

Service:  
**Endoscopy**

# Having a Fibreoptic Bronchoscopy with Insertion of Endobronchial Valves or Coils



## A Guide for Patients

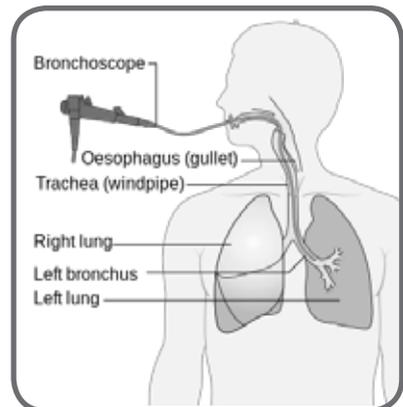
*Exceptional healthcare, personally delivered*

You have been offered a bronchoscopy with insertion of endobronchial valves or coils by your hospital doctor.

- Please read this leaflet carefully and note the important points highlighted.
- Please remember to bring this booklet with you on the day as it contains the consent form.
- You can change your mind about having the procedure at any time.
- Please ask about anything you do not fully understand or wish to have explained in more detail.
- If you would like this information in another format or language or would like help, please ask a member of our staff.
- In this leaflet we explain some of the aims, benefits, risks and alternatives to this procedure. We want you to be fully informed about the procedure and your choices so that you can be involved in making any decisions.

## What is a bronchoscopy?

Bronchoscopy is a procedure that allows the doctor to look into the airways of your lungs. A flexible tube (bronchoscope) is passed into your windpipe (trachea) via your nose or mouth. A small camera at the end of the bronchoscope enables the doctor to view your windpipe and air passages (bronchi). It can be used to take samples in the form of biopsies and washings from the lung, however in this case it is planned to be used to place one-way valves or coils into some of the airways (bronchi).



## What you need to consider before you come for your procedure

- You must not eat for 6 hours before the procedure; you can have clear drinks for up to 2 hours beforehand.
- You should plan to be in hospital for 2-3 nights.
- If you are unable to keep your appointment, please notify the Endoscopy Booking Department as soon as possible on **0117 414 5054**. This will enable the staff to give your appointment to someone else and they will be able to arrange another date and time for you.
- This procedure requires your **formal consent**. You will be asked to sign the consent form at the end of this booklet. Please bring this booklet with you on the day. You will be asked to sign the form in the presence of the doctor. The doctor will answer any questions you may have on the day.
- If you require an interpreter please contact the department in advance on **0117 414 5054**.

## What about Medication?

- Your routine medication should be taken. Please bring a list of your regular medication and inhalers with you.
- If you are diabetic controlled on insulin or tablets please note the advice later on in this booklet. Please ensure the Endoscopy Booking Department is aware that you are diabetic so the appointment can be made at the beginning of the list.
- Blood thinning medication - your hospital doctor will have advised you whether and when to stop your blood thinning medication if you are on warfarin, clexane, aspirin, clopidogrel, DOACs (rivaroxaban, dabigatran, apixaban, edoxoban). If you are unsure or you have not been told please ring your consultant's secretary.

- Allergies - please phone the department for information if you have a latex allergy

## What will happen on the day?

- You will have a brief medical assessment by a qualified nurse to confirm that you are sufficiently fit to undergo the procedure.
- A doctor will then come to talk to you about the procedure and ask you to sign the consent form if you are happy to proceed.

## During the procedure

- A nurse will stay with you and will monitor you throughout the procedure.
- In the bronchoscopy room you will be made comfortable on a hospital trolley bed in a sitting or lying position.
- A cannula (narrow plastic tube) will be inserted in the back for your hand or elbow crease to allow the administration of intravenous sedation.
- A local anaesthetic will be sprayed in your mouth towards the back of your throat. This numbs your throat and it may feel as though you cannot swallow. We will suction away any saliva that builds up.
- Sedation will be administered to make you slightly drowsy but not unconscious. You will still be able to hear the doctor and nurse talking to you. This state is called cooperative sedation.
- Some patients will require a general anaesthetic and if that is the case your doctor will explain why this is to you. Another doctor (anaesthetist) will be present to give this.

- As the bronchoscope is passed through your mouth and down the back of the throat, more local anaesthetic will be sprayed onto the larynx (voice box). This may make you cough a little. However, as the local anaesthetic takes effect, your throat will relax, and the coughing should ease.
- When the bronchoscope enters the lungs, there is no need to worry; there is plenty of room to breathe around it as the tube is very thin.
- During the procedure you will be given extra oxygen through a soft plastic tube placed just inside your nostril. A plastic peg will be placed on your finger to monitor your heart rate and oxygen levels throughout the procedure.
- The bronchoscopy usually takes 1 hour to complete.

## Insertion of Endobronchial Valves

- The first part of the procedure involves measuring the flow of air through the lobe (section of the lung) that is being treated. This allows us to predict whether the valves are likely to work in your case and hence help us decide whether we can proceed with the valve insertion. If the flow test is negative we may not be able to undertake the procedure.
- The valves are then placed in the target lobe using a catheter (small plastic tube) delivered via the bronchoscope.
- On average three to five valves are required to completely occlude (close off) a lobe.

## Insertion of Endobronchial Coils

- Coils are placed as an alternative to valves.
- If the lobe of the lung being treated is found to have air flowing into it from too many different air passages to close off with valves, coils can be used instead.
- Coils are inserted as a straight metal wire using a tube within the bronchoscope. Once in the lung the coils are designed to fold up on themselves, collapsing down the surrounding lung tissue and try and improve the 'elasticity' of the lung.

## Other Investigations that may be carried out

During the bronchoscopy it may be necessary to perform other procedures such as:

- a "wash" (bronchoalveolar lavage) - where a small amount of water is flushed into part of the lung. The fluid sucked back out is sent for laboratory examination;
- a biopsy - where a small sample of the lung tissue is taken using forceps (sampling tool) that passes down the bronchoscope.

## After the procedure

- After the bronchoscopy, you will be taken to a recovery area while the sedation wears off. This can vary but is likely to take about one hour. Once awake, you will be transferred back to the ward. A chest x-ray will be performed at this time.
- **The routine practice is to keep you in hospital for about 2-3 days after the insertion of the valves or coils.**

- As you will be having sedation you may continue to feel sleepy for the rest of the day. It is important that if it has not been possible to insert the valves and you are going home that a responsible adult, such as a relative or friend, stays with you for 24 hours after the procedure.
- You might have a small nosebleed or cough up some streaks of blood in your phlegm (mucus). This is quite normal and should stop within 24 hours.
- It is normal to have some soreness in your throat or a hoarse voice, this should get better within a day or so.
- **You should not drive, ride a bike, take alcohol, operate heavy machinery, sign any legally binding documents, make any important decisions or return to work for 24 hours.**

## Eating and Drinking

- You will not be able to eat or drink for about 2 hours after the procedure because your throat will be numb and there is a risk you could choke on food and drink.
- The nurses will monitor you and once the local anaesthetic has worn off and full sensation has returned you can eat and drink again.
- Please avoid eating or drinking anything too hot as you may scald your throat.

## Contact your doctor or hospital if you have:

- Fever that does not go away
- Vomiting
- More than a tablespoon of blood when you cough

## Contact your doctor or hospital immediately if you have:

- Shortness of breath
- Chest pain
- Cough up more than a quarter of a cupful of blood
- Passed out or fainted

## Benefits of Procedure

### This procedure may help improve:

- **your lung capacity** – an important measure of lung capacity and marker of severity in emphysema (forced expiratory volume in 1 second, FEV1) was shown to improve significantly in about half of those patients receiving endobronchial valves in clinical trials.
- **how far you are able to walk before becoming breathless** – in clinical trials patients receiving endobronchial valves were able to walk on average 40-80 metres further in a timed 6 minute walk.
- **your quality of life** – patients reported significant improvements in their quality of life if they received endobronchial valves compared to those who just had their standard care optimised. All of these benefits have been shown to last for at least 6 months, and those who benefit may see these effects lasting for up to 5-10 years.

## Alternative procedures that are available

Surgery with lung volume reduction is the main alternative to this procedure but is more invasive with greater risks. Besides the risks of general anaesthesia the risks include a persistent air leak which may require a long term chest drain, prolonged stay in the intensive care due to respiratory problems, wound infections, blood clots and even death.

You may also want to discuss the effects of not having the procedure with your doctor.

## How will I know the results of the procedure?

- You will receive an end of procedure letter prior to leaving that states what the bronchoscopy showed.
- The doctor performing the procedure will be able to discuss whether they were able to place the endobronchial valves successfully.
- It may take several months to fully assess how beneficial the procedure has been.
- Your hospital consultant may arrange a follow-up appointment to discuss any other results.

## Potential risks and complications of fibreoptic bronchoscopy with insertion of endobronchial valves

A bronchoscopy is a relatively safe procedure. The chance of having a complication is small. All medical procedures may carry a degree of risk and healthcare staff have to tell patients about the potential risks and complications involved, even if the risks are small.

## Common complications include:

- **Sore throat and hoarse voice** – this is due to the bronchoscope rubbing the lining of your throat and should disappear within a day or so. Drinking plenty of fluids or sucking sweets may help relieve the symptoms.
- **Nose bleed or soreness** – this is due to the bronchoscopy rubbing the lining of the nose and should stop within 24 hours.
- **Slightly blood-stained phlegm (haemoptysis)** – this may occur if biopsies have been taken but should clear up within 24 hours. If it continues after that time please contact your hospital doctor.
- **Fever, flu-like symptoms or aching across the lungs** – these symptoms can occur and last for 24-48 hours. Usually they will settle by taking paracetamol or other simple pain relieving drug. If these symptoms continue for several days please contact your hospital doctor as you may have developed a chest infection (see later).
- **A drop in your oxygen levels (hypoxaemia)** – can occur during the procedure but does not usually have long lasting effects. Your levels are constantly monitored during and after the procedure, so that additional oxygen can be given if necessary.
- **Asthma-like reactions** - the air tubes (bronchospasm) or vocal cords (laryngospasm) can be narrowed due to irritation by the procedure. This is usually short lived but sometimes requires treatment with asthma drugs.
- **Collapsed Lung (Pneumothorax)** - this occurs when air escapes through a small hole created by a tear in the lung. This air is trapped in the space between the lung

and the chest wall. The air leak causes the lung to deflate. Often the leak is small and will resolve on its own but you may require a longer period of observation in hospital. It occurs in about 3 in 10 (30%) of people who undergo this procedure, of these 1 in 2 (50%) may have an air leak enough to require a 'chest drain'. This is a tube inserted into the chest to allow the air to escape and allow the lung to re-expand and the air leak to heal. If this does not work one or more of the valves may need to be removed. If the air leak continues surgery be required to stop the air leak.

- **Removal or replacement of valves** – in about 1 in 10 (10%) patients it may be necessary to remove or replace some or all of the valves. This may be due to an air leak (see above), infection or a valve becoming dislodged.
- **Exacerbation of COPD or Chest Infection** – up to 1 in 5 (20%) patients undergoing this procedure may experience an exacerbation of their COPD symptoms and between 1 in 10 to 1 in 20 (5-10%) patients need treatment with antibiotics for a chest infection.

## Rare Complications Include:

- **Major bleeding** - this can occur from the area where the endobronchial valves or coils are inserted. It can occur about 1 in 500 times the procedure is done. This may need a longer period of observation in hospital, in rare cases it may lead to needing a blood transfusion and other procedures may be required if the bleeding persists. Bleeding is more common if you are taking blood thinning drugs and your doctor should have advised you about when these need to be stopped, if you have not had any advice yet you should ask your doctor.

- **Damage to teeth/dental crowns** - this is rare; you will be wearing a protective mouth guard if the bronchoscope is passed via your mouth.
- **Heart problems** - bronchoscopy may put a brief minor strain on the heart. This can cause abnormal beating of the heart. It rarely causes fluid to collect in the lungs, a heart attack or the heart may stop beating.
- **Reactions to sedation or local anaesthetic** - can include vomiting and rare allergic reactions.
- **Death** – studies show similar death rates in patients undergoing the procedure as those that did not (control group). This has been reported at around about 1-2 people in 100.

## Sedation

- The length of time you will be under sedation depends on the complexity of the procedure, and the need for any extra investigations such as a biopsy.
- People vary in their response to sedative drugs; some may need higher doses while others need minimum or no sedation.
- There is a possibility that the sedative may not be effective, which means that some people may not feel sleepy or relaxed even when safe high doses are used. Should this be the case the procedure will still go ahead if you are happy for it to do so. You should not feel any more discomfort / pain than if you had responded to the sedation.
- Sedation often means that you do not have a memory of what happened but if the sedation is not effective, it is likely that you will remember the procedure.

- Some people may experience an adverse (bad) reaction to the sedative drugs that are used. These reactions are usually minor but can include: rash, nausea, vomiting and fainting due to lowering of the blood pressure.

For some patients a general anaesthetic may be required. In this case you will be asleep and unaware of what is happening during the procedure.

## **Who will perform my procedure?**

A doctor who is fully trained in this procedure, or a doctor in training under the close supervision of a consultant, will perform this procedure.

The person who goes through this form with you may not necessarily be the one who will perform the procedure. During your procedure medical or other students may be present. You can choose not to be involved in the formal training of medical and other students and this will not affect your care or treatment in any way.

# **Advice for people with diabetes undergoing bronchoscopy**

## **Morning Appointments**

### **Insulin treated patients:**

- You should have nothing to eat after midnight but may have water until 6:00am.
- Have a suitable drink equivalent to 20 grams of carbohydrate (for example 200mls of Lucozade) or chew 3 Glucose tablets between 6 and 7 am to avoid the risk of hypoglycaemia.

- Omit your normal morning dose of insulin prior to the procedure unless taking lantus or levemir.

Inform the nurse immediately of any symptoms of hypoglycaemia. As soon as it is considered safe you will be allowed to eat and drink. Only tea and biscuits are available for patients in the endoscopy department. Please bring your insulin with you. You should be aware that blood sugar levels may be disturbed by the change in your routine but should return to normal within 24-48 hours.

### **Tablet treated patients:**

Hypoglycaemia (low blood sugar) is unlikely to be a problem for patients with sulphonylurea tablets e.g. gliclazide, glibenclamide except if fasting is prolonged.

Omit your morning diabetic tablets

Take your morning tablets as soon as you are able to eat and drink safely after the procedure, followed by breakfast.

## **Afternoon Appointments**

### **Insulin treated patients:**

- You should have nothing to eat at least 6 hours before your appointment, but you can have clear fluids up to 2 hours before.
- Have a suitable drink equivalent to 20 grams of carbohydrate (for example 200mls of Lucozade) or chew 3 Glucose tablets between 10:30 and 11:00am to avoid the risk of hypoglycaemia.
- Have half the morning dose of insulin with a light breakfast.

Inform the nurse immediately of any symptoms of hypoglycaemia.

You should be aware that blood sugar levels may be disturbed by the change in your routine but should return to normal within 24-48 hours.

### **Tablet treated patients:**

- You should have nothing to eat at least 6 hours before your appointment, but you can have clear fluids up to 2 hours before.
- Do not take diabetic tablets before the procedure. You may resume your normal medication after the procedure when you are able to eat and drink safely.

You should be aware that blood sugar levels may be disturbed by the change in your routine but should return to normal within 24-48 hours.

### **Patient consent**

I acknowledge that the doctor has explained:

- my medical condition and the proposed procedure, including additional treatment if the doctor finds something unexpected. I understand the risks, including the risks that are specific to me.
- the anaesthetic required for this procedure. I understand the risks, including the material risks that are specific to me other relevant procedure/treatment options and their associated risks
- my prognosis and the risks of not having the procedure.

- that no guarantee has been made that the procedure will improve my condition even though it has been carried out with due professional care.
- tissues and blood may be removed and could be used for diagnosis or management of my condition, stored and disposed of sensitively by the hospital.
- a doctor other than the Consultant may conduct the procedure. I understand this could be a doctor undergoing further training.
- I have been given the following Patient information booklet: 'Having a Fibreoptic Bronchoscopy with Insertion of Endobronchial Valves or Coils - A Guide for Patients'
- I was able to ask questions and raise concerns with the doctor about my condition, the proposed procedure and its risks, and my treatment options. My questions and concerns have been discussed and answered to my satisfaction.
- I understand I have the right to change my mind at any time, including after I have signed this form but, preferably following a discussion with my doctor.
- I understand that image/s or video footage may be recorded as part of and during my procedure and that these image/s or video/s will assist the doctor to provide appropriate treatment.
- Please tick this box to indication that you are happy that samples obtained during the procedure can be used for research purposes.

## Patient details

**Name of procedure(s)** (include a brief explanation if the medical term is not clear)

### Flexible Bronchoscopy +/-

■ **Chartis Procedure**

■ **Insertion of Endobronchial Valves**  **or Coils**

Inspection of the lower respiratory tract with a flexible endoscope with or without testing for collateral ventilation and placement of one-way valves to collapse part of the lung.

## Statement of patient

**You have the right to change your mind at any time, including after you have signed this form.**

**I have read** and understood the attached booklet including benefits and any risks.

**I agree** to the procedure described in this booklet and on the form.

**I understand** that you cannot give me a guarantee that a particular person will perform the procedure. The person will, however have appropriate experience.

Where a trainee performs this examination, this will be undertaken under supervision by a fully qualified practitioner.

**I would like to have:**    Sedation     No sedation     Please tick box

**Signed**

**Date**

**Name** (print in capitals)

**If you would like to ask further questions please do not sign the form now. Bring it with you and you can sign it after you have talked to the healthcare professional.**

Confirmation of consent (to be completed by a health professional when the patient is admitted for the procedure).

I have confirmed that the patient understands what the procedure involves including the benefits and any risks.

I have confirmed that the patient has no further questions and wishes the procedure to go ahead.

Signed

Date

Name (print in capitals)

Job title

**PATIENT  
APPROVED** 

**How to contact us:**



**Endoscopy Department**  
**0117 414 5054**



**[www.nbt.nhs.uk](http://www.nbt.nhs.uk)**

If you or the individual you are caring for need support reading this leaflet please ask a member of staff for advice.

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