

Treating Lung Cancer

A Quick Guide

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You can view this information in a larger print on our website.

Lung cancer stages

The stage of a cancer means

- How big the cancer is
- Whether it has spread into nearby glands (lymph nodes)
- Whether it has spread elsewhere in the body

The tests and scans you have to diagnose your cancer will give some information about the stage. But it may not be possible to be completely sure until you have had an operation.

Doctors talk about staging a cancer in 2 main ways. The TNM staging system includes detailed information about the size of the lung tumour (T), whether there is cancer in the lymph nodes (N) and whether the cancer has spread anywhere else in the body – metastases (M).

The number staging system uses information from the TNM staging system to divide lung cancers into 1 of 4 groups – stages 1 to 4. Stage 1 is the earliest and stage 4 the most advanced.

Statistics and outlook for lung cancer

Outlook means your chances of getting better. Doctors call this prognosis. The likely outcome of treatment for lung cancer depends on how advanced the cancer is when it is diagnosed (the stage). It also depends on the type of lung cancer you have.

On our website we have quite detailed information about the likely outcome for different stages of lung cancer. The statistics we use are taken from a variety of sources. They include the opinions and experience of the experts who check every section of Cancer Research UK's patient information. The statistics are intended as a general guide only. For a more complete picture in your own case, you need to speak to your own specialist.

How reliable are cancer statistics?

No statistics can tell you what will happen to you. The same type of cancer can grow at different rates in different people. The statistics can't tell you about the different treatments individual people may have had. And they can't show how that treatment may have affected their prognosis. There are many individual factors that will affect your treatment and your outlook.

Types of treatment for lung cancer

Surgery, radiotherapy and chemotherapy are the main treatments for lung cancer. They can be used alone or together. Your doctor will plan the best treatment for you. NHS guidelines say that everyone diagnosed with lung cancer should be under the care of a multi disciplinary team. This is a team of health professionals who work together to decide how best to manage your treatment and care. There are a number of factors that your specialists take into account when planning your treatment, including

- The type of lung cancer you have
- The position of the cancer within the lung
- Your general health
- Whether the cancer has spread (the stage)
- The results of blood tests and scans
- Your own wishes

Small cell lung cancer is mostly treated with chemotherapy. Surgery is not usually suitable because this type of cancer has normally spread by the time it is diagnosed. You may also have radiotherapy.

Non small cell lung cancer can be treated with surgery, chemotherapy, radiotherapy or a combination of these. It depends on the stage of the cancer. Some people with advanced cancer may have biological therapies, if tests on their cancer cells show that they are likely to respond to these treatments. Biological therapy drugs include erlotinib, gefitinib and crizotinib.

Surgery

This is mostly used to treat non small cell lung cancers. Surgery is not normally used to treat small cell lung cancer.

If your cancer is very near your heart, windpipe, food pipe (oesophagus) or a major blood vessel, it may be better for you to have other treatments. Your doctor may suggest chemotherapy or radiotherapy instead. If you have other health problems such as a severe heart condition or other lung disease, you may not be fit enough to have major lung surgery.

There are 3 main types of surgery for lung cancer. These are removing a section of lung, removing a lobe of the lung (lobectomy) or removing the whole lung (pneumonectomy)

Diagram showing the removal of one lobe of the lung (lobectomy)

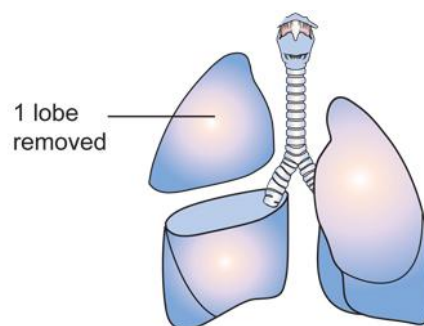
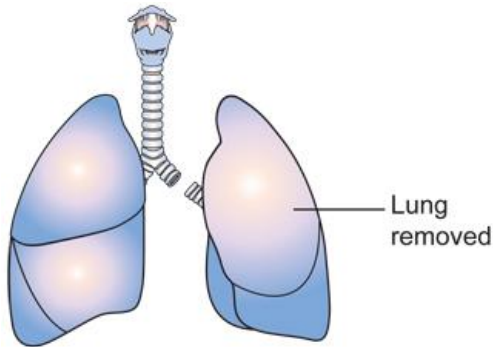


Diagram showing removal of the whole lung (pneumonectomy)



During your operation your surgeon will remove some glands (lymph nodes) from around the lung. The surgeon sends the lymph nodes to the laboratory where they are examined under a microscope. If the nodes contain cancer cells, you may need more treatment after surgery.

Keyhole surgery is sometimes used to remove early, small non small cell lung cancers. In this type of surgery the surgeon removes the cancer through several small cuts rather than 1 larger wound.

If your cancer has spread

A major operation to remove your cancer will not be the right treatment for you if your cancer has spread to anywhere else in your body. Your doctor will probably suggest other treatment, such as chemotherapy and radiotherapy.

Before surgery for lung cancer

Your surgeon and specialist nurse will explain what the operation involves before your operation. They may meet you in the outpatient pre assessment clinic or when you arrive at the hospital for your surgery. They will answer any questions that you have.

Your doctor will ask you to sign a form saying that you agree to have the operation. They will also want to do some blood tests to check your health and make sure you are not anaemic. They will probably also want you to have a heart test called an ECG (electrocardiogram).

Tests for your breathing

If you are going to have part, or all, of a lung removed, your doctor must be sure you will be able to breathe comfortably afterwards. They may want you to have lung function tests. These tests measure how much air you can breathe in and out.

When you go into hospital

Before your operation you will see a physiotherapist and a doctor. The physiotherapist will teach you breathing exercises and leg exercises to do after your operation. These will help you to avoid chest infections or blood clots in your legs as you recover. You may also have injections of anti clotting drugs just under the skin. Your nurse may give you elasticated stockings to wear.

After surgery for lung cancer

After your operation, you may wake up in intensive care (ICU) or a high dependency recovery unit (HDU). You may feel very drowsy. As soon as your doctors are sure you are recovering well, you will move back to the ward. The nurses and physiotherapists will get you moving about as soon as possible after your operation. They will also help you to do breathing and leg exercises to help stop complications like chest infections or blood clots in the legs.

To start with, you are likely to have some tubes in place. You will have a drip into your arm. And you will have drainage tubes from your wound, connected to a bottle. You will have regular chest X-rays to make sure your remaining lung tissue is working properly.

Painkillers

You will have some pain for the first few days. If you are in pain, it is important to tell your nurse or doctor as soon as possible. With your help, they can find the right type and dose of painkiller for you. Rarely, some people have pain that starts a few weeks or months after their operation from damaged nerve endings growing back. If you have any pain after your operation, do tell your surgeon.

Going home

You will probably be ready to go home 5 to 10 days after your operation. It may be sooner if you have had keyhole surgery. When you get home, it is important to exercise to get yourself fit again. Check with your doctor or physiotherapist about exercise before you leave the hospital. It is important to start slowly and not overdo it. It may be 4 to 6 weeks before you can drive again although it may be sooner if you have had keyhole surgery.

What to ask your doctor about lung cancer surgery

- Why are you recommending surgery for me?
- Which type of operation should I have and why?
- Are there any other choices of treatment?
- What are the risks and benefits of having this operation?
- How safe is the operation you recommend for me?
- What is the aim of the operation – will it cure the cancer?
- How many of this type of operation do you do each year?
- What are the results?
- Can I talk to anyone who has had this operation?

- Will I need other treatment as well as surgery?
- What are the long term side effects of this operation?
- Will I have any pain after this operation?
- Will I be able to breathe properly afterwards?
- How can I help myself get over the surgery?

Radiotherapy

This type of treatment uses high energy rays to kill cancer cells. Cancer specialists use radiotherapy to treat all types of lung cancer. Mostly radiotherapy is external. You may have internal radiotherapy to treat a blockage in an airway.

External radiotherapy

Most radiotherapy for lung cancer is external radiotherapy. The radiation is aimed at your body from a machine. You have the treatment in the hospital radiotherapy department. Treatment plans vary from person to person and depending on the aim of the treatment. You may have 1 treatment, 2 treatments about a week apart, or daily treatments from Monday to Friday for a few weeks. Some people have 3 treatments a day for about 12 days, including weekends. Some people have treatment twice a day for small cell lung cancer.

If you are having radiotherapy to help control symptoms, you may have 1 treatment, 2 treatments about a week apart, or daily treatments for up to 3 weeks.

Radiotherapy for non small cell lung cancer
For early stage cancer your doctor may suggest radiotherapy to get rid of the cancer, instead of surgery. This is called radical radiotherapy. Your doctor may suggest it if you can't have an operation due to a medical condition such as heart failure or lung disease. Or it may be the best treatment if the cancer is close to your heart or in an awkward place in the lung and surgery would be too difficult. Some people may have radiotherapy after chemotherapy or surgery.

There are different treatment plans for radical radiotherapy. A plan called CHART means you stay in hospital or a hostel nearby and have 3 treatments each day for 3 weeks, including at weekends.

One plan involves having 1 treatment each day from Monday to Friday, for between 4 and 7 weeks. Some people have a treatment called stereotactic radiotherapy for small tumours on the outer part of the lung. You have this 3 to 5 times over 2 weeks as an outpatient.

Chemotherapy and radiotherapy together

You may have chemotherapy alongside your radiotherapy. This can sometimes help radiotherapy to work better. Some people have chemotherapy followed by radiotherapy (sequential treatment).

Some people have both treatments together (concomitant chemoradiation). This causes more severe side effects than having the treatments separately, so you need to be quite fit to have it.

Radiotherapy for small cell lung cancer

Your doctor may suggest radiotherapy after or alongside chemotherapy for small cell lung cancer, to help stop the cancer coming back in the lung. Your doctor will be most likely to suggest this treatment if your cancer has shrunk a lot or disappeared after your chemotherapy. You have this type of radiotherapy over about 3 to 6 weeks.

Radiotherapy to prevent cancer spread to the brain
Your doctor may suggest you have radiotherapy to the head because small cell lung cancer can spread to the brain. Giving radiotherapy makes it much less likely that this will happen. Your doctor may call this prophylactic cranial radiotherapy or PCI. You have treatment over 1 to 3 weeks and side effects include tiredness, headaches, and feeling or being sick.

Radiotherapy to relieve symptoms

Your doctor might use radiotherapy to help control symptoms. For example, you might have radiotherapy to your chest to help control pain, breathlessness or a cough. Or you may have radiotherapy to a bone that is causing pain because the cancer has spread there. You may have 1 treatment only, 2 treatments about a week apart, or a course of treatment over about 2 weeks.

You might also have radiotherapy to treat symptoms of lung cancer that has spread to the brain. Your doctor may call this secondary brain cancer or cerebral metastases.

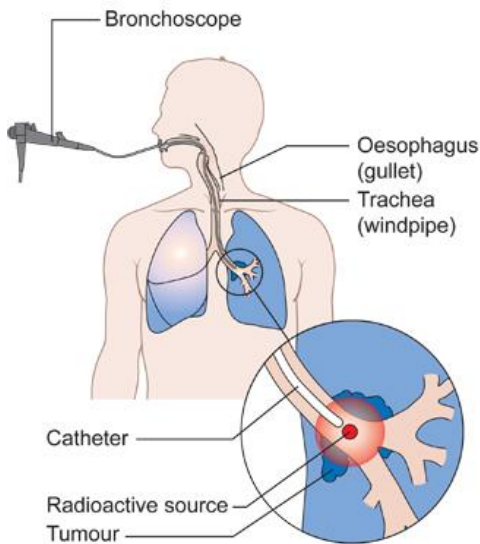
Internal radiotherapy for lung cancer

This is called brachytherapy or endobronchial therapy. The radiotherapy is delivered inside the lung airway. You may have this treatment if a tumour is blocking your airway. It can shrink the blockage to help make your breathing easier and quieter. It can also help control infections and bleeding caused by the tumour. You can have this treatment repeated 2 to 3 times if the blockage grows back.

You usually have a local anaesthetic and a medicine to make you drowsy called a sedative. The doctor puts a tube called a bronchoscope into your windpipe, either through your nose or your mouth. They then put a thin tube called a catheter through the bronchoscope and into your lung.

The doctor puts a radioactive source down the catheter and positions it next to the tumour. The source is a radioactive metal that gives a dose of radiation to a small area around it. The doctor leaves it in place for a few minutes. The treatment does not hurt. Most of the radiotherapy dose goes straight to the cancer and very little reaches healthy tissue. This means there are few side effects. Your throat may feel a bit sore for a few days. And you may find that you have a cough and produce more phlegm temporarily.

Diagram showing how you have internal radiotherapy for lung cancer



Lung cancer radiotherapy side effects

The side effects you have from radiotherapy depend on your treatment plan. A few weeks of treatment will have different side effects from treatment given in 1 or 2 doses. Radiotherapy side effects usually come on slowly and last for a few weeks after your treatment ends.

General side effects of radiotherapy for lung cancer can include

- Tiredness and feeling run down
- A sore throat and difficulty swallowing
- A cough
- Hair loss
- Chest pain
- A temperature and shivering
- Feeling sick
- Sore skin in the treated area

Tell your doctor or radiographer if you have side effects. Often they can prescribe medicines to help.

A small number of people have long term side effects, which develop up to 2 years after treatment has finished. Serious long term side effects are rare. If you have radiotherapy just to treat symptoms, you are very unlikely to have side effects.

Long term side effects are caused by the development of fibrous tissue, which is less stretchy than normal tissue. This is called fibrosis. It may affect your lungs and make your breathing worse. Sometimes fibrosis can narrow your food pipe. This can usually be relieved with a small operation. Rarely, your spine or the covering of your heart can be damaged by radiotherapy.

What to ask your doctor about lung cancer radiotherapy

- Why are you recommending radiotherapy for me?
- Is the radiotherapy aiming to get rid of my cancer or make my symptoms better?
- How long will the course of treatment last?
- I've heard of radiotherapy that gives different doses to different parts of the cancer. Is this suitable for me?
- I've heard of radiotherapy that uses regular scans to check the position of the tumour. Is this suitable for me?
- Are there any other treatment options for me?
- What are the side effects likely to be?
- Can I do anything to help prevent the side effects?
- What can help if I have trouble swallowing?
- With radiotherapy to the head will I lose my hair?
- Will the hair grow back?
- How should I look after my skin?
- Are there likely to be any long term side effects?
- Can I get help paying my fares to and from the hospital?

Chemotherapy

This means using anti cancer (cytotoxic) drugs to destroy cancer cells.

Chemotherapy for small cell lung cancer

This is the main treatment for most people with small cell lung cancer, which responds very well to chemotherapy. And because chemotherapy circulates in the bloodstream, it can treat any cells that have already broken away from the lung tumour and spread elsewhere in the body. Some people have chemotherapy combined with radiotherapy.

Chemotherapy for non small cell lung cancer

Doctors may use chemotherapy after surgery for early stage non small cell lung cancer (NSCLC). You may have it before or after radiotherapy. These treatments aim to get rid of the cancer.

If you have advanced non small cell lung cancer, your doctor may suggest combined treatment with radiotherapy and chemotherapy. The treatment won't cure the cancer but can keep it under control for some time.

Chemotherapy to control symptoms

You may have chemotherapy to help control symptoms of lung cancer that has spread into surrounding tissues or to other parts of the body.

How you have chemotherapy

You have most chemotherapy drugs by injection into a vein or through a drip. But some are tablets or capsules that you swallow. Usually, you have treatment with a combination of 2 or 3 different drugs. Most often, you have chemotherapy every 3 or 4 weeks. You usually have 4 to 6 treatments. So a full course can take 3 to 4 months.

Side effects of lung cancer chemotherapy

Chemotherapy drugs affect people in different ways. The side effects vary from person to person. Some people have few side effects and others have more.

Low blood cell levels

Chemotherapy can lower the number of healthy blood cells you have. You may be more tired than usual and have bleeding problems, such as nose bleeds. It can also mean you are more likely to get infections. **It is very important to contact the hospital straight away if you think you have an infection, or if you have a temperature of 38°C or higher.** Your nurse will give you an emergency telephone number to contact the hospital if this happens.

Other side effects

You may feel or be sick and have diarrhoea. Your doctor can give you medicines to help manage these side effects.

Some chemotherapy drugs cause hair loss or hair thinning. Your hair will grow back when the treatment is over.

You may have mouth ulcers or a sore mouth. Regular mouthwashes can help to prevent infection.

Some people feel very tired during and after chemotherapy. Try to take things more slowly if you need to.

What to ask your doctor about lung cancer chemotherapy

- Why are you recommending chemotherapy for me?
- What do you hope the treatment will do for me?
- How will you know if the treatment is working?
- If it isn't working will you stop the treatment?
- What are the risks and benefits of this treatment?
- How often will I have to go to the hospital?
- Can I have the treatment as an outpatient or will I have to stay in hospital?
- How long will the course of chemotherapy be?

- Is there any other choice of treatment?
- What are the side effects likely to be?
- What can I do to reduce the side effects?
- Are there any new treatments in clinical trials that may help me?

Biological therapy for lung cancer

These are treatments that control or stop the growth of cancer cells. Some types of biological therapy can treat advanced non small lung cancer. They include erlotinib (Tarceva), gefitinib (Iressa), crizotinib (Xalkori) and afatinib (Giotrif).

Other types of biological therapy are being tested in research trials. Research is also looking at using some biological therapies to treat earlier stages of lung cancer.

Side effects of biological therapies

The side effects vary depending on which drug you have. But the possible side effects of biological therapies for lung cancer include

- Tiredness (fatigue)
- Diarrhoea
- Skin rashes or discolouration – rashes may be severe for some people
- A sore mouth
- Weakness
- Feeling sick
- Loss of appetite
- Low blood counts
- Swelling of parts of the body, due to build up of fluid

Radiofrequency ablation for lung cancer (RFA)

This uses heat made by radiowaves to kill cancer cells. You may have this to destroy small, very early stage non small cell lung cancer if you don't want to have surgery. Or you may have it to treat a blockage in an airway in advanced lung cancer.

You have RFA under local or general anaesthetic. The doctor passes a small probe (like a needle) through the skin and directly into the tumour. Heat from the probe destroys the tumour.

You may need to stay in hospital overnight after the treatment. For a few days afterwards, you may have some discomfort or pain, a slight temperature and feel a bit tired and weak.

Photodynamic therapy for lung cancer (PDT)

This type of treatment uses a drug that makes cancer cells sensitive to light (a photosensitising drug), combined with a laser light. You may have this to destroy small, very early stage non small cell lung cancer if you don't want to have surgery. Or you may have it to treat a blockage in an airway in advanced lung cancer.

To have PDT, you have an injection of a photosensitising drug which stays in cancer cells longer than in normal cells. A few days later, you have a tube put into your airway (a bronchoscope) and the doctor shines a light down the tube and at the tumour. The light triggers the drug to destroy the cancer cells.

You may need to stay in hospital overnight. And 2 days later, you have another bronchoscopy to remove damaged tissue from the area. Afterwards, you may have a sore throat and cough up blood and mucus for a few days. Your skin will be sensitive to light for around 6 weeks or more after treatment. So you will have to avoid bright sunlight and bright indoor light.

Follow up for lung cancer

After your treatment has finished, you will have regular check ups. Your doctor or specialist nurse will usually examine you and listen to your chest. They will ask how you are feeling, and whether you have had any new symptoms. You may also have chest X-rays, CT scans, ultrasound scans or blood tests at some visits.

How often you have appointments depends on the treatment you've had and how well it has worked. You might go to the hospital or see your GP. At first your check ups will be every few months. If all goes well, they will gradually become less frequent. If you are worried, or notice any new symptoms between appointments, you must let your doctor or specialist nurse know straight away. You don't have to wait for your next appointment.

If you have symptoms due to advanced cancer, you might see a specialist nurse or palliative care team regularly. They may visit you at home. They will check to make sure your symptoms are as well controlled as possible. And they can advise you about any practical help and support that you and your family need.

Many people find their check ups quite worrying. If you are able to share your worries, they may not seem quite so bad. It is quite common nowadays for people to have counselling after cancer treatment.

Lung cancer research

There are several areas of active lung cancer research. Trials and studies are looking into causes, screening, treatments and living with lung cancer. Cancer Research UK are committed to making a difference to people with lung cancer. Our research was behind some of the drugs that have had the biggest impact on treating this disease – including cisplatin, carboplatin, pemetrexed and etoposide. Lung cancer research continues to be a priority for Cancer Research UK.

Treating Lung Cancer – A Quick Guide

Research into diagnosis and staging

Research is looking at tests to try and improve the diagnosis and staging of lung cancer. Staging means how large the cancer is and whether it has spread. It is important for doctors to know the stage of the cancer because the stage affects which treatment is appropriate.

Doctors are looking at various new types of test to see if they can diagnose lung cancer more quickly and stage it more accurately. The tests include

- DNA tests
- Protein tests
- Looking inside the airways using ultrasound
- Scans such as newer types of MRI scans, CT scans, and PET scans

Research into lung cancer treatment

All treatments must be fully researched before they can be adopted as standard treatment for everyone. This is so that we can be sure they work better than the treatments we already use. And so we know that they are safe.

First of all, treatments are developed and tested in laboratories. Only after we know that they are likely to be safe to test are they tested in people, in clinical trials. Researchers are looking into new treatments and also new ways of using existing treatments. These include

- Radiotherapy
- Chemotherapy
- Biological therapies
- Surgery
- Microwave treatment
- Blood thinning drugs
- Cholesterol reducing drugs
- Diabetes drugs
- Unblocking an airway

Other research is focusing on trying to find out which symptoms could show that a lung cancer has come back.

What to ask your doctor about lung cancer treatment

- What is the stage of my cancer and what does that mean for me?
- What is the grade of my cancer and what does that mean for me?
- What sort of treatment do I need?
- Is there any choice of treatments?
- How long will I have treatment for?
- Is there any written information I can have on my treatment?
- Is there a specialist nurse I can see?
- How often will I need to travel to hospital?
- Is there any transport or help with fares available?
- Could you arrange for me to have a second opinion?
- How often will you want to see me when my treatment is finished?
- What will happen at my follow up appointments?
- What should I do if I am worried between appointments?
- Is there anything I should be looking out for?

For more information, visit our website <http://www.cruk.org/cancerhelp>

You will find a wide range of detailed, up to date information for people affected by cancer, including a clinical trials database that you can search for trials in the UK. Our information is based on the best current scientific evidence and reviewed regularly by leading clinicians and experts in health and social care.

For answers to your questions about cancer call our Cancer Information Nurses on 0808 800 4040 9am till 5pm Monday to Friday.

Adapted from Cancer Research UK's Patient Information Website CancerHelp UK in July 2014. CancerHelp UK is not designed to provide medical advice or professional services and is intended to be for educational use only. The information provided through CancerHelp UK and our nurse team is not a substitute for professional care and should not be used for diagnosing or treating a health problem or disease. If you have, or suspect you may have, a health problem you should consult your doctor. Copyright Cancer Research UK 2014. Cancer Research UK is a registered charity in England and Wales (1089464), Scotland (SC041666) and in the Isle of Man (1103)