

# Stereotactic Ablative Body Radiotherapy (SABR) to the lung

Radiotherapy

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available
- If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111
- Keep the environment clean and tidy
- Let's work together to keep infections out of our hospitals and care homes.



# Introduction

Radiotherapy is the use of high-energy radiation to kill cancer cells in the treatment area. Radiotherapy can also damage normal cells in the treatment area, which can result in some side effects.

We plan radiotherapy very carefully to protect as much healthy tissue as possible and reduce these side effects. The healthy tissues usually heal resulting in the side effects and symptoms improving over time.

Radiotherapy is delivered by highly trained staff called therapy radiographers. It is delivered on machines called linear accelerators.

Both male and female staff will treat you. We are a teaching hospital and have student radiographers on placement in radiotherapy who are supervised by trained staff.

## What is stereotactic ablative radiotherapy (SABR)?

SABR is a way of delivering radiotherapy that allows us to give a higher dose of radiation per session to the tumour than traditional radiotherapy. This increases the chance of controlling the tumour without causing more side effects.

Not everyone is suitable for SABR treatment. Your oncologist will discuss this with you.

As we can deliver a higher dose of radiation each session, the number of sessions for SABR is much shorter than for standard radiotherapy. Patients will receive either 3, 5 or 8 treatment sessions. However, treatment sessions for SABR take longer than for standard radiotherapy.

## Consent

Before you undergo this procedure, you will need to sign a consent form.

This indicates that:

- Your doctor has explained the treatment procedure and any possible side effects to you
- You agree to go ahead with treatment

## Pacemakers

If you have a pacemaker, or implantable defibrillator, please tell your doctor and the radiographers before your first treatment. Treatment can alter the performance of your device. It may need testing before and after treatment is given.

## Pregnancy

Tell a member of staff as soon as possible if you are, or become, pregnant at any time before or during your treatment. There is a significant risk to an unborn baby from radiotherapy.

For advice on contraception please speak to your consultant or GP.

## CT Planning Scan

To treat you accurately and reduce side effects, your radiotherapy treatment must be carefully planned. This will involve having a CT scan in the radiotherapy department in the Deanesly Centre. This is a normal CT scan, but it is used to show areas we need to treat and those we need to avoid. You will not be given any results from this scan.

You will need to remove all clothing from your chest region for the scan. You shall be asked to lie with your arms up beside your head in a specially made support. You will be in this same position for all your treatments.

Some patients with upper lung tumours may require a thermoplastic head and neck mask to wear during treatment. This helps to reproduce your head and shoulder position and so that we don't have to put pen marks on your skin. You will need to wear the mask for the CT scan and each treatment. The mask will be made for you, and there is a separate booklet describing how the mask is made if required.

Please ask for more information if this applies to you.

## Contrast

Sometimes an intravenous contrast medium is used. This helps the radiographers, doctors, and physics team to see organs more clearly on the CT scan. This will involve putting a needle into your arm before the CT scan. You will be told if you require contrast.

Contrast is only needed for treatment planning and not for daily radiotherapy.

If you've had contrast before and had any reaction to it, please let the doctor or the radiographers know.

## Skin marks

At the CT scan, you will have pen marks put onto your skin. These are used as a reference for the planning process and during treatment. With your permission, we then put tiny permanent dots of dye beneath the skin called tattoos. These will not wash off. If we cannot do this, you will need to ensure you keep the pen marks on your skin until all your treatment is complete.

After your planning CT, there shall be a gap of three to four weeks before your treatment starts. During this time, doctors, physics staff and radiographers are planning and preparing your treatment.

## What is treatment planning

This is a period of planning or preparation which is required before your treatment can start.

This is to allow:

- Accurate "aiming" of the radiotherapy to your tumour
- Calculation of how to deliver the correct dose of radiation to the tumour

## Treatment

The radiographers will deliver the treatment as prescribed by your consultant. You will need to remove all clothing from your chest region. You will then lie in the same position you were in when you had your CT planning scan. The bed is raised so it is closer to the machine.

The radiographers will dim the lights and use laser lights to line up your tattoos. Once you and the treatment machine are in the correct position, the radiographers leave the room to switch the machine on. You need to lie still, but you can breathe normally. The treatment radiographers are watching you the whole time via camera. They will turn the machine off and enter the room if you move or call for help.

During treatment, the machine will move around you, but nothing will touch you. You will not feel anything during the treatment, but the machine will make a buzzing noise. The treatment times are around 35-50 minutes each. Images are taken before to check that the treatment is correct before its given, and another set of imaging taken halfway through.

Once the machine has switched off, there is no radiation present. You will not be radioactive, and you are safe to be near children and pregnant women.

Some patients may require a practice session prior to starting treatment. You will not receive any treatment on this day. Your treatment will then begin at your next appointment. You will be advised by a member of staff if this is required.

## Side effects of treatment

Treatment is painless, but it can cause some side effects. This treatment affects people in different ways. It's difficult to predict which side effects will affect you and how severe they will be. Side effects can be early (acute) and late (chronic).

## Early effects

These may happen during your treatment and for a short while afterwards.

### **Tiredness:**

- Most people feel tired because of radiotherapy treatment. Tiredness will often come on gradually as the treatment progresses. It may last for some weeks after treatment has finished
- If you feel tired, try to rest or sleep. Regular exercise like taking a short walk can help if you're up to it; and remaining hydrated

### **Coughing and breathlessness:**

- You may develop a cough. You may also produce some sputum which changes in colour or contains some blood
- A tickly cough may be relieved with frequent sips of fluid, especially at night. Sometimes cough linctus can also help
- You may also feel more breathless during and after treatment

- Continuing to smoke is likely to make your symptoms worse

**Hair loss:**

- You will only lose hair in the treatment area, for example, chest hair
- This is likely to happen around two weeks into or after your treatment
- This hair loss is usually temporary; but in some cases, this may be permanent

**Effects on the skin:**

The effects of radiotherapy on the skin are usually minimal for this type of treatment.

Your skin may become gradually pinker or darker in the treatment area. This can happen towards the end of treatment and for the first one or two weeks after. This may present as red, dry and itchy.

We advise that you:

- Wash the treated area daily with un-fragranced soap or shower gel
- Don't have your water too hot or soak for too long
- Use a soft towel to pat your skin dry
- Avoid wearing tight clothes in the area being treated
- Do not use sunbeds
- Do not go swimming if your skin is visibly red
- Use a moisturising cream to soothe and moisturise the skin (i.e. E45)
- Avoid extremes of temperature – hot and cold
- Keep the treated area out of the sun during treatment. Take care in the future by using a high factor sun cream
- Avoid shaving in the area being treated. If you must shave, use an electric razor for dry shaving only. When the skin becomes visibly red, stop shaving. Do not wet shave. Do not use hair removal creams, lasers or wax

# Late side effects

Late side effects can happen months to years after you have completed treatment. Your consultant will discuss with you any late effects that may be relevant to your treatment.

These may include:

## **Breathlessness:**

Radiation can cause inflammation of the lungs (radiation pneumonitis). Radiation pneumonitis can happen 6-12 weeks after finishing treatment.

This can cause:

- Shortness of breath
- Fever
- Cough

It can be mistaken for a chest infection but does not resolve after a course of antibiotics. Radiation pneumonitis can be treated with steroids to reduce the inflammation. This is rare but contact your Lung Specialist Nurse/SABR team if you have these symptoms.

**Scarring** (fibrosis) of the lung can happen after 6 months. This scarring is permanent and can cause a small part of the lung to collapse.

Please discuss these side effects with your specialist lung nurse. They can advise you on techniques to help make breathing easier. You may need to see your GP for antibiotics or other drug treatment to help.

## **Damage to the bones**

Radiotherapy can make your bones more fragile in areas that are treated, such as the ribs. This can lead to a loss of bone density called osteoporosis.



### **Heart damage**

Occasionally, radiotherapy to the chest can cause:

- Inflammation of the lining surrounding the heart (pericarditis)
- Some weakening of the heart muscle (myopathy)

This results in chest pain and shortness of breath.

Heart damage is very rare and may require further investigation and treatment.

### **Spinal cord damage**

Radiotherapy near the spinal cord carries a risk of nerve damage.

### **Brachial Plexopathy**

For tumours close to the top of the lung, there is a very small chance of damage to the nerves in the upper arm. This could result in weakness or numbness of part of the arm.

The risk of both spinal cord damage and brachial plexopathy is very small. We take great care to avoid or minimise the dose to these structures.

### **Second malignancy**

There is a very small risk of developing a second cancer in the area treated area beyond in the years after the treatment.

Please discuss any new symptoms you experience after your treatment with your consultant in the follow-up clinic.

## **After treatment**

The early side effects will continue for several weeks after the treatment is complete. You will receive an appointment to see your consultant six to eight weeks after finishing treatment. At this appointment, any further treatment or investigations will be discussed with you.

If you haven't received an appointment within three weeks of completing treatment, contact your consultant's secretary / SABR Advanced Practitioner. If you have any problems, contact the SABR Advanced Practitioner on 01902 307999 Ext: 88517.

# Appointments

The department is usually open Monday to Friday, 9am – 5pm. It's closed at weekends. We shall ask you to come in on public holidays.

You will be given your appointment on a day-to-day basis. Please notify the SABR Advanced practitioner or treatment radiographers as soon as possible if you need to change any dates or times. We'll try our best to give you the times you prefer, but this cannot be guaranteed.

Radiotherapy treatment machines are very complex. They are maintained by a team of in-house physicists and technicians. Delays in treatment can happen due to machine breakdowns and servicing.

It is not advisable for you to miss any appointments. If this is unavoidable, please talk to the SABR Advanced Practitioner or radiographers treating you.

We need to have a contact number for you. We may have to call patients about appointments or with other information at short notice. If your telephone is set to stop incoming calls from withheld numbers, please give us an alternative telephone number.

You are entitled to free parking whilst on radiotherapy treatment. Please ask the reception desk for a free parking ticket when leaving the department.

All cancer patients are entitled to free prescriptions. If you need an exemption card, please ask a member of staff for an application form.

It is strongly recommended that you stop smoking. Smoking can make treatment side effects more severe, the treatment harder to tolerate and less effective.



## English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

## Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

## Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

## Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

## Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

## Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。