ROY CASTLE
LUNG CANCER
FOUNDATION

Surgery for lung cancer

Introduction

If you or someone you care for has just been diagnosed with lung cancer then it's almost certain that you will have lots of questions which need answered. This booklet was produced in partnership with lung cancer experts and people affected by lung cancer.

Understanding your lung cancer may help you make informed decisions about your care. Please remember that most healthcare professionals are only too happy to answer your questions and discuss any of your concerns. This booklet should be used along with information provided by your healthcare team.

We hope that this booklet will be of use to you. However, if any of your questions remain unanswered, talk to your cancer doctor or lung cancer nurse specialist, or call the **Roy Castle Lung Cancer Helpline free on 0333 323 7200 (option 2)**. You can also contact one of the many support organisations available (see page 51 of our *Living with lung cancer* booklet). You can also view the support organisations online at **www.roycastle.org/usefulcontacts**

Our *Lung cancer - answering your questions* pack contains two booklets - *Living with lung cancer* and *Managing lung cancer symptoms*, along with a DVD. Also available are four separate treatment booklets which can be slotted into the pack as required.

- Chemotherapy for lung cancer
- Radiotherapy for lung cancer
- Surgery for lung cancer
- Targeted therapies for lung cancer

You can view and order this information online at **www.roycastle.org/ayqpack** or call the **Roy Castle Lung Cancer Helpline free on 0333 323 7200 (option 2)**.

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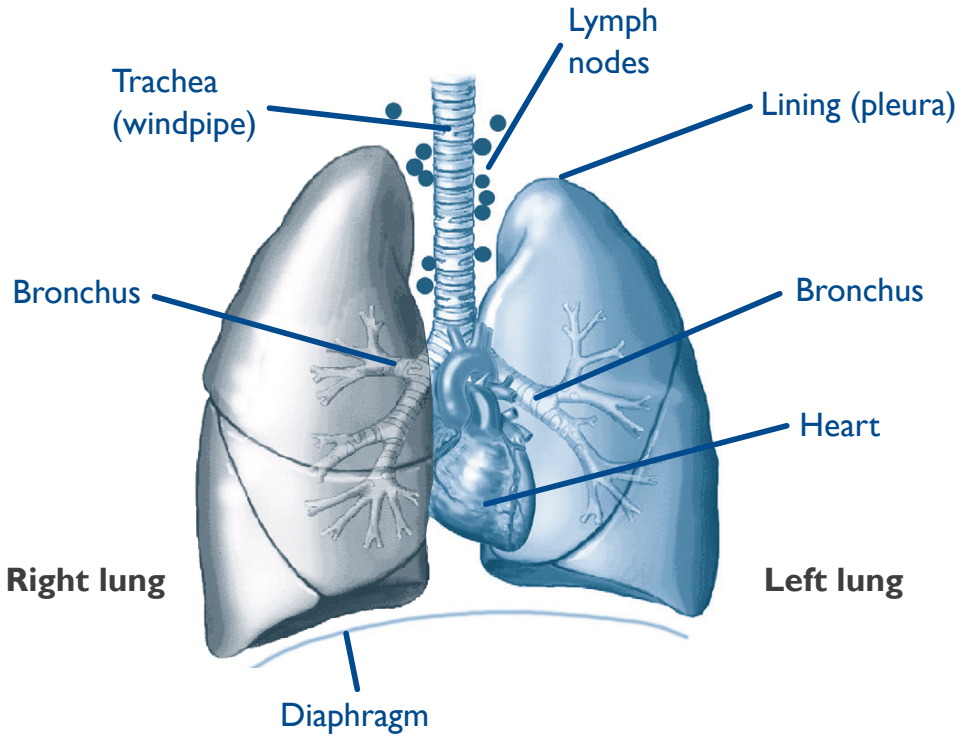
Understanding surgery for lung cancer

What does surgery for lung cancer involve?

Surgery for lung cancer involves an operation, which aims to remove all the cancer from the lung.



Who will carry out my operation?

In the UK, we have cardio-thoracic (heart and lung) and thoracic (lung only) surgeons. Your surgeon should have regular experience of carrying out surgery to remove lung tumours. If you are being treated in a cancer centre, there may be a team of thoracic surgeons who work together.

How will it be decided if I am suitable for surgery?

It is more common for non-small cell lung cancers to be surgically removed as they are generally slower growing. However, small cell lung cancer can occasionally be removed if the disease is at a very early stage of development.

A team made up of various healthcare professionals (including a thoracic surgeon) should be involved in your care. This is called a multi-disciplinary team or MDT. At the regular MDT meetings, they will look at the results of your CT scans, PET scans and lung function tests.

They will also discuss the need for further tests to find out the stage of your lung cancer. You will then be referred to see the appropriate specialist to treat your lung cancer, such as a thoracic surgeon or cancer doctor.

What will affect whether I am able to have surgery?

Surgery is most often suitable for people with early stage lung cancer, where the cancer has not spread beyond the tumour, or only to a few lymph nodes. TNM staging involves looking at:

- The size and location of your tumour, known as the T stage
- Working out whether your cancer is in the lymph glands or nodes, known as the N stage
- Whether the cancer has spread outside the chest to other parts of the body, this is known as the M stage for metastasis.

Occasionally people with more advanced lung cancer (where the cancer has spread to outside the chest) may be offered surgery along with other treatments.

For more information on the MDT and staging for lung cancer, see our *Living with lung cancer* booklet. See page 2 for details on how to get a copy.

Your surgeon needs to be sure of your diagnosis of lung cancer. Usually he/she will have this from the biopsy you have had. These results will help the surgeon, working with the MDT, decide the best treatment for you. Sometimes a biopsy will need to be taken during your operation to confirm these results.

The surgeon must be able to completely and safely remove the tumour and the surrounding lung without damaging crucial structures in your chest, for example parts of the heart.

You and your lungs must be fit enough to cope with the surgery. This is called your Performance Status and is a scale that includes your general fitness, any other health problems you have that might affect you during or after the operation. The surgeon will ask you about any symptoms you have, assess how far you are able to walk and will ask about any other medical problems. Lung function tests will establish how well your lungs are working (air/oxygen capacity) and usually involve blowing into a mouth-piece.

What tests may I have before the surgery?

A sample (biopsy) of your lung cancer may be taken by bronchoscopy or CT guided biopsy as part of the tests to diagnose and stage your lung cancer. These tests are usually done before meeting the surgeon.

However, if it has not been possible to take a biopsy due to the position of the cancer, or it has been suggested that a pre-operative biopsy is not needed, it will be taken at the time of your operation. The surgeon may take a sample of the tumour and send to the pathology lab to confirm the diagnosis of cancer (called a frozen section) while you are under anaesthetic and will then perform the appropriate surgery.

There are various other surgical tests which the surgeon may also perform to make sure you are suitable for surgery to remove the cancer. Each of these procedures requires a general anaesthetic and are commonly, but not always, done as day-case operations where you are able to come to the hospital on the day of the surgery and go home in the evening after the operation.

Cervical Mediastinoscopy: A small cut is made in the bottom of your neck and a camera is inserted along the windpipe to examine and sample the lymph glands or nodes on the sides of the wind pipe and centre of the chest (mediastinum).

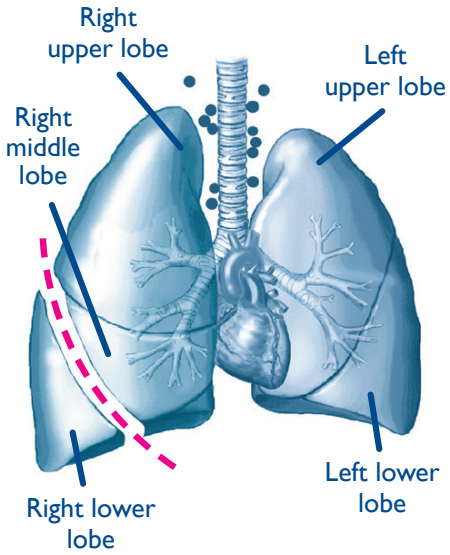
Anterior Mediastinotomy: A small cut is made in front of the upper chest between the ribs along the breast bone (commonly on the left side) to examine and sample the lymph glands in the centre of the chest (mediastinum).

For both Cervical and Anterior Mediastinoscopy, this will help decide whether the cancer has spread to the lymph glands (N stage) and what type of treatment is best for your cancer.

VATS – Video Assisted Thoracoscopic Surgery (Keyhole Surgery): A camera is inserted through two or three small cuts (3-5cm) into your chest to examine and sample the lymph glands or nodes in the centre of the chest (mediastinum). It also allows the surgeon to assess the chest cavity and the tumour and may help decide if surgery to remove the cancer is possible. You will normally be required to stay in hospital for 24-48 hours after the surgery.

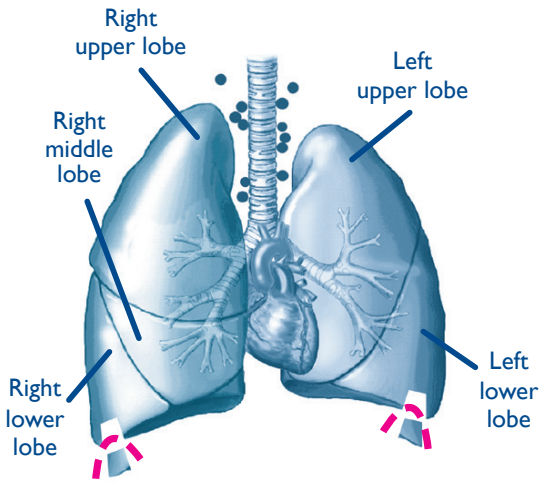
What are the main types of surgery for lung cancer?

These are described below:

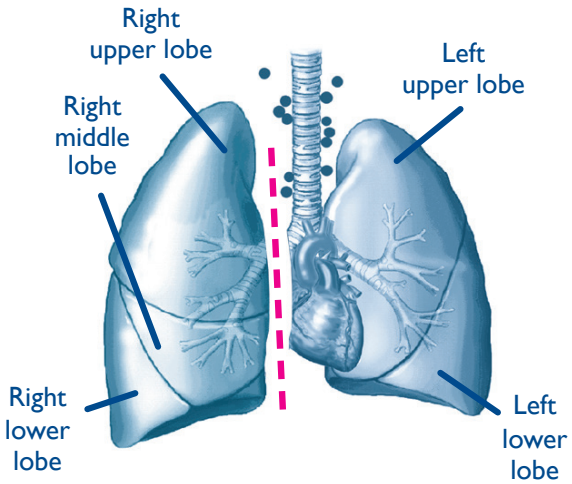


Lobectomy - This is performed when your cancer is only in a single lobe of the lung. There are two lobes on the left and three on the right. This procedure involves the removal of a lobe of the lung. The remaining lung will expand and fill the space left by the lung tissue that has been removed. A bi-lobectomy is the removal of two lobes of the lung on the right side. Sometimes the surgeon may remove part of the main airway with the lobe and join the two ends to make sure all the cancer is removed. This procedure is called a sleeve lobectomy.

Segmentectomy/Wedge resection - Each lobe of the lung is made up of several segments. If your physical condition will not allow more extensive surgery, or the cancer is small, the surgeon may be able to remove just a segment, or small piece of lung tissue surrounding the cancer, rather than the whole lobe. This is called a sublobar lung resection.



Pneumonectomy - This involves removing a whole lung. The remaining lung will then need to work a bit harder but will soon become used to the workload.



Along with removing the tumour with part or even the whole of the lung, the surgeon will remove lymph glands or nodes from the chest, as part of the operation. This will help decide if further treatment, such as chemotherapy, will be needed following the surgery.

What are the risks of surgery?

When you meet the surgeon to discuss removing the lung cancer, a very important part of the meeting is to discuss the benefits and risks of the operation.

The benefits of the operation are to remove the lung cancer and based on the stage of the cancer after it has been removed, decide on further treatment. It will give you some idea what the likely chance is of being

cured from lung cancer. Along with the benefits the surgeon must decide on the risks of surgery to remove the cancer.

The risks of surgery depend on several things including the type of operation you are having and your fitness for surgery. All surgery carries a risk of serious complications. Surgery also carries a risk of death, this is called operative mortality. Operative mortality will depend on the type of surgery but also on your fitness; whether you have any other medical problems including heart problems. Your surgeon will take this into account, along with your lung function breathing test, to consider whether you should have surgery.

The chance of having some problem after the surgery which may or may not delay your discharge home is around 25 in 100 or 25% of people. This includes some more important problems or complications such as chest infection (pneumonia), wound infection and an irregular heart rhythm which may require further treatment or even additional support for your breathing. Other complications of surgery can include excessive bleeding, blood clot in your leg (deep vein thrombosis or DVT) or blood clot in your lung (pulmonary emboli).

One quite common reason that your discharge (going home) following the operation may be delayed is because of an air leak. An air leak can happen when the stitch line, which is where the lung tissue is joined after the tumour has been taken out, continues to leak. The drain or tube placed in the chest after the surgery is there to allow this air to escape but whilst the air leak continues the drain cannot be removed. It usually settles quickly but can take longer than expected.

In the UK, 2 in 100 patients, or 2% of people who have a lobectomy will be at risk of operative mortality. If you are having a pneumonectomy, 8 in 100 or 8% of people who have this surgery will be at risk of operative

mortality. Sublobar resection, which is either a segmentectomy or wedge resection, involves removing less lung but carries a higher risk. This is because it is often possible for people who are less fit and have other health problems to have this surgery. Risk of death is 4 in 100 or 4% of people having this type of surgery. You can ask your surgeon for more information on the statistics for lung cancer surgery at your hospital.

How does the surgeon get to my lungs?

There are two main ways for the thoracic surgeon to get into the chest. These are described below:

Thoracotomy - The name given to the incision (cut) that the surgeon makes around the side of your body, below your shoulder blade and between your ribs. It involves spreading the ribs to get access to the lungs.

VATS - Video Assisted Thoracoscopic Surgery (Keyhole Surgery) - This is where your surgeon uses a camera, inserted through two or three small cuts (3-5cm) into your chest, to perform the operation. Incisions (cuts) are generally made under the arm and/or just below the shoulder blade. The ribs are not spread and this may help the speed of your recovery following the operation.

Your surgeon will discuss with you the best way to get into the chest for your operation.

"Before my surgery, the surgeon explained that when I woke up, what would be in me (drains, pain relief, etc) and what sort of machines I'd be wired up to. This was really helpful and helped reduce fear as I'd not had surgery since tonsillectomy aged 4. It helped reassure me that things were normal."

Janette

Preparing for your operation

How long will I have to wait for my operation?

This varies from one hospital to another and sometimes depends on whether pre-operative tests are required. A letter will usually be sent to you giving you the details and the date that you need to come into hospital or you may be contacted via telephone.

What will happen before my operation?

You may be invited to attend a pre-surgical assessment clinic prior to your surgery depending on your hospital's local policy. In that clinic you will have the pre-operative investigations routinely performed before your surgery. It may be necessary to repeat your CT scan if the previous one is over six weeks old. You will be able to ask questions about your admission to hospital, the operation and what to expect after the surgery.

I'm concerned about the risk of infection – how can I help reduce my risk?

Before coming into hospital you will be told how to prepare your skin, to make sure that it is thoroughly clean. This will reduce the risk of you developing an infection. Every hospital has its own policies and procedures for reducing the risk of infection. If you have further concerns or questions, please ask your healthcare team.

I am a smoker, is it worthwhile trying to quit before I get my surgery?

Healthcare professionals appreciate how difficult stopping smoking can be for some people, especially with the stress of being diagnosed with lung cancer, but the health benefits are clear. If you stop smoking before the operation, you will improve your circulation and reduce the amount of poisonous chemicals in your body. Research evidence shows that having cleaner lungs may also help speed up your recovery and reduce some of the risks of surgery, particularly chest infection. If you are able to stop smoking following surgery it will reduce the risk of the cancer returning and increase your chance of survival.

Ask your GP, cancer doctor or lung cancer nurse specialist for advice on giving up smoking. Contact details of stop smoking support and helplines can be found at the back of the *Living with lung cancer* booklet. See page 2 for details on how to get a copy.

Should I change my diet before my operation?

Before your operation, it is important to eat a balanced diet as this will help your body recover from surgery. If you are underweight and/or losing weight, it can be more difficult and can take longer to feel better. Try to make sure that you are eating regularly, including snacks and nutritious drinks, such as milkshakes or fruit smoothies, to keep your weight stable. If you are struggling with breathlessness try to eat little and often and take smaller mouthfuls of food. Soft or moist foods are often easier to eat, if your mouth gets dry. If you are having problems eating, ask your doctor or nurse for a referral to a dietitian.

What will I need to take to hospital?

You will need to check with your own hospital but as a general rule pack a bag containing the following:

- At least two sets of nightwear with loose fitting tops.
- Dressing gown and well fitting slippers.
- Toiletries – soap, flannel, toothbrush, toothpaste, tissues, comb, shaving items.
- A pen for completing your menu card.
- A small amount of loose change.
- Any medication that you are presently taking.

TOP TIP It is not advisable to take expensive items or large amounts of money. Your property is your responsibility unless you decide to hand it to the hospital for safe keeping.

When you are in hospital

What happens when I arrive at hospital for my surgery?

When you arrive on the ward a member of the nursing staff will meet you and show you to your bed area. Occasionally, you may have to wait a short time for your bed and you may be asked to sit in the dayroom.

Once you have settled in, the nurse will come and admit you by asking you a range of questions. Your temperature, pulse and blood pressure will be taken. You will have the opportunity to ask questions and discuss your planned care. If you have a Living Will/Advance Directive, take a copy with you and make sure it's added to your notes.

You may also see other members of the hospital team such as the surgeon, the anaesthetist and the physiotherapist. Your operation will be explained to you and you will be asked to sign a consent form. Please feel free to ask further questions at this point. Remember to mention any previous adverse reactions to anaesthetics or pain relief medications, so that alternatives can be found.

Blood tests and perhaps a tracing of your heart (ECG) may also be obtained but are often carried out in pre-operative assessment clinics. It may be necessary to repeat your CT scan if the previous one is over six weeks old.

The above may vary slightly from hospital to hospital.

What happens to me before my operation?

The anaesthetist is the doctor who will put you to sleep at the start of your operation and may also prescribe medicine (pre-med) to help you to relax and make you feel sleepy before the surgery. Not everyone will be given a pre-med but if this is needed you will receive this roughly one to two hours before going to theatre. Following this it is advised that you stay in bed for your safety. The anaesthetist will also discuss the best method of pain control for you.

You will not be allowed to eat or drink for several hours before your operation. This is to prevent sickness and vomiting whilst under the anaesthetic (this may vary from hospital to hospital and your healthcare team will give you advice).

You will be given special stockings to wear. These help to improve your circulation and prevent blood clots developing in your legs (DVT or Deep Vein Thrombosis). A nurse will help you if required (See page 26 for more information).

Sometimes it may be necessary to remove unwanted hair from the area of skin where the cut will be. The nurse will help you if this is required.

A member of the surgical team will mark the site of the surgery on your skin, sometimes called surgical site or skin marking.

What will happen to me in theatre?

When it is your turn to go to theatre the nurse will take you, together with a theatre assistant. The theatre staff will check your details and then take you into the anaesthetic room. Here you will have a small needle inserted into the back of your hand. This will be used to give you the medication that will help you to fall asleep. The theatre staff may start a 'drip' to prevent you from becoming dehydrated. A catheter may be passed

into your bladder to enable you to pass water easily and to accurately monitor your urine output. A fine tube (epidural or paravertebral) may be passed into your back in order to give you pain relief after the operation.

You will then be taken into theatre where the surgical team will carry out the operation.

After the operation, you will be taken into the recovery room. This is where you will wake up from your anaesthetic. You may feel a little confused and unsure where you are. The nurses and doctors will monitor you closely until they feel you are ready to leave the recovery area. They will give you some oxygen and check that you have enough pain relief.

As you start to wake up you may notice that you have a few tubes and wires attached to you. These are to help monitor you. Chest drains are usually placed to remove any fluid collections that may build up in your chest as a result of the surgery. You may have some or all of these tubes/lines in place when returning from theatre depending on your type of operation.

What happens to me after I leave theatre?

When you leave theatre you may go back to the ward or you may go to the high dependency unit. You will feel drowsy but will be able to wake up. During the first hour of your return the nurses will be busy making sure you are comfortable and setting up the monitoring equipment, drips and checking your pain relief. You will have an oxygen mask on to help your breathing.

Your chest drains will remove any old blood or air left over from surgery and may make a sound similar to rain falling. This is normal and nothing to worry about. The drains remain in place until the surgeon is happy that the lung is fully inflated or that drainage is minimal and that you have no persistent air leak from the remaining lung. The drains may be put on suction to help the lungs expand. Getting up and about even with the drains is actively encouraged.

When will I be able to eat and drink?

When you are fully awake you will be able to have sips of water. Once you can manage sips of water you will be able to have a cup of tea or squash. This will usually be about one to two hours after returning from theatre. You may not feel like eating much until the following day.

Will I be in pain after my operation?

Surgery can be painful so it is essential that you have enough pain relief. Strong pain relief can be used. These can be given either directly into the spine through a small tube (epidural), into the wound area (paravertebral), through a drip in your arm, as an injection or tablets.

If you have an epidural it will normally be in for around three days after your operation. If you are able you can move around the bed area and sit in a chair. The nurse will ask you about your pain relief regularly.

If you have an epidural it should not feel painful. Surgery will be uncomfortable and it is not possible to take all the discomfort away with pain relief, however you should not be in pain. Please let the nurse or doctor know if you have any pain.

Patient Controlled Analgesia (PCA) is often used to control pain in the initial period after your operation. PCA provides opioid drugs (painkilling drugs commonly used to treat cancer pain), given through a needle in the

back of your hand. You will be given a handset, which should be pressed if you feel sore.

A paravertebral may be used instead of epidural for pain relief. A small tube is placed by the anaesthetists before surgery or by surgeons during the operation to provide pain relief. The paravertebral like epidural provides very good pain relief and usually stays for the same length of time (the choice depends on the practice of individual hospitals).

The PCA is set up so that you cannot overdose no matter how often you press the button. It is a good idea to use the PCA before doing anything physical, like moving around or doing your physiotherapy exercises. If you still have pain despite using the PCA regularly then other methods of pain relief can be used.

TOP TIP

Your pain relief is likely to cause you to feel constipated. You should take laxatives as prescribed. They, like pain tablets, work best when they are taken regularly. Drink plenty of water and eat fresh fruit and vegetables every day.

Am I allowed visitors?

Once the nurses have set up the monitoring equipment and you are comfortable, you will be allowed to see your relatives for a short while. You will need plenty of rest to sleep off the anaesthetic so a short visit only is recommended at this point. Your family can contact the ward or unit at any time for information. If there is a change in your condition a member of the nursing staff will contact your family.

Will I feel sick?

Some of the pain relief and the anaesthetic can make you feel sick. This does not happen to everyone but if it happens to you the nurse will be able to give you an anti-sickness medicine to ease this.

What will happen on the first day after my operation?

Your healthcare team will visit you to discuss your operation with you and see what progress has been made. It may be possible to remove your drips. The monitoring equipment may no longer be needed and may be disconnected. Usually another chest x-ray and some blood tests will be taken. You may also be seen by the physiotherapist who will encourage you to deep breathe, cough, move around and exercise your arms and shoulders. This is particularly important on the operation side to prevent stiffening/frozen shoulder.

Your healthcare team will continue to listen to your chest. If your chest becomes a little wheezy it is likely you will be started on a nebulized drug to open up the breathing tubes. These will encourage you to cough and clear your chest.

Hopefully you will be able to eat a light breakfast. After this the nurse will help you to have a wash. You will be helped to get up and out of bed on the first morning after your surgery. It will be two or three days after surgery that you will be able to walk around the ward without any help.

What will happen on the second day after my operation?

Your healthcare team will decide whether they are able to remove further equipment such as the epidural/PCA. They may also remove one of the chest drains and the catheter. Another chest x-ray will be taken.

The order of these events may vary from hospital to hospital and from one person to another depending on progress.

How will the nurses remove my chest drain?

Two nurses will remove the tube and seal the hole with a stitch that was inserted in theatre.

It can take two or three weeks for your wound(s) to heal. Whilst in hospital the nurses will check them regularly to make sure they are healing well.

Try to avoid using soap, cream, and talcum powder directly on the scar, as this can cause irritation. Numbness around the scar and the front of your chest is not uncommon.

Most stitches are dissolvable, except for the one(s) used when your chest drain(s) are removed. Sometimes clips or staples are used along your wound. Your nurse will advise you if any stitches or clips need removing by your GP or district nurse.

How soon will I be active?

As soon as you are out of bed, (usually the day after your operation), it is essential that you start to exercise. When you are sitting in your chair or lying in bed, your lungs are not able to fully expand. They need to be exercised to get them working properly again.

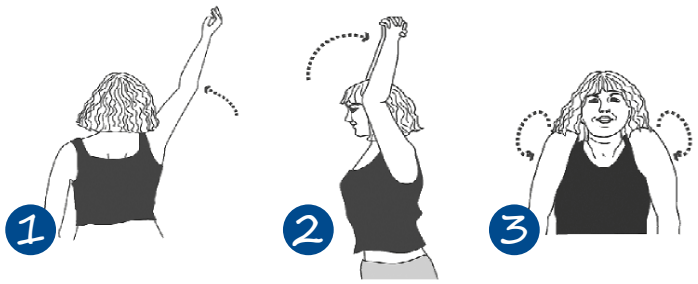
A physiotherapist may visit you and will start by checking that your chest is clear. Mucous and sometimes blood can collect in the airways after a lung operation. Ask the physiotherapist for deep breathing exercises and supported coughing techniques, which will help to get rid of this. The physiotherapist may take you for a short assisted walk around the ward. This can be difficult at first if your chest drain is still attached to suction and the distance you can move away from your chair is restricted. However, in some hospitals your drain may be attached to portable suction, which makes it easier to walk around.

In some cases the physiotherapist may ask you to walk on the spot or even try a short session on an exercise bike. You may feel short of breath following exercise. This is normal and shows that you are exercising at the correct level. However, you should not be gasping for breath. Once you are steady on your feet and your chest drain is free from suction, then you will be encouraged to walk around on your own, for as long as you feel comfortable. Exercising in this way will encourage your lungs to expand and also may prevent any delays to you getting home.

Once home, you should continue to walk regularly, gradually increasing distance and pace. If you do any specific activities, for example, swimming, golf or bowls, ask your physiotherapist for advice on returning to these hobbies. Maintain a good posture to avoid unnecessary strain on your spine, which can cause back pain and restricts the movement of your lungs and rib cage.

Shoulder exercises

After your surgery, you may find your shoulder(s) is stiff due to the position it was placed in during surgery. The following exercises will help maintain your shoulder range of movement. Try and do these exercises regularly. Spend a few minutes on these exercises everyday.



1. Gradually raise your help hand over your head and slowly lower it, repeat this on your right side.

2. Bring your arms together over your head, swinging them gently, the lower then down again.

3. Pull your shoulders towards your ears, then bring them down slowly forwards. Repeat in reverse.

Will I be able to rest?

It will be difficult to sleep in hospital and you may have a few unsettled nights. You will feel more tired than usual, drowsy and sleepy. Once you are home and you become more active your sleep pattern should return to normal.

When will I be able to go home?

The average length of stay will depend on the type of operation you had, how the operation was performed and how fit you were before the operation. If you had surgery performed as a keyhole operation (VATS), the length of stay in the hospital may only be two to three days following surgery. Most people who have an open operation, a thoracotomy, stay in hospital for five to seven days.

You will be able to go home when your doctors are satisfied that you are eating and drinking, and any problems identified are addressed. Hopefully the chest drain will be removed before you go home but it is possible to go home with the chest drain in if longer term drainage is required. This sometimes happens if you have a persistent air leak from the remaining part of the lung. This will eventually stop, but can take several weeks. Being active at home can often help the air leaks to stop.

What will I be given before I go home?

To go home you may be given:

- Medication. In most cases the hospital will supply you with 7-14 days of your necessary tablets. Your nurse or pharmacist will discuss with you how and when to take your tablets. You will need to see your GP for further supplies of medication.
- Thoracic/lung cancer nurse specialist contact details.
- Chest drain information and equipment, if required.
- Spare pair of stockings, if required.
- A copy of your discharge summary for you (the same summary will be sent to the GP).
- A practice/district nurse letter and date for removal of any clips or stitches.

When will I know that my operation has been successful?

The surgeon will be able to tell you straight away how much of your lung tissue was removed but will not be able to be specific in relation to the cancer. Pathologists will test the cancer which has been removed, tissue from the surrounding area and lymph nodes. This usually takes between 7-14 days after your operation. The results from your operation will be discussed again at the MDT, to decide if further treatment is necessary. You will be advised of the results at your first clinic appointment after you have left hospital.

Will I need any other type of treatment along with the surgery?

Research shows that some patients who have had their tumour completely removed would benefit from receiving chemotherapy after surgery. This is called adjuvant chemotherapy. This will depend on the exact stage of the tumour found during the operation.

Please see our Patient Decision Aids (PDA) for chemotherapy after surgery. These PDAs will help those who have stage 2 or 3 non-small cell lung cancer, to decide whether or not to have chemotherapy after surgery. Call the **Roy Castle Lung Cancer Helpline free on 0333 323 7200 (option 2)** or visit **www.roycastle.org/factsheets** for more information.

If the surgery has not completely removed the cancer you may be offered postoperative radiotherapy or chemotherapy treatment. Your doctor will fully discuss this with you.

Recovering at home

How will I feel when I get home?

Following your operation it is normal to have feelings of stress, anxiety or depression. Being affected emotionally is normal. It may help to talk about how you feel with a member of your family, a friend or your nurse specialist. Sometimes your friends and family need to talk things over as well.

It helps if you are able to set yourself realistic achievable goals so that you can see that you are moving forward. It helps you to think positively. Most of us have at one time experienced the power of the mind over the body. Relaxation may be helpful as you can train the mind to relax the body. This may reduce the stress and anxiety you feel. One relaxation technique is to learn to breathe more deeply and slowly. You may have already been taught this.

Here are some general relaxation guidelines:

- Choose a place and time where you will not be disturbed for at least 15-20 minutes.
- Practice your chosen technique at least twice daily (minimum four times a week).
- It may take a few weeks before you notice any benefit – stick with it and do not expect instant success.
- Relaxation should be helpful. If you find it makes you more anxious or increases your pain, speak to your nurse specialist who may be able to suggest other methods of reducing your symptoms.

Please see our *Living with lung cancer* booklet for more information on relaxation, guided imagery and complementary therapies. See page 2 for details on how to get a copy.

How should I look after my wound?

Try not to touch your wounds: if you do there is more chance of infection. Use a mirror or get a member of your family to check your wound(s) every day. If your wound is clean and dry it should be left without a dressing. This will help it to heal more quickly. Don't worry about the scabs, they will fall off in their own time. You will usually have at least one stitch where your drains were placed that should be removed by the practice nurse at your GP surgery. The stitches should be removed around seven days after drain removal. Some swelling around the wound is perfectly normal and should go down after a few weeks.

You should consult your GP for advice if your wound becomes red and inflamed, if you have pain from around the wound, or if fluid is coming from the wound.

I need to go home with a chest drain - how do I look after it?

If you need to go home with a chest drain it will be because a small amount of fluid is still draining into the bag or you have a small air leak caused by the internal wounds taking a while to heal. You will not be sent home with a drain unless the doctors and nurses are sure that you are able and confident to care for a drain. If you live alone and do not have anyone to support you, tell the nurses on the ward.

A district nurse will be asked to visit you every few days. They will check the drain and change the dressing if necessary. The doctors and nurse specialist may want to see you approximately one week after you have gone home to see whether the drain needs to be removed. They will want to know how much fluid has drained each day. It is a good idea to record the drainage every night and then empty the bag to prevent spillage.

Here are some simple rules for you to remember:

DO

- Empty your bag before you go to bed each night.
- Record the amount and colour.
- Continue to exercise.
- Follow and read the instructions you will have been given.
- Get advice if your breathing becomes difficult.
- Contact the ward you were on or your nurse specialist if you are worried.

DON'T

- Disconnect your drain.
- Pull at the drain or the stitches.
- Allow the bag to lay flat as it may spill.
- Block the port for emptying the bag.
- Forget that the bag is connected to you!

Will I be able to look after myself?

You will be able generally to care for yourself, for example, washing and dressing. You will probably be most comfortable in loose fitting clothing (ladies - bras may be uncomfortable for a little while). You may have a bath or a shower but do not scrub the wound or use perfumed products.

Although you will be able to cook, don't lift heavy pots and pans. Ready meals are often ideal for the first few days after going home. You may have a reduced appetite and may even lose some weight. Try to eat small meals often that are high in calories. Light dusting is fine but avoid vacuuming or moving heavy objects.

TOP TIP For the first few nights after you come home from hospital, you may find it more comfortable to sleep propped up in bed with extra pillows.

How long do I need to wear stockings for after surgery?

You will have been given special stockings to wear following surgery. These help to improve your circulation and help prevent blood clots developing in your legs (DVT or Deep Vein Thrombosis). You should wear the stockings until you have returned to your normal level of activity. Tell your healthcare team if you have difficulty putting on/taking off the stockings. Your healthcare team will confirm how long you should wear them for. You should remove the stockings when you go to bed at night and wash them. They will then be ready for use in the morning.

How do I improve my posture and shoulder movement?

Try and maintain an upright position. Check your posture in the mirror and keep your shoulders moving. Gentle side stretches away from the operated side may help your posture. If problems with your shoulder or posture persist it may be that you will need a referral to your physiotherapist. Your GP should be able to help you with this. See page 20 for exercises to help with shoulder movement.

Will I be able to get out and about?

The amount of activity you can do (both in the short term and the long term) will depend on a number of factors, including the type of operation you have had. You may feel that you lack confidence for a few days after you go home – this is normal. Your confidence will soon return. Try to get a balance between activity and rest. It is important that you try to remain active.

Do not stay in bed. Even if sat upright in bed, your lungs do not expand properly and the risk of complications such as chest infection increases. Get up and go to bed at your normal time. Have an afternoon nap if required, but no more than one hour.

Aim to take a walk once or twice a day. Gradually increase the distance you can walk. Cold weather will not cause you any harm. You can also go shopping with your family and friends - lean on the trolley if it helps.

How will I be followed up?

Following discharge you will usually be sent an appointment by the hospital. This will vary from one hospital to another but is usually two to six weeks after discharge. At this appointment, you may have a chest x-ray and your wounds checked to see they are healing. You will be given the results of your operation. You may be referred to a cancer doctor if further treatment is needed.

You will need to be followed up long term following your lung cancer operation. This is called lung cancer surveillance and is important as even though the operation may have been a complete success there is still unfortunately a chance your lung cancer may come back.

Your follow up will vary depending on your hospital's local policy but will involve clinic appointments with a chest x-ray over a period of five years. It may be with your surgeon, your cancer doctor if you had further treatment such as chemotherapy after the surgery or with respiratory doctors who have looked after you.

In the first year you will normally be seen every three months and you may have a CT scan at or near the end of the first year. In the second year you will be seen every six months and then annually after that for a total of five years. After five years the risk of the lung cancer coming back is low and so you will be discharged.

Can I stop the lung cancer coming back?

Try and stay as healthy as possible by keeping active, watching your weight and eating a healthy and balanced diet. If you are are or have been a smoker, the most important thing to reduce your chances of having the lung cancer return is not to continue to smoke.

Will I have any side-effects from the surgery?

Surgery for lung cancer is a serious operation and most people have side-effects of one sort or another. Side-effects vary from person to person and may depend on the type of lung cancer surgery you have had.

Side-effect	Practical advice
Breathlessness	This will depend on the type of surgery you have had and your general fitness level before your surgery. Some shortness of breath is to be expected and is normal. When you are up and about you may feel more breathless. This is normal and shows that you are working hard enough. You may have to adapt your lifestyle to cope with longer term breathlessness.
Constipation	You may find your bowel habit is altered. You may become constipated because of the change in eating habits or the painkillers you are taking. Eating two or three pieces of fruit and vegetables a day can help with constipation. Ask your GP or your nurse specialist for advice.
Cough	If you had a chronic cough before surgery, this may continue but if the cough was caused by the tumour, it may get better. You may find that you cough up some mucous and sometimes blood which can collect in the airways after a lung operation. If this does not go away after you are discharged, ask your GP or your nurse specialist for advice.

Side-effect	Practical advice
Numbness	Numbness is common, particularly around the front of the chest, the scar and the drain sites. This may ease with time although some numbness, due to nerve damage, may be permanent.
Pain	It is normal to feel occasional shooting or stabbing pains as the nerves and tissues damaged at the time of surgery begin to repair themselves. Some people describe a heavy or tight feeling in the chest area. It is very important to take your pain relief as prescribed. Paracetamol works well if taken regularly (two tablets four times a day). **Any pain due to your surgery should ease with time.** If you feel that the pain tablets you are taking are not controlling any pain ask your GP or your nurse specialist for advice.
Weight loss/ change of appetite	It quite common to lose some weight after the operation, this is due to the physical demands of going through a major operation, the natural emotional reaction and worry around the time of the surgery. Many patients following the surgery lose or have a change of appetite and sometimes food will taste different. Try eating small meals that contain more calories than you normally eat. With time your appetite should return to normal and you will return to your normal weight.

"When I was recovering from my operation I made sure that I took regular pain relief – whether I felt I needed it or not. This kept my pain under control, which meant that I could start moving around easily and helped me to get better."

Lyn

Please see our *Managing lung cancer symptoms* booklet for detailed information on coping with breathlessness, constipation, coughing, pain management, tiredness and other common side-effects for lung cancer and treatments. See page 2 for details on how to get a copy.

Life after surgery

How long will it take me to recover from my operation?

You are an individual and will recover in your own time so try not to compare your recovery with anyone else's. Many people will want to know when they will feel better and if they will be able to resume the activities and lifestyle they had before the operation.

You may find that at times, you feel more tired than usual. You may need to adapt some daily activities to help overcome this. Try to remember the three Ps: Prioritise, Plan ahead and Pace yourself. See page 32 of our *Living with lung cancer* booklet for more information on managing everyday activities.

TOP TIP Ask your GP or lung cancer nurse specialist for advice and support if you are at all concerned.

Will I be able to return to work?

Discuss with your GP or cancer doctor about when you will be fit enough to return to work. It will depend upon how fit you were before the operation, the type of operation you have had, whether the surgery was performed as a keyhole (VATS) or open operation (thoracotomy) and whether you need further treatment, such as chemotherapy. Returning to work may take anything from one to three months and will depend on how quickly you recover from the operation. It may also depend on the type of work you do, for example, how physically demanding your job is or whether you have to stand for long periods of time.

> *"Everybody recovers at different rates from surgery, but I was out of hospital within a week. It was hard at first and I was terrified but I am now back at work part-time and so glad I went ahead with the surgery."*
>
> *Wendy*

When can my partner and I restart our sexual relationship?

It may be best to wait until your wound has healed, you feel comfortable and when you both feel ready. This may take several weeks. Remember your partner may be worried about hurting you. Try taking a passive role until you feel more confident.

How long will it be before I can drive?

It is important not to drive until you have been reviewed by the doctor and thought to be fit. It is essential that you can perform an emergency stop without pain when you start driving again. The length of time for this will vary from one person to another. Remember your insurance may be affected if you drive before you are fully fit.

When will I be able to fly?

If you are considering flying you may need a letter from the hospital saying that you are fit to fly. It is usually not recommended until you have fully recovered from your surgery. You should discuss this at your hospital visit. Please remember to let your insurance company know that you have had a chest operation.

Please see our *Travelling and lung cancer* factsheet for more information on travelling and travel insurance. See page 2 for details on how to get a copy.

Where can I get support after surgery for lung cancer?

Everyone has different needs when it comes to lung cancer support. There are support groups around the UK, where you can meet other people affected by lung cancer and share experiences. To find your nearest group, visit **www.roycastle.org/supportgroups**. You can also get support from cancer related web-based discussion forums. To visit our forum go to **healthunlocked.com/lungcancer**. There is more information on the help and support available in our *Living with lung cancer* booklet. See page 2 for details on how to get a copy.

Questions to ask

Questions to ask your surgeon or lung cancer nurse specialist

Before choosing surgery as a treatment option, you should understand the expected benefits, side-effects, and risks. Ask your thoracic surgeon or lung cancer nurse specialist these questions at your next visit. Learn as much as you can about your treatment, and get an idea of the expected outcome.

1. What type of surgery will I be getting?

2. What is the aim of the surgery?

3. Are there other types of treatment that could be suitable for me instead of surgery?

4. What are the risks and side-effects of the surgery I will be having? How do these side-effects compare with side-effects of other treatments?

5. How long will I have to wait before I get the surgery?

6. How will I know if the surgery has been successful?

7. Where will I go for the surgery?

8. What can I do to prepare for treatment and reduce the chance of side-effects?

9. Will I need to change my lifestyle in any way?

10. If the surgery isn't successful, are there any other treatments I can get?

11. Are there any clinical trials I would benefit from?

Thoracic surgeon

Name:

Phone number:

Thoracic or lung cancer nurse specialist

Name:

Phone number:

About our lung cancer information

All of our information is written either by our information team or by lung cancer experts. We have a panel of lung cancer experts made up of doctors, nurse specialists and other healthcare professionals involved in the care of people affected by lung cancer. These people help us on a voluntary basis. You can find out about our Expert Panel at **www.roycastle.org/expertpanel**

Our information is also reviewed by members of our Reader Panel (made up of people who have experience of lung cancer). This ensures that our lung cancer information meets their needs. You can find out about our Reader Panel at **www.roycastle.org/readerpanel**

This booklet was produced in partnership with National Lung Cancer Forum for Nurses NLCFN

Health & care information you can trust
The Information Standard Certified Member

Our information is accredited by The Information Standard, which makes sure that it is trustworthy, easy to read and reliable. It also must be based on the best clinical evidence that is available.

The information is evidence based and follows national clinical guidelines for the management of lung cancer. You can find references to sources of information within this booklet at **www.roycastle.org/evidence**

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We value your feedback
If you would like to tell us what you think about this information booklet or would like to join our Reader Panel and review our lung cancer information, please e-mail us at **info@roycastle.org**

ROY CASTLE
LUNG CANCER
FOUNDATION

Roy Castle Lung Cancer Foundation is the charity that gives help and hope to people affected by lung cancer. The charity has two aims – supporting people living with lung cancer and saving lives.

Supporting people living with lung cancer

Working closely with lung cancer nurses, we provide information, run lung cancer support groups and offer telephone and online support. Our patient grants offer some financial help to people affected by lung cancer.

Saving lives

We fund lung cancer research, campaign for better treatment and care for people who have lung cancer, and raise awareness of the importance of early diagnosis. Our lung cancer prevention work helps people to quit smoking and encourages young people not to start smoking.

Contact us

For more information please call the **Roy Castle Lung Cancer Helpline free on 0333 323 7200 (option 2)** or visit our website at **www.roycastle.org**

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GIVING HELP AND HOPE

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