or abnormalities.

Investigative – a small biopsy can be taken from the lining of the airway for laboratory testing.

Surveillance – to re-examine any previous problems.

EBUS TBNA – (Endobronchial Ultrasound Guided Transbronchial Needle Aspiration)

This examination can be used for diagnosis, investigation and surveillance. It involves a special technique using needle aspiration, where samples of glands are taken from the mediastinum (centre of the chest). A long thin tube will be passed through your mouth to transmit images to a screen within the room, followed by a sample being taken. The procedure itself will last roughly 60 minutes in total.

Please allow approximately 2-3 hours in total for recovery in the department before you are discharged.

When preparing for your bronchoscopy or EBUS TBNA examination, you should not have anything to eat or drink for 6 hours prior. If you are diabetic or taking any blood thinning anticoagulant medication, you will be advised specific instructions on stopping this. If you have been given sedation for your procedure, you must arrange a friend or a relative to accompany you home and stay with you overnight.

Hypoxia Inhalation challenge test

The aim of this test is to determine whether you need supplemental oxygen while flying in an aeroplane. At sea level the oxygen in the atmosphere is approximately 21%. When flying at altitude the available oxygen level within the aeroplane cabin drops to approximately 15%.

In some lung diseases, patients can be more sensitive to this drop in inspired oxygen than others.

You will be fitted with a face mask and asked to breathe a special mixture of air that gives you less oxygen than normal, similar to the oxygen at cruising altitude. If your oxygen level drops below a certain level, you will need to arrange to have supplemental oxygen



available to you in-flight to help maintain a safe level. Your consultant will then determine whether you are fit to fly. The test involves you having a blood test at 21% and at 15% oxygen. This appointment will last roughly 60-90 minutes in total.

CPAP Therapy – (Continuous positive airway pressure)

Continuous Positive Airway Pressure (CPAP) is a treatment for Obstructive Sleep Apnoea. This is a condition where an individual stopped breathing intermittently throughout the night. A simple home sleep study will determine whether you need CPAP therapy.

CPAP therapy involves wearing a mask attached to a small device that blows air continuously in order to keep the airway open. This is the gold standard treatment for Obstructive Sleep Apnoea (OSA). You will be sent an appointment to collect your home sleep study device, which you will then be asked to return the following day.

This will be analysed by the respiratory physiologists and the consultant. The consultant will then decide whether your sleep study results suggest you will benefit from CPAP therapy. CPAP initiation appointment should take no more than 60 minutes. You will be regularly reviewed while you are on CPAP therapy.

Non-Invasive Ventilation (NIV)

If your consultant has determined that you have an impairment in your ability to move air in and out of your lungs efficiently, this can make breathing hard work and cause your breathing muscles to tire. This can lead to high levels of carbon dioxide (waste gas) in your blood and not enough oxygen. NIV supports your breathing, giving your breathing muscles a rest and removing the carbon dioxide (waste gas). NIV can be uncomfortable to start with. Please talk to your consultant about the treatment and what it involves to decide whether this is right for you or not.

Non-invasive ventilation (NIV) involves wearing a mask connected to a machine which supports the lung muscles. It is generally worn at night during sleep. The mask provided has been selected to fit your face and the machine has been specifically set for your breathing.

CPET test

A cardiopulmonary exercise test is used to assess your ability to exercise. It enables us to measure your heart, lungs and fitness in a controlled environment. You may be having this test for a number of reasons. Your consultant may have asked for this test prior to surgery in order to assess your fitness / suitability for planned surgery. Or you may have unexplained breathlessness. CPET also helps distinguish between lung and heart disease.

During the exercise test you will be connected to a mouthpiece or facemask. This allows us to measure how much oxygen you take in and carbon dioxide you breathe out.



It is important that, unless stated otherwise, please take all of your usual medication in preparation for your testing.

Skin prick allergy testing

A skin prick allergy test is quick and minimally invasive and can be used to help diagnose specific air-borne allergies.

The clinician will draw a grid divided into sections on your arm using a pen. Small liquid drops of the allergens being tested will be placed along your arm, and a very small lancet or needle will be used to scratch the surface of your skin. There will be no blood drawn. This test may result in a parts of the areas on the grid becoming red and itchy. After approximately 10 to 15 minutes the size of all of the bumps will be measured by the clinician, and you will be informed of your result. You can then clean your arm.

Please withhold all anti-histamine medications for at least 3 days prior to the test. If you are taking oral steroids (prednisolone), it is important to inform your clinician. Please allow 20-30 minutes for the appointment itself.

Lung function

Lung function tests measure how well your lungs work. You will be asked to breathe on a mouth piece in a seated position. Depending on which tests your consultant has requested the tests could include either of the below.

Spirometry

This is a routine test used to assess your lung function and also help to diagnose and monitor any lung conditions by measuring how much air you can breathe out in one forced breath.

Gas transfer

This test measures how well gases such as oxygen get in and out of your blood.

Body plethysmography

During this test you will be asked to sit within a large glass chamber. From this test the total size of your lungs will be assessed.

Your consultant may also request other lung function tests which will all be explained to you at your appointment. If you have suffered from a chest infection within the past 6 weeks please discuss with a member of staff prior to attending.

Cancelling your appointment

We understand that some patients may choose to have their appointment and treatment elsewhere. We advocate patient choice on where you access treatment though please do



let us know if you no longer require an appointment with us. It is important that you notify us at the soonest possible opportunity so we can remove you from the waiting list. This can be done via telephone or online.

As per Trust policy, please be advised that if you do not attend your appointment on more than one occasion, you are likely to be referred back to your GP.

What should I do if my health is deteriorating?

In the first instance contact your GP for review and advice.

GP surgeries are still open and are working differently to how they did before the COVID-19 pandemic. GP practices continue to make best use of telephone, online and video consultations. Face-to-face appointments are still being given to those who need it.

Urgent health advice

For urgent health advice about physical or mental health, when it's not an emergency, please call 111 from any landline or mobile phone. You can also visit www.nhs.uk. The NHS 111 service is available 24 hours a day, seven days a week.

Life threatening emergencies

For something life threatening – severe bleeding, breathing difficulties outside of your normal baseline or chest pains – please dial 999.

The Respiratory Department also has an Acute Respiratory Assessment Service (ARAS). If you are known to have chronic lung disease such as COPD, chronic asthma, bronchiectasis, interstitial lung disease and you feel like you're having a flare up of your lung condition with no relief from your rescue medication such as steroids or antibiotics.

Please contact your GP or health professional in the community, alternatively this can be used as a self-referral service by calling **07535 977268**. One of the respiratory nurses will discuss your symptoms with you where you will be advised appropriately.