Radiotherapy to the lungs

Information for patients
This leaflet aims to help you and your family understand more about your radiotherapy treatment to the lung.

This leaflet will be given to you in addition to the information you will receive from your clinical oncologist (who is a specialist doctor in cancer treatment). Their team will be caring for you during your treatment. This team may include radiographers, nurses, social workers, physiotherapists, occupational therapist and dietitians.

The leaflet describes radiotherapy planning and treatment. It also explains the side-effects which you may experience during and after treatment.

The healthcare team looking after you will explain your treatment and the side-effects in detail. If you hear any words or phrases that you do not understand, please ask your doctor or a member of your healthcare team what it means. It does not matter how many times you ask.

Staff will make every effort to meet your individual needs or will direct you to the person who can help.

All your radiotherapy planning and treatment will take place in the Radiotherapy Department on level -2, Bexley Wing, Leeds Cancer Centre, LS9 7TF.

Tel: 0113 206 8940

Please do not bring valuables into hospital with you as the trust cannot accept liability for loss or theft.
What is radiotherapy?

Radiotherapy is the use of carefully controlled high energy X-rays to treat cancer. The treatment is given in such a way that the rays destroy cancer cells while doing as little harm as possible to normal cells.

When you are having your radiotherapy you do not feel anything and it does not make you radioactive. You may hear a buzzing noise when the machine is switched on. It is perfectly safe for you to be with other people, including children, throughout your treatment. You will have your radiotherapy on a treatment machine called a Linear Accelerator as shown above.

If you would like to visit the radiotherapy department before starting treatment, please call 0113 206 7603. This visit can be very useful as you can find out more information about radiotherapy, visit the hospital and treatment areas, meet the team and ask questions.

‘I was so pleased to see the machines before my treatment and the staff were so helpful and really put my mind at rest.’
Therapeutic Radiographers
Radiotherapy is given by male and female therapeutic radiographers who are highly trained in the accurate planning and delivery of radiotherapy treatment. You will see your radiographers at each treatment session and they will be happy to answer any questions you may have.

Students
The radiotherapy department is a training centre for male and female radiographers. Students may be present on the treatment units. However, they are supervised at all times. If you do not wish students to be present during your treatment please speak to a member of staff. This will not affect your treatment or care.

Pregnancy
It is important that women do not become pregnant while having cancer treatment because the radiotherapy and chemotherapy can have an effect on the unborn child. It is suggested that you use a barrier form of contraception (for example condoms). For more information see the ‘Contraception and pregnancy during cancer treatment’ leaflet. Please do not hesitate to ask your doctor or nurse if you have any questions or concerns about these issues.

Planning your treatment
Your first appointment for radiotherapy will be a planning appointment. This will be used to gather all the information we need to accurately plan your treatment. We will contact you by phone, with an appointment for your radiotherapy planning session. Directions to the hospital and transport arrangements will be discussed with you at this point.
Some tests and scans may be needed to help plan your treatment. We will explain which of these you will need when your appointment is made.

You may see your clinical oncologist (or a member of their team) at this appointment. This is an ideal opportunity for you to ask questions. If you have not previously consented to your treatment you will be asked to sign a consent form.

**What to bring with you:**
- a list of all questions you may have;
- an up-to-date list of all the medications you are taking (including inhalers, sprays, vitamins or herbal products);
- any medication that you may need during your visit;
- something to eat and drink and something to keep you occupied as this first visit can be quite lengthy (up to two hours).

**Treatment position**
Your treatment position depends on which part of your lung is to be treated. The following explains the different positions we may use for your planning and treatment. Usually only one position will be used throughout your treatment.

The picture here shows one of the possible treatment positions. You need to be able to keep this position for about 15 minutes each day during your treatment.
If you have any problems with your arm mobility and think you are unable to hold this position please tell the radiographers when you arrive. If you are not comfortable please tell the radiographers straight away.

**Mould room**

If either you cannot get or keep your arms above your head or your lung cancer is in the top of the lung, you may need to have a plastic mask made (as shown in this picture). This will be made the same day as your scan and helps supports your head and neck for treatment. The radiographers can draw treatment marks on your mask, instead of your skin. If you have any concerns about the mask, please let your clinical oncologist or a member of their team know. We have a support team who will help you. Please ask one of the healthcare team to contact them for you or ring: 0113 206 7616 or email leedsth-tr.RTpatientsupport@nhs.net.

**Your planning scan**

To help the doctor plan your treatment, you will have a planning CT scan, using X-rays. There will be several members of staff present during your planning scan. You will be asked to lie flat, as shown here in the picture.
The radiographers will draw some marks onto your skin, or on the mask shown on the previous page, to be used as a reference for your treatment. We use these as a stable point so we can accurately move to the area where you need your treatment.

You will then be scanned, which will only take a few minutes. At the end of the scan any skin marks will be replaced by permanent marks.

These permanent marks are no bigger than a freckle and will be used each day for your treatment. The marks help us to reproduce your treatment with accuracy each day. It also means that you will be unable to wash these off. To make it easier for the doctor to plan your treatment, they may decide to inject a dye or perform a 4D scan, which monitors your breathing.

You can eat and drink as normal for this appointment.

**Contrast (dye)**

A special contrast agent, often called a dye, may be used for your scan to make specific organs, blood vessels and/or tissue types ‘stand out’. This can make it easier for the doctor to plan your treatment.

The dye is given through a small needle into a vein in your arm. You should tell the radiographer if you have any allergies, but they will go over this before they use any dye.
The most common side-effects of the dye are:

• warm or hot ‘flushed’ sensation during the injection
• a ‘metallic’ taste in the mouth, which usually lasts less than a minute or so.
• You may also feel as if you have passed urine. This will pass very quickly and it should cause no ill effects.

There is a slight risk of an allergic reaction to the injection, such as a skin rash, but it may lead to other significant complications. The doctors in the radiotherapy department are trained to deal with any complications and again the risk involved is very small. You will be able to drive your car or go to work after your scan. The radiographers will advise you about drinking plenty of fluid after your injection.

4D Scan

Sometimes we need to monitor your breathing during the scan, so a belt is placed around your stomach which is attached to the scanner to monitor you. This type of scan can take longer, lasting 30 minutes.

At this appointment the radiographer will talk to you about future appointments and when your treatment will start.

If you are thinking of booking a holiday please discuss this with your consultant or radiographer to avoid a clash with your treatment start times.
Having your treatment

When you arrive for your treatment you should go to the reception at the entrance of the radiotherapy department.

You will be given directions to your treatment machine. The radiographers will explain what will happen and answer any questions that you may have. The number of treatments you will be having will be confirmed and you will be given a list with all the appointments you need.

Treatment is normally given daily, Monday to Friday however your treatment may start on any day of the week. Whenever possible you will be treated at the time of day that suits you, but this cannot always be arranged or guaranteed. There may be occasions when you may have a longer stay in the department or be asked to attend at a different time, as you may have multiple appointments to see your oncologist or nurse specialist. We will try to get these appointments as close together as possible.
You will have your treatment in the same position as your planning scan. If you have the small permanent marks on your skin, the radiographers may need to draw around them each time you come for treatment. You may prefer to wear older clothing as the marks may discolour fabric. It is also generally advisable to wear loose clothing around the treated area.

When you start your treatments the radiographers will carefully position you and the treatment machine. For the first few treatments we will also take images to check the accuracy of the treatment which will take a few more minutes.

These images do not monitor your condition but are purely for treatment accuracy.

Once you are in the correct position you will need to keep very still but breathe and swallow normally. Do not move until the radiographers tell you to. You will be in the room for about 10-15 minutes each day the radiographers will leave the room to switch on the machine. You will only be alone for a few moments at a time.
The radiographers will be watching you on a closed circuit TV monitor (CCTV) during treatment. The CCTV camera is not recording or saving any images.

There is also an intercom system so the radiographers can talk to you. Please let the radiographers know if you would like to use the intercom system.

The machine stops automatically after your prescribed dose of treatment has been given. The machine can also be stopped at any time if needed. The treatment machines make a buzzing sound when they are switched on. You do not feel anything.

The radiographers will ask you each day how you are feeling, please tell them honestly. It is important that any problems you have are addressed as soon as possible. Your clinical oncologist, or a member of the radiotherapy team will see you once a week in the radiotherapy review clinic to see how you are getting on. They will also monitor any side-effects you may be experiencing. You can expect to be in the department longer than usual on this day.

Some days the radiotherapy department may be very busy and your appointment time may be delayed. We will keep you informed of any delays.

Your appointments for radiotherapy may not be all at the same time each day and may need to change. It is also possible that during your course of treatment you may miss a day’s treatment due to machine maintenance or bank holidays. It is therefore important to speak to a health care professional before booking a holiday immediately following your radiotherapy.

For appointment queries please telephone the radiotherapy reception desk on 0113 206 8940 for further advice.
Side-effects

As your treatment progresses you may experience some side-effects. Not everyone will develop all of these reactions. If you do get any of the following side-effects, do not worry, they are normal reactions to treatment and are temporary. They usually begin about half way through the course of treatment, may last for several weeks after it has finished and then slowly settle down. Please tell us how you are feeling, particularly if your symptoms worsen, so that we can advise and treat you.

Tiredness (fatigue)

Radiotherapy can make you feel more tired than usual. Fatigue usually improves between six months to a year after treatment but can last longer.

**There are things you can do to help yourself:**

- Gentle exercise can help reduce the symptoms of fatigue.
- Having enough to drink can prevent tiredness caused by dehydration.
- Small meals or snacks eaten more often than three times a day may be easier to face.
- Try to get a good night’s sleep where possible, a daytime nap may help.
- Try to ‘pace’ yourself, listen to what your body is telling you, rest if you need to.
- Pick out the things that you enjoy, and try to delegate other tasks.
- Little and often is the rule of thumb.

There is a Macmillan information leaflet available if you would like a copy, or support with your fatigue please ask a member of staff.
**Mild chest discomfort**
You may experience mild chest discomfort, shivering and increased temperature a few hours after treatment. This usually settles quickly and can be helped with paracetamol.

**Discomfort on swallowing**
This may start to occur after about five treatments, and is due to the gullet (food pipe) reacting to the radiotherapy. As well as difficulty swallowing you may also experience pain and heartburn (indigestion). If you experience any of these side-effects you will be given some information, advice and medicines to help relieve these problems.

You may also find that a soft or liquid diet is easier to swallow. Cooling down hot drinks and soup may also be helpful. It may be 2-3 weeks after finishing treatment before this starts to improve. Please continue with any medicines and dietary supplements until you feel it has improved. If necessary you will be referred to a dietitian who will give you advice and support.

**Dry irritating cough**
If you have a cough the radiotherapy may temporarily make it slightly worse. If it becomes troublesome please see your doctor, radiographer or nurse.
Skin reaction
Before you go in for your treatment the radiographer will explain what will happen to your skin and how to look after it. They will also give you a leaflet to take home. The same will happen at the end of your treatment.

If you are concerned about your skin reaction please talk to your radiographers or contact the nursing staff in Princess Royal Suite on 0113 206 7587.

Nausea or sickness
Occasionally patients may feel sick or may actually be sick. Please let the radiographers know so they can arrange for some treatment for you.

Delayed side-effect
The careful planning of your treatment keeps the amount of normal lung receiving radiotherapy to a minimum. However, lung radiotherapy can cause a reaction in the lungs weeks to months after finishing your radiotherapy treatment. The reaction is due to inflammation in the lungs caused by the radiotherapy. This inflammation is called “Radiation Pneumonitis” and most commonly causes patients to be more short of breath, sometimes with a dry cough and occasionally with raised temperature. This can be serious and rarely life-threatening so it is very important that you must contact your Oncologist or Lung Cancer Nurse Specialist if you get these symptoms so that you can be reviewed.

If your Oncologist thinks you have Radiation Pneumonitis you will be started on oral steroid tablets to reduce the inflammation in the lungs, prevent the inflammation getting worse and improve your symptoms.
Months to years after your treatment lung radiotherapy treatment will cause scarring of the lung where cancer is treated. This scarring is permanent and can cause a small portion of the lung to collapse.

In most patients this does not affect their breathing but sometimes this scarring and collapse can make you more short of breath. If you are not on oxygen before lung radiotherapy, you may need to have oxygen for a short time. In very rare cases you may need oxygen therapy permanently as a result of this treatment.

Very rarely a larger portion of the lung may collapse; this could be life threatening. The risk of this happening is very small.

**Chest wall pain and rib fractures**

If the tumour is close to the ribs there is a chance that the radiotherapy may weaken the ribs and cause pain and rib fracture. Often this does not cause any symptoms and is discovered when you have a scan after your treatment. Rarely these rib fractures can cause pain that requires pain killers, sometimes for a long period of time. Your doctor will discuss this with you.

If we give you any medication please read the information leaflet enclosed carefully, this will explain any side-effects you may experience when taking them. If you are at all concerned about any side-effects you are experiencing please ask the health professional looking after you or your pharmacist, nurse specialist or GP.
What happens after your treatment

After your treatment has finished you will usually be sent an outpatient appointment to see your clinical oncologist. This is usually at your local hospital. Please discuss any problems and worries with your doctor during these appointments.

Research at Leeds Cancer Centre

Leeds Cancer Centre is a major centre for cancer research. You may be asked if you would like to take part in clinical studies or trials linked to your condition. You do not have to take part in any trials, unless you wish to do so. If you do not wish to take part in a trial your treatment will not be affected in any way. If you do take part in a clinical trial you may meet a research nurse or radiographer, helping to run the trial.
Useful organisations and contact numbers.

**Leeds Cancer Support**

Leeds Cancer Support complements care provided by your clinical team. We offer access to information and a wide range of support, in a welcoming environment for you, your family and friends.

We can be found in the information lounges in Bexley Wing and also in the purpose built Sir Robert Ogden Macmillan Centre.

**The Sir Robert Ogden Macmillan Centre**

The centre is on the St James’s Hospital site and offers a variety of support services including counselling, support groups and complementary therapies. These therapies include Reiki, relaxation and visualisation, hand and foot massage and many others. You can drop in for a coffee and a chat anytime. Open from 10am - 4pm Monday to Friday.

*Information Lounge Level -2 Radiotherapy Department*
Open from 8.30am - 6.00pm Tel: **(0113) 206 7603**

*Information Centre Level 1 Outpatients Department*
Open from 10am - 4pm. Tel: **(0113) 206 8816**

*Sir Robert Ogden Macmillan Centre*
Open from 10am - 4pm. Tel: **(0113) 206 6498**

All the above services can be emailed on: *leedsth-tr.Cancersupport@nhs.net*
Leeds Lung Cancer and Mesothelioma Patient Support Group
The group meets on the first Monday of every month from 1-3 pm at the Sir Robert Ogden Macmillan Centre.

Roy Castle Lung Foundation
Telephone: 0800 358 7200  website: www.roycastle.org

National Lung Cancer Forum for Nurses (NLCFN)
website: www.nlcfn.co.uk

Macmillan Cancer Support
Freephone 0808 808 0000, 9am to 6pm Monday to Friday
A textphone service is available for deaf and hard of hearing people on 108001 0808 808 0000.
website: www.macmillan.org.uk
Car Parking
If you are coming by car follow the signs for St James’s Hospital, Bexley Wing. There is a drop-off point in the Plaza outside the main entrance and parking in the multi-storey carpark next to Bexley Wing.

There is a pedestrian walkway from the car park leading to the main entrance.

When you are coming for radiotherapy planning and treatment your car parking is free in the on-site multi-storey car park.

You should enter the car park via the lane indicated for visitors, take a ticket and park as usual (disabled parking spaces are on Level 0).

When exiting use the left hand lane next to the ticket office. Take your parking ticket and appointment letter to the attendant.

They will process your ticket so that when you insert it at the barrier no charge will be made.

If you need assistance or are unable to leave your car please press the button at the barrier.