

# How is lung cancer diagnosed?

## Contents

- [Tests to diagnose lung cancer](#)
- [Further tests](#)
- [Information reviewed by](#)

Your doctors will perform a number of tests to obtain a diagnosis, determine if the cancer has spread to other parts of your body and develop a treatment plan. You may not need every test that is listed.

## Tests to diagnose lung cancer

### Chest x-ray

This x-ray is a painless scan of the chest that can show tumours one centimetre wide or larger. Small, hidden tumours don't always show up on x-rays.

### CT scan

A CT (computerised tomography) scan uses x-ray beams to take three-dimensional pictures of the inside of your body. CT scans are usually done at a hospital or a radiology service and can be used to identify smaller tumours than those found by x-rays. They can also show enlarged lymph nodes or tumours in other parts of the body.

You will receive instructions about preparing for a CT scan. An iodine contrast dye may be injected into a vein in your arm to make the scan pictures clearer.

A CT scan is painless and takes about ten minutes. You will lie on a table that slides in and out of a large, round scanner.

Before the scan tell your health care team if you are allergic to iodine, fish or dyes.

### PET scan

A PET (positron emission tomography) scan is a specialised imaging test that is available in most major hospitals. It is useful in diagnosing lung tumours where a biopsy is not possible or inconclusive. A PET scan can also be used to stage lung cancer or find cancer that has spread to other parts of the body.

You will be injected with a radioactive glucose solution. It takes 30 to 90 minutes for the fluid to go through your body, then you will have a body scan. The scan shows 'hot spots' in the body where there are active cells, such as cancer cells. Not all PET hot spots indicate cancer.

### Sputum cytology

A sputum cytology test is an examination of phlegm or mucus from your lungs (sputum).

You may be asked to collect sputum samples each morning at home. You can collect a sample by coughing deeply and forcefully. Collect any sputum that you cough up and store the sample in your fridge until you take it to your doctor, who will check for abnormal cells.

## **Fine-needle aspiration**

A fine-needle aspiration biopsy is one way of obtaining cells used for a diagnosis and is generally done where the tumour is in the outer parts of the lungs.

The doctor will use a CT scanner to insert a needle through your chest wall into the tumour. A small piece of tumour can usually be removed with the needle. Sometimes a slightly thicker needle may be used to give a larger biopsy.

The fine-needle aspiration is done in a hospital or radiology department. You will be observed for a few hours afterwards as there is a small risk of the lung partially collapsing during this procedure.

A fine-needle biopsy is less likely to be offered when the tumour is close to the heart or major blood vessels, or if you have a lung condition such as emphysema.

## **Bronchoscopy**

A bronchoscopy allows the doctor to look directly into the airways (bronchi). You will be given sedation and a local anaesthetic will be sprayed on the back of your throat to numb it. Sometimes a general anaesthetic is given.

The doctor will insert a flexible tube called a bronchoscope into your nose or mouth and down your windpipe (trachea). The bronchoscope may feel uncomfortable but it shouldn't feel painful.

During the bronchoscopy the doctor will take a tissue sample (biopsy). If the tumour is near your main respiratory tract the cells can be sampled using a technique called washing and brushing. 'Washing' means that a small amount of fluid is injected into the lung and withdrawn for examination. 'Brushing' is when the doctor uses a brush-like tool to remove some cells from the bronchi.

## **Endobronchial ultrasound**

An endobronchial ultrasound (EBUS) is a type of bronchoscopy procedure that allows the doctor to examine the airways (bronchi) and take tissue samples through the airways and windpipe (trachea).

Samples may be taken from an adjacent tumour or lymph node. The doctor will use a bronchoscope with a small ultrasound probe on the end. The bronchoscope will be put down your throat into your trachea. The ultrasound probe uses soundwaves to create a picture that shows the size and position of the tumour.

After an EBUS you may have a sore throat or cough up a small amount of blood. Tell your medical team how you are feeling so they can monitor you.

## **Mediastinoscopy**

A mediastinoscopy is a less commonly performed procedure that allows a surgeon to examine and sample lymph nodes at the centre of your chest. A rigid tube is inserted through a small cut in the front of your neck and passed down the outside of your trachea. The surgeon will inspect the area between the lungs (mediastinum) and remove some tissue. This is usually a day procedure but some people need to stay overnight in hospital.

## Thoracoscopy or thoracotomy

A thoracoscopy or a thoracotomy is an operation performed under a general anaesthetic. It is usually done if other tests are unable to provide a diagnosis. Your surgeon will do this test to take a tissue sample (biopsy) or remove the tumour.

This operation can be done in two ways. The surgeon may be able to make one or two small cuts in your chest to insert a surgical instrument called a thorascope that has a camera attached. If this isn't possible, the surgeon will open the chest cavity through a larger cut on your back. You will wake up with a drain coming from your side and stay in hospital for a few days while you recover.

## Further tests

You may also have some other tests, like blood and breathing tests, and bone, brain or MRI scans.

*This website page was last reviewed and updated November 2016.*

**Information last reviewed December 2014 by:** Prof Kwun Fong, Thoracic and Sleep Physician and Director, UQ Thoracic Research Center, The Prince Charles Hospital, QLD; Clare Brown, Case Manager for Thoracic Surgery, Royal Prince Alfred Hospital, NSW; Glenda Colburn, Director, Lung Cancer National Program, The Australian Lung Cancer Foundation; Prof David Ball, Chair, Lung Service, Peter MacCallum Cancer Centre; Dr Arman Hasani, Medical Oncologist, Sir Charles Gairdner Hospital, WA; Dr Paramita Dasgupta, Viertel Cancer Research Centre, Cancer Council QLD; Carmen Heathcote, Registered Nurse, Cancer Council QLD; Frances McKenzie, Cancer Connect volunteer, QLD.

Content printed from <https://www.cancersa.org.au/information/a-z-index/how-is-lung-cancer-diagnosed>

This website is made possible by the generous support of South Australians.  
Copyright © 2010-2018 Cancer Council SA