



Stereotactic ablative radiotherapy for lung cancer

This guide is for people who are considering having stereotactic ablative radiotherapy for lung cancer. It is intended to give you an overview of what is involved and answer some of the questions you may have about this treatment.

Your doctor or a member of your team will talk to you in more detail about your treatment and will be happy to answer any questions that you may have. If you would like more advice, please ask a member of your treatment team. The team consists of radiographers, doctors and nurses who will help and support you throughout your treatment.

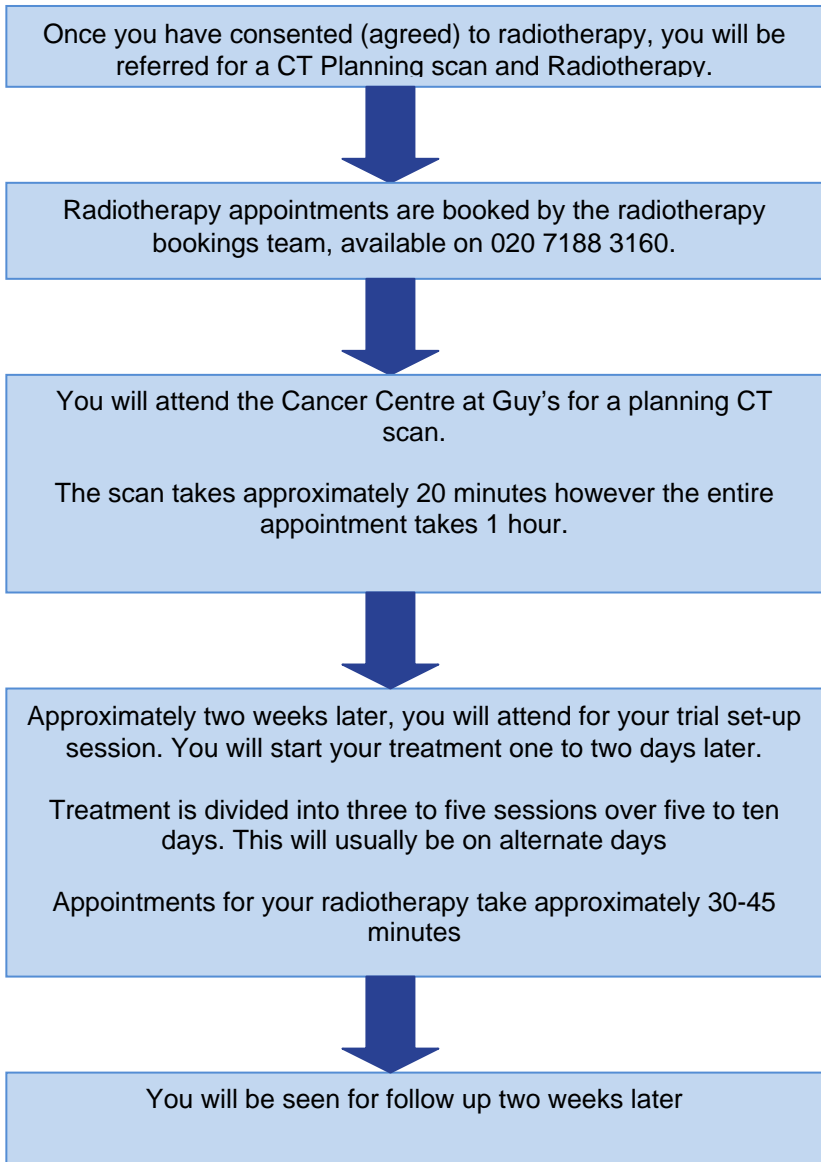
Before starting treatment your scans and history will have been discussed in a meeting attended by your oncologist, a surgeon, radiologist and specialist nurse. All treatment options will have been discussed, including stereotactic ablative radiotherapy. This treatment is usually recommended for people who would normally be suitable for an operation, but cannot have one because other medical conditions make it too risky or because they decide against surgery for personal reasons.

**Your lung cancer key worker is.....
Contact number.....**

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Patient pathway



What is stereotactic ablative radiotherapy?

Radiotherapy is the use of high energy x-rays to treat tumours. It works by damaging the DNA of tumour cells causing them to die or stop growing. Side effects are generally isolated to the area you are having treated.

Stereotactic ablative radiotherapy is a technique that has been developed to deliver radiotherapy more accurately. This allows us to increase the dose of radiation to the tumour, increasing the chance of tumour control, without causing more side effects to healthy tissues.

What are the alternatives?

For most people the alternative to stereotactic ablative radiotherapy will be conventional radiotherapy.

Some patients may be suitable for surgery, and if this applies to you your surgeon will talk to you about it. At present we cannot say which treatment is more effective as there has been no direct comparison between stereotactic ablative radiotherapy and surgery.

What are the benefits of stereotactic ablative radiotherapy?

The main benefit of using stereotactic ablative radiotherapy for lung cancer compared to conventional radiotherapy is the much shorter overall treatment time.

Most patients will receive three to five sessions or **fractions** over a period of five to ten days with stereotactic ablative radiotherapy. This compares to 20 fractions over 26 days with conventional radiotherapy. There may be an increased chance of long-term tumour control compared to conventional radiotherapy, although a direct comparison has not been made. Please ask your doctor if you would like to discuss this in more detail.

Are there any other differences?

Other differences are mainly practical. Patients having conventional radiotherapy don't have to attend for a trial set-up. The individual treatment time for each fraction is approximately 45 minutes with stereotactic ablative radiotherapy compared to 15 minutes with conventional radiotherapy.

Before radiotherapy starts

Pacemakers – If you have a pacemaker, please tell your doctor as soon as possible. You will need to have a pacemaker check before your radiotherapy treatment.

Pregnancy – All female patients under the age of 60 will be asked to confirm their pregnancy status before the first planning session starts. **It is very important that you are not and do not become pregnant while undergoing radiotherapy planning and treatment.**

If you think you may be pregnant at any time during your course of treatment, please tell your clinical oncologist or radiographer immediately. If necessary, please speak to your GP about contraception methods suitable for use during radiotherapy.

What are the side effects of stereotactic ablative radiotherapy?

In general the risk of side effects from stereotactic ablative radiotherapy is low in comparison to conventional radiotherapy. Not everyone will experience all the side effects that we mention in this guide. Do not feel that the radiotherapy is not working if you do not experience all the side effects, as people react individually.

Whilst we cannot prevent against side effects, we can help you to manage them. Side effects that occur during your radiotherapy are called early (or acute) side effects. They usually begin to occur one to two weeks after your treatment starts. As your treatment progresses, these become more severe and are usually at their worst one to two weeks after your radiotherapy treatment finishes. Then, they gradually start to improve and by three months after the completion of your treatment, most will have resolved or at least improved considerably. Early side effects affect all patients, but the severity varies.

There are also side effects that occur months to years after the treatment has finished – these are called long-term side effects and are consequences of the radiation treatment. You may or may not experience long-term side effects – not everybody does. They may start during treatment and then gradually become worse after treatment, or they may develop slowly over a long period of time. Some may improve slowly but others may be permanent.

We will support you and help you to manage these side effects, with advice and medications when necessary.

Possible early side effects

Skin reaction

It is common to have a skin reaction from radiotherapy. Any reaction may not happen immediately, it can develop over several treatments. Skin in the treatment area may become dry, red and itchy.

Tiredness

This treatment may make you feel tired. **Several things can cause this:**

- Your body needs to repair itself which uses energy
- Travelling to and from the hospital for appointments
- The change in daily routine

Eating difficulties

You may have problems eating due to loss of appetite or because you are feeling unwell. You may also find eating difficult, as your food pipe (oesophagus) might become sore if it is close to the treatment area. Speak to the radiographers who will give you advice or can refer you to a dietician.

Breathlessness and cough

You may find that symptoms such as breathlessness and a productive cough become worse during treatment. These symptoms will gradually settle down after your treatment has finished.

Less common side effects

There is a small risk of inflammation of the lungs. This is unlikely to interfere with your daily activities but can do so in 0-5 in 100 people. Rib fractures have been reported with this treatment. The risk depends on the area we need to treat and ranges from 0-4 in 100 people.

Who will look after me during my treatment?

A number of healthcare professionals will be involved in your treatment and care. Below is a list of all of the doctors, nurses, specialists and departments who will look after you while you are having radiotherapy.

Clinical oncologists are doctors who are trained in the use of radiotherapy and chemotherapy. The consultant clinical oncologist will be in charge of your care. Clinical oncologists are supported by a team of specialist registrars, therapeutic radiographers, nurses and administrative staff.

Therapy radiographers are specifically trained to plan and deliver the radiotherapy. They provide support and advice on radiotherapy side effects and their management. The radiographers will have day-to-day responsibility for you while you are receiving radiotherapy.

Your **clinical nurse specialist (CNS)** will provide support and advice on all aspects of your treatment.

Oncology nurses provide support and advice on the side effects of radiotherapy and chemotherapy and their management. Chemotherapy nurses will be involved in delivering chemotherapy treatment if necessary.

The **acute oncology assessment unit** will provide emergency medical care for any side effects of treatment or problems relating to the cancer itself. This service is available between 9am and 6pm, Monday to Friday. Emergency contact details will be provided for out of hours problems. Their telephone number is **020 7188 3754**.

Radiotherapy planning

Radiotherapy planning occurs before you start treatment. The first step is to have a **treatment planning CT scan**. The scan takes images of your lungs throughout the whole of the breathing cycle. It is known as a four-dimensional or 4DCT scan. The scan is used by us to outline the exact part of the lung that needs to be treated.

You will be asked to remove your clothes from the waist upwards. You will need to lie on your back with your arms above your head. The radiographers will take a few minutes to check you are in the correct position. We may need to put some pen marks or metal markers on your skin to help plan your treatment.

You can wash off the pen marks after this visit and the radiographers will remove the metal markers before you leave.

The scan usually takes 20 minutes. After the scan, the radiographers will take some measurements and put small permanent marks on your skin, using ink and a needle. These marks are to show exactly where to position you for your treatment. The radiographers will help you down from the scanning table and you may then get dressed and leave the department.

Your treatment will usually start two weeks after your treatment planning CT scan.

Before you leave, you will be given a **provisional** list of all your radiotherapy appointments – **please bring this list with you to your first treatment appointment.** You will be given a confirmed list of appointments on your first day of radiotherapy treatment

What is a radiotherapy plan?

Your radiotherapy plan is the personalised design of your radiotherapy treatment. It is tailor-made for you and is based on the CT scan that you had. A team of doctors, radiographers and physicists will work together to decide where the treatment needs to be directed, avoiding as much healthy tissue as possible.

Treatment delivery

One to two days before your treatment starts you be asked to attend a **trial set-up** session. This is to ensure that the treatment we have planned for you can be delivered accurately and no significant changes have occurred since your treatment was planned.

The treatment is usually divided into three to five fractions over the course of five to ten days. You will usually have your treatments on alternate days. Some patients may require treatment over a slightly shorter or longer period. If so, your doctor will explain this to you and the reason why.

As with conventional radiotherapy, your treatment will be on a linear accelerator. This is a type of machine that produces high-energy x-ray radiation. You will be asked to remove your clothing from the waist up, so that the radiographers can see the permanent marks on your skin.

The radiographers will help you lie on the treatment couch in the same position as when you had your CT scan. They will move the treatment machine into position. It will come very close to you but will not touch you. You need to lie still and breathe normally.

You will be alone in the room during treatment, but the radiographers will be watching you at all times on closed circuit television. If you need help, wave your hand and the radiographers will return to the room to give you assistance.



Linear accelerator (linac)

Image supplied courtesy of Varian.

Before treatment starts the machine will move a full circle around you, but will not touch you. The machine uses x-rays to produce a CT scan, which will then be used to check that you are in exactly the right position for treatment and that it will be delivered accurately.

Following this scan the treatment couch you are lying on may move very slightly to adjust your position. At times you may be re-positioned by the radiographers. Once you are in the correct position, the treatment will start. The treatment is made up of a number of different beams, which are delivered one after the other.

The machine will move around your body between each beam, but will not touch you. At times the radiographers may have to enter the treatment room to adjust the position of the machine or to do another scan to make sure that you are still in the correct position. You must remain still at all times.

The treatment will last for 30 to 45 minutes from walking into the room to walking out again. There may be some music playing in the background and you will hear some noises from the machine but you will not feel anything.

Will my doctor see me during the treatment?

You will see the doctor before your plan check appointment.

Managing the side effects of stereotactic lung radiotherapy

Itchy inflamed skin

Radiotherapy commonly causes inflammation, redness and itching, 1–2 weeks after treatment begins and can affect the entire treatment area. To reduce the likelihood of this reaction we suggest the following:

Washing

It is important to keep the treatment area clean. Shower/bath using lukewarm water and your usual soap or shower gel. Use a soft towel to gently pat the skin dry – do not rub.

Moisturising

This will help your skin to cope better with the treatment. You may continue to use your usual moisturiser or if you need to buy one, we recommend one without the additive, sodium lauryl sulphate (SLS). During treatment, apply the moisturiser sparingly twice a day or more often if your skin is very itchy.

Do not scratch your skin as it is very fragile during radiotherapy.

Hydrocortisone cream 1% – this is a steroid that works by reducing inflammation. It can be prescribed if the itchiness becomes problematic.

Do not use either the moisturiser or hydrocortisone on broken skin. Check your skin daily before applying creams. Dressings will be given for broken skin.

Clothing

Wear loose comfortable clothing,

Swimming

Reduce the number of times you swim in chlorinated water as this can have a drying effect on the skin. After swimming, shower to remove excess chlorine and discontinue swimming if the skin becomes sore.

Sun

The skin in the treatment area will be more sensitive during radiotherapy and should not be exposed to the sun. You should protect the skin in this area for at least one year using a high factor sun block.

Comfort

Do not use a hot water bottle on your chest during your course of treatment as it will aggravate your skin.

Tiredness

You may feel tired during treatment. The best way to cope is to rest, eat regularly and do a small amount of light exercise (such as walking). Ask your friends and family to help you with daily activities.

How do I get further supplies of my medicines?

After being prescribed medicines at the hospital, take the white copy of your prescription to your GP who can continue to prescribe these for you.

Anyone with a cancer diagnosis is entitled to free prescriptions. If you do not already have a medical exemption card, you can get an application form from your GP, the oncology outpatient department, or from Dimbleby Cancer Care. Please ask us if you need any further information.

What happens when treatment ends?

Last week of radiotherapy

In the last week of treatment, you will see one of healthcare professionals who have been involved in your treatment and care, to review your side effects and discuss how to manage them.

The side effects are likely to worsen during the first two weeks after treatment and then they will start to improve.

On the last day of treatment, you will be given a Treatment Completion Form summarising your treatment. We will send one copy to your GP and give you one for your own records.

Follow-up after treatment

Your oncologist will want to see you in the clinic where you were originally seen two weeks following the end of treatment. This appointment is to check that you are recovering well. Further appointments will be will be at three month intervals for the first year and then six month intervals in later years. At each appointment you will have a chest x-ray.

You will usually have a CT scan approximately three months after completing your radiotherapy. You will be given the telephone number and information to make your follow up appointment on your first day of radiotherapy treatment.

Commonly asked questions

Where can I get advice on financial support during treatment?

At Guys & St.Thomas' there is a Benefits Advice Service, where an adviser is available for appointments. You can book an appointment by telephoning **Dimbleby Cancer Care** on 020 7188 5918.

When can I go on holiday?

As long as your skin is protected from sun exposure, you can go on holiday as soon as you feel well enough. You may swim as soon as your skin reaction has healed.

When can I go back to work?

Some patients continue to work throughout their radiotherapy treatment, while others may feel they need a few weeks break before returning.

If you have had a long break from work it may be advisable to plan a phased return, where you work shorter hours initially.

Additional information

In order to improve treatments and services, audits are regularly carried out in the department. This can involve using patient notes. Any data collected will have all personal and identifiable details removed to ensure patient confidentiality. However, if this is unacceptable to you, and you would prefer that your notes are not seen, please let your consultants know and your wishes will be respected.

Clinical trials are undertaken within the department, which you may be eligible to take part in. If necessary and appropriate, your doctor will discuss this with you.

Contact us

Guy's radiotherapy reception	020 7188 7188 (extension 57542 or 57569)
Radiotherapy bookings	020 7188 3160
Radiotherapy treatment support team 8.30am to 5.30pm Monday–Friday	020 7188 4220
Acute oncology assessment unit 9am to 6pm Monday–Friday	020 7188 3754

Out of hours oncology doctor on call

Please phone the hospital on **020 7188 7188** and ask them to contact the oncology doctor on call. Please have your hospital number ready. The switchboard operator will take your details and ask the emergency oncology doctor to phone you back.

If you are concerned go to your local accident and emergency (A&E) department.



Dimbleby Cancer Care provides cancer support services for Guy's and St Thomas'. We have a drop-in information area staffed by specialist nurses and offer complementary therapies, psychological support and benefits advice for patients and carers.

Dimbleby Cancer Care is located in the Welcome Village of the Cancer Centre at Guy's. **t:** 020 7188 5918
e: DimblebyCancerCare@gstt.nhs.uk

Further information and support

The people taking care of you understand that being diagnosed with cancer is very stressful, and the treatment for it may increase your concerns.

After a diagnosis of lung cancer, you may have specific worries. These might include:

- coping with personal relationships
- talking about your diagnosis
- continuing with social and work activities.

Many people feel unable to cope with what is happening to them and feel anxious or depressed. It can be helpful to know that most people find these feelings ease with time.

British Lung Foundation

t: 08458 505020 **w:** www.lunguk.org

Cancer Research UK

t: 0808 800 4040 (freephone)

w: www.cancerhelp.org.uk

Macmillan Cancer Support (freephone)

t: 0808 808 0000 (information on all aspects of cancer)

w: www.macmillan.org.uk

Roy Castle Lung Cancer Foundation

t: 0800 358 7200 (freephone) **w:** www.roycastle.org

Guy's and St Thomas' hospitals offer a range of cancer-related information leaflets for patients and carers, available at www.guysandstthomas.nhs.uk/cancer-leaflets. For information leaflets on other conditions, procedures, treatments and services offered at our hospitals, please visit www.guysandstthomas.nhs.uk/leaflets

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Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748 9am to 5pm, Monday to Friday

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk

t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and Accessible Support Services

If you need an interpreter or information about your care in a different language or format, please get in touch:

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health. **w:** www.nhs.uk

Get involved: become a member of the Trust

Members of Guy's and St Thomas' NHS Foundation Trust contribute to the organisation on a voluntary basis. We count on them for feedback, local knowledge and support. Membership is free and it is up to you how much you get involved.

t: 0800 731 0319 **e:** members@gstt.nhs.uk

w: www.guyandstthomas.nhs.uk/membership

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