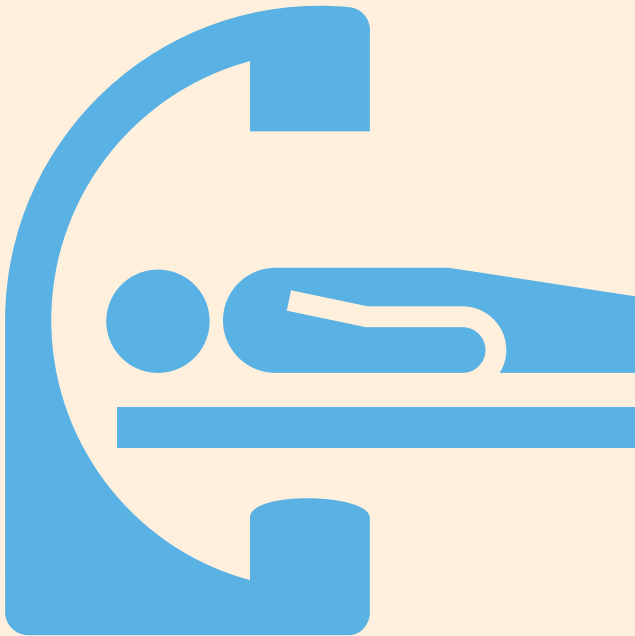


Radiotherapy

A guide for teenagers and young adults who are undergoing radiotherapy treatment for cancer

What is radiotherapy?



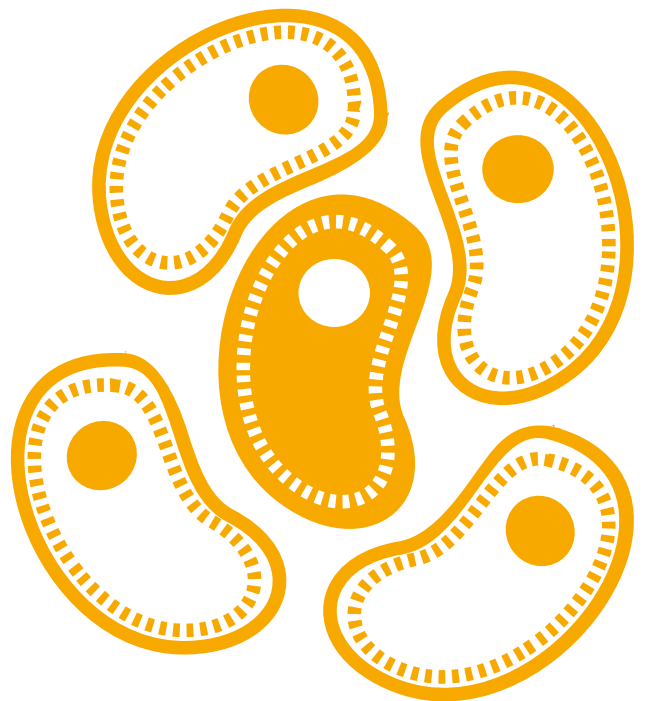
Radiotherapy is the treatment of cancer (and some other diseases) using high-energy radiation. This information relates to 'external beam radiotherapy', which includes using x-rays, electrons or protons. The radiotherapy beams can be directed very accurately to any area of your body, using highly sophisticated machines called Linear Accelerators.

Radiotherapy is only given to children and young adults in specialist treatment centres, as not every hospital which gives radiotherapy to adults has the skilled staff able to do so for young people.

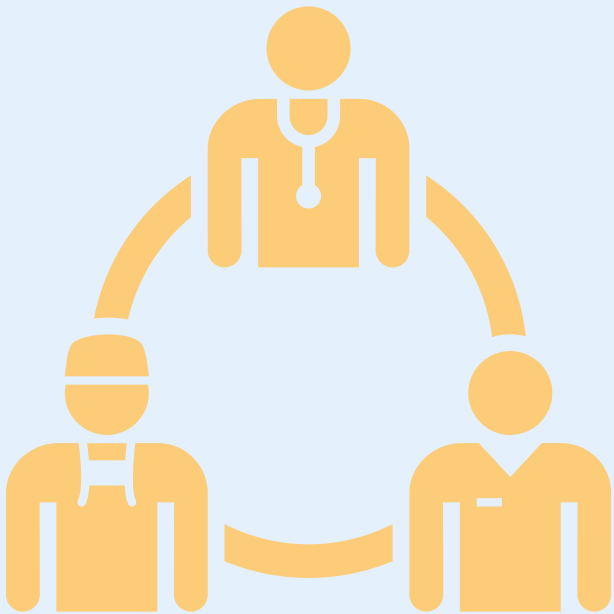
Why do I need to have radiotherapy?

Radiotherapy is used as part of your treatment plan to help destroy cancer cells within a targeted area of your body. It can be given as a treatment by itself or it can be given before or after surgery. It may also be given in combination with or after a course of chemotherapy. Sometimes it is necessary to treat your whole body with radiotherapy, for example, in preparation for a bone marrow transplant.

For some patients whose disease we cannot cure, radiotherapy is able to relieve troublesome symptoms such as pain and bleeding, to help improve their quality of life.



Are there any alternative treatments to external beam radiotherapy?



Cancer may also be treated with **surgery and/or chemotherapy**. Your doctor will discuss with you whether these are possible treatments for you.

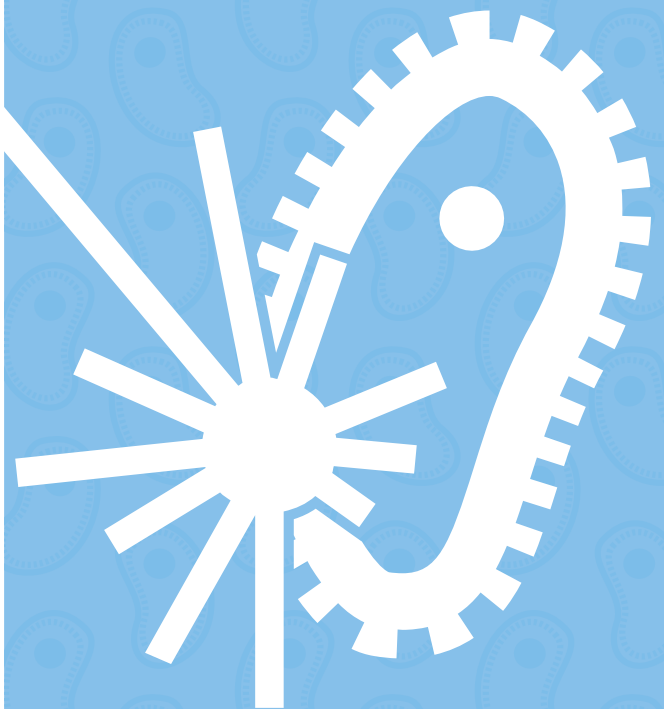
Occasionally, other specialised forms of radiotherapy such as brachytherapy and molecular radiotherapy may be judged the best way of giving treatment.

How does radiotherapy work?

The radiation leaves energy in the tissues as it passes through your body. As it does so, it injures or destroys cells in the area being treated.

Cancerous or other abnormal cells are more sensitive to radiation than normal cells within the same area. The DNA in the abnormal cells is damaged, which means that they become unable to grow and divide and are therefore destroyed. The normal cells are usually able to recover from the effects of the radiation and function properly.

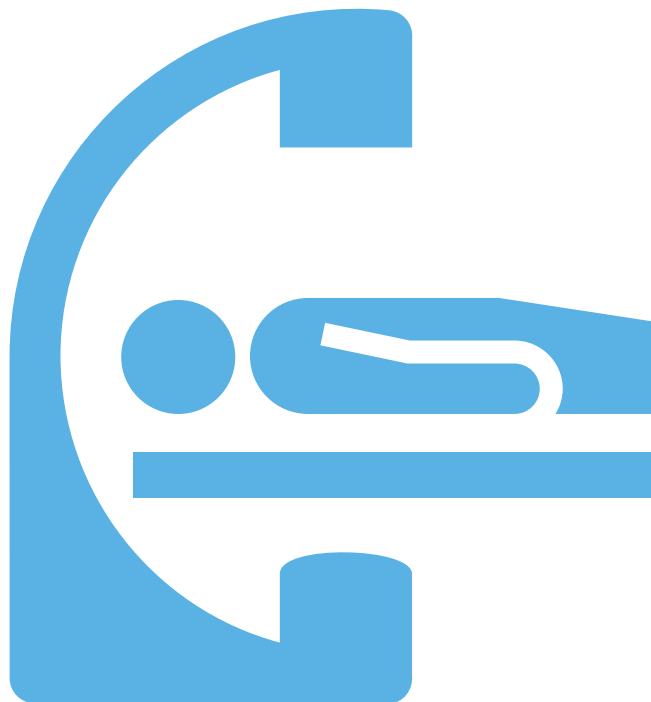
Radiotherapy aims to deliver a highly-targeted dose of radiation to as many cancerous or abnormal cells as possible, whilst limiting the harm caused to nearby healthy tissues which will be able to recover from the effect of receiving the same radiation dose.



How often will I have treatment?

The number of radiotherapy treatments you will have depends on your diagnosis and the aim of the treatment. A course of radiotherapy may range from a single treatment through to six weeks or more. Each treatment is called a fraction. Giving the treatment in separate daily fractions means that less damage is done to normal cells and so hopefully there will be fewer side effects.

Radiotherapy treatment is usually given once a day (and occasionally twice a day) from Monday to Friday. It is very important to follow your treatment plan and avoid any unnecessary interruptions to your treatment plan. If there are any interruptions to your treatment then these will need to be compensated for, possibly with treatment at a weekend or by having an extra treatment on one day.



A course of radiotherapy may range from a single treatment through to six weeks or more depending on your diagnosis and the aim of the treatment

How much will I have?

Everyone's treatment is different and planned individually. Your radiotherapy doctor, also called a clinical oncologist, will determine the amount of radiotherapy you will need (dose), over how many days (fractionation). How much radiotherapy you will have depends on the type of cancer you have and where it is in your body, what other types of treatment you are having (like chemotherapy or surgery), and your general health.



Who will look after me?

When you come for radiotherapy, there will be several members of staff involved in looking after you.

Consultant clinical oncologists are doctors specialising in radiotherapy. They are responsible for prescribing and supervising your radiotherapy treatment. The first time you meet your clinical oncologist will be when you come for your first outpatient appointment to find out about radiotherapy. They will go through your medical history before explaining about the different types of radiotherapy and what your treatment options are.



Then, once you start treatment, they will see you regularly to discuss how you are getting on and answer any questions you may have.

Radiotherapy radiographers are specially trained in all aspects of radiotherapy and patient care. You will meet them when you come for your pre-treatment (also called radiotherapy planning) appointment and each time you visit. They can provide you with support, advice and information. They also liaise with other healthcare professionals such as doctors, specialist nurses, play specialists, dieticians, physiotherapists and clinical psychologists.

Many departments that treat teenagers and young adults will also have a **specialist paediatric radiographer** or radiographers that have a special interest in treating children, teenage and young adult patients and have access to a wider range of support for you.

Radiotherapy students or **trainee assistant practitioners** work alongside the radiographers and are under supervision at all times.

Physicists, planning technicians or **planning radiographers** will work with your clinical oncologist to draw up a personal treatment plan for you.

Giving consent

Either you or your parents/carers will be asked to sign a consent form. This is a written record that you have agreed to the radiotherapy and give your permission to carry on with planning and treatment. It is important that you understand all the information you have been given about your radiotherapy treatment and that you have the opportunity to ask questions before the consent form is signed.

Please remember that your radiotherapy treatment is an ongoing process so don't be afraid to ask questions at any time. There is no such thing as a silly question!



Planning appointment

Your first appointment will be to visit the radiotherapy planning team. This usually takes place in a CT scanner, which uses x-rays to produce images that can be used alongside the other scans that you will have already had.

The radiographers will ask you to lie very still on a hard couch, either on your back or on your front, with your clothing removed over the area to be treated. You may find that they use special devices to help you to keep still. This will depend on which part of your body needs to be treated.

If your treatment will be to your head, neck or a limb, then you may need to have a special mask/mould made. For other parts of the body, the radiographers may use foam blocks or special bags ('vac-bags') that are formed around your body to mould to your shape.

Masks/moulds are generally made from a material which, when heated, becomes very soft and can be placed over the appropriate area of your body. This feels like a warm, damp flannel and takes about 5-10 minutes to cool down and become hard again. Alternatively, some departments will use a plaster cast to take an impression of the relevant part of your body and then make a clear plastic mask/mould from that.

A vac-bag is a bag full of polystyrene balls (like a large bean bag) that is wrapped around the relevant part of your body and then the air is sucked out so that it moulds around you.

Once the radiographers are happy with your position, they will draw some marks on your skin or your mask and then stick some special markers over the top that will show up on the CT scan. During the scan, the couch will move in and out of the scanner for a few minutes. The scanner doesn't touch you and you will not feel anything although you will hear it working.

After your scan, the radiographers will remove the special markers and, if they were on your skin, with your permission make some permanent marks so that they don't wash off before or during your treatment. The marks are important to ensure that the radiographers can reproduce the position you were in for your CT scan each day for your treatment.

Why do I have to wait before I start treatment?

After you have had radiotherapy planning, your treatment is carefully planned. Your clinical oncologist will work with the planning team to produce a personalised treatment plan specifically for you. This may take several days or weeks depending on the complexity of your treatment and the area of your body that is being treated.

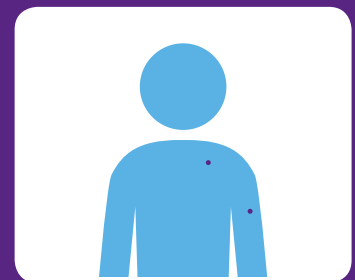
Once your treatment plan is ready, you may be asked to attend for a further appointment to ensure that everything fits as it should do before treatment starts.



Your radiotherapy planning appointment will usually take place in a CT scanner.



You will have to lie very still on a hard couch and your radiographer will help you to keep still.



The radiographer will draw marks on your skin to help reproduce your scan position.

What happens when I come for treatment?



Before treatment starts, your radiographer will be able to give you a good idea of how long each treatment will take.

When the radiographers take you into the treatment room, they will ask you to lie on the treatment couch in the same position that you were in when you had your planning appointment. They will move you and the couch to match your skin marks (or the marks on your mask) to the treatment machine. Although it may seem as though the machine comes very close to you, it will not touch you.

When the radiographers are happy that you are in the correct position they will leave you on your own in the treatment room whilst the treatment is being delivered; however, they will watch you all the time on their monitors. There is nothing to see or feel when the machine is switched on but you will hear some noises from the machine and an audible warning sound.

For at least the first few days of your treatment, the radiographers will take some images of your treatment area during treatment. This is to ensure that you are lying in the same position each day and that treatment goes in exactly the right place.

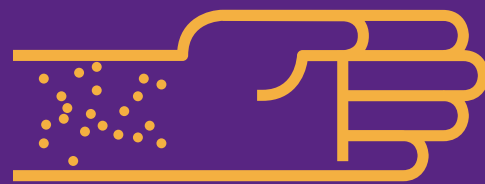
Are there any side effects of radiotherapy treatment?

Your radiographers will ask you how you are feeling each day because radiotherapy can cause some side effects. The most common of these are tiredness and a skin reaction. Other side effects will depend on the area of your body being treated and your treatment team will give you specific information and advice about these.



Tiredness

You are unlikely to feel tired straight away and the amount of tiredness varies greatly from person to person. A couple of weeks into your treatment you may find that you feel a little more tired than usual, and this may be more pronounced if you are having to travel a long way each day. You may find that this gradually increases as you progress through your treatment and continues for a while after you have finished your radiotherapy. The best advice for this is to listen to your body and if necessary give yourself more time to rest, perhaps by going to bed slightly earlier than usual or taking the odd nap during the day.



Skin reactions

Some people develop a skin reaction during their treatment. This is dependent on your skin, the area being treated and the amount of treatment the skin receives. Some people don't experience any skin problems at all and others find that their skin becomes quite pink. As with tiredness, skin reactions don't generally happen straight away, but gradually build up over a period of time and can continue for a couple of weeks after the radiotherapy has finished. The radiographers will give you specific advice about how to care for your skin whilst you are on treatment.

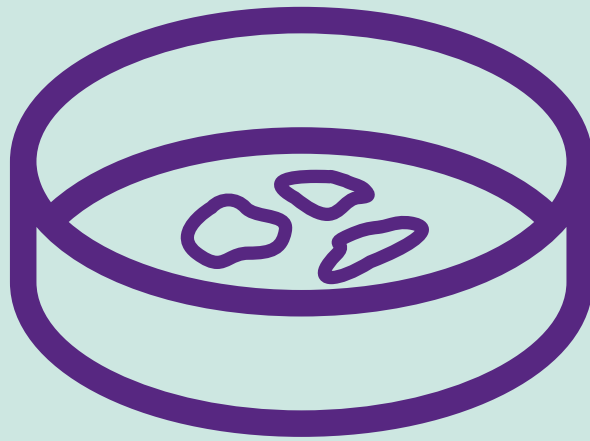


Will I see my doctor whilst on treatment?

Your clinical oncologist will want to catch up with you during your treatment. This is so that they can monitor how you are getting on with your treatment and to give you the opportunity to discuss any questions or problems you may have.



Will I need any tests whilst on treatment?



You will normally need to have blood tests done before you start radiotherapy and possibly once or twice a week during your course of treatment.

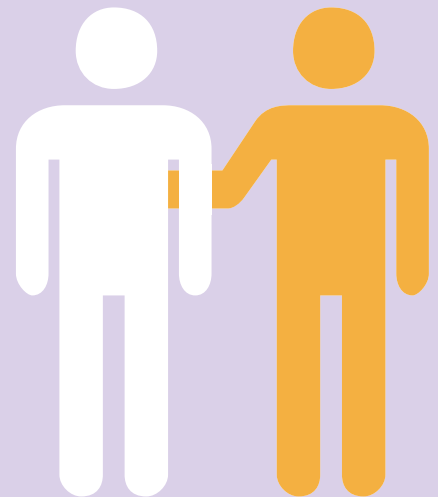
The number of blood tests you will have during radiotherapy treatment will depend on the area of the body being treated, but will include a full blood count so that we can monitor your haemoglobin, neutrophil and platelet counts to ensure that your radiotherapy treatment is as effective as possible.

What will happen after I have finished my radiotherapy?

After you have completed your radiotherapy treatment, you will need to be seen fairly regularly by doctors for follow-up. The frequency of follow-up will depend on a variety of factors including your diagnosis and what other treatments you have received.

When all of your treatments have finished, your doctors will decide how frequently you need to be seen and who will be overseeing you for follow-up during the first few years.

If you have any queries or concerns, please talk to your radiotherapy team.



Medical terms explained

Brachytherapy – a type of internal radiotherapy that uses radioactive sources that are placed into, or as close as possible to, a tumour

Cancer – a term that is used for a large group of diseases, that can affect any part of the body, where abnormal cells divide without control and are able to invade other areas

Chemotherapy – drug treatment that kills cancer cells

Clinical oncologist – a doctor who specialises in the treatment of cancer and in particular who is responsible for prescribing and supervising your course of radiotherapy

CT scan – a series of x-rays, which build up a three-dimensional picture of the inside of the body

Diagnosis – what type of cancer you have

Electrons – a type of radiotherapy that is used to treat tumours on or near the skin's surface

Fractionation – the number of treatments the radiotherapy is split in to

Gray – the measurement of the dose of radiotherapy

Impression – mould taken of part of the body

Molecular radiotherapy – a type of radiotherapy that uses radioactive drugs to treat cancer

Physicists – a group of staff who work with the clinical oncologist to plan radiotherapy treatment. They also advise on issues that may affect radiotherapy treatment and are responsible for calibrating the treatment machines.

Protons – a specialised type of radiotherapy that can be used to treat some types of

cancer. Proton therapy is not currently available in the UK and patients are sent abroad for treatment, if appropriate.

Radiotherapy – the treatment of cancer (and some other diseases) with high-energy radiation

Side effects – reactions caused by radiotherapy treatment such as tiredness

Surgery – a procedure that aims to remove the tumour during an operation

Therapy radiographer – an individual who is specially trained in radiotherapy and patient care during treatment

Thermoplastic – a material that becomes soft and mouldable when warmed

Tumour – an abnormal growth of cells



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Leukaemia
Group

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Registered charity in England and Wales (1182637)
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This edition: August 2022

Next review date: August 2025

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Patient Information Forum

Reviewed by Dr Henry Mandeville, Consultant Clinical Oncologist, The Royal Marsden Hospital, on behalf of the CCLG Information Advisory Group, comprising multiprofessional experts in the field of children's cancer.

Children's Cancer and Leukaemia Group (CCLG) is a leading national charity and expert voice for all childhood cancers.

Each week in the UK and Ireland, more than 30 children are diagnosed with cancer. Our network of dedicated professional members work together in treatment, care and research to help shape a future where all children with cancer survive and live happy, healthy and independent lives.

We fund and support innovative world-class research and collaborate, both nationally and internationally, to drive forward improvements in childhood cancer. Our award-winning information resources help lessen the anxiety, stress and loneliness commonly felt by families, giving support throughout the cancer journey.

Our work is funded by donations. If you would like to help, text 'CCLG' to 70300 to donate £3. You may be charged for one text message at your network's standard or charity rate. CCLG (registered charity numbers 1182637 and SC049948) will receive 100% of your donation.

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