

Understanding

Radiotherapy

Caring for people with cancer



Understanding

Radiotherapy

This booklet has information on:

- Radiotherapy and how it is given
- Side-effects and how to manage them
- Life during and after treatment
- Financial and practical matters

Useful numbers

Specialist nurse

Hospital

Family doctor (GP)

Surgeon

Oncologist/haematologist

Radiation oncologist

Emergency

Medical social worker

Hospital records number (MRN)



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Fast facts

What does radiotherapy do? Page 10

Radiotherapy uses high-energy rays to kill cancer cells. It can help cure cancer or stop it spreading. It can also help to relieve pain and other cancer side-effects.

Does it hurt? Page 28

No. Getting external radiotherapy is a bit like getting an X-ray. You won't feel anything, but you will have to keep very still, which may be a bit uncomfortable. Sometimes skin in the treated area gets sore afterwards. With internal radiotherapy (brachytherapy) the radioactive source is usually put in your body under anaesthetic, so you shouldn't have any pain.

How often will I get radiotherapy? Page 29

It depends on your treatment plan. Often a course of external radiotherapy lasts around 3-8 weeks, where you go to hospital for treatment every day, except for weekends. If you're having internal radiotherapy or radiotherapy to help with symptoms, you might just have a single session.

Will I get side-effects? Pages 14, 45

Radiotherapy can affect normal cells in the treated area, as well as cancer cells. This can cause general side-effects like tiredness, as well as specific side-effects related to the area being treated. For example, diarrhoea or constipation after stomach / pelvis radiotherapy, a cough after chest radiotherapy. Most side-effects ease in the weeks and months after treatment. Sometimes side-effects develop some time after treatment.

Clinical trials Page 16

Clinical trials are research studies that try to find new or better ways of treating cancer or reducing side-effects. Ask your consultant if there are any trials suitable for you. You can also see a list of current cancer trials at www.cancertrials.ie

We're here for you Page 89

If you or your family have any questions or worries, want to know where to get support, or if you just need to talk, you can talk to one of our cancer nurses.

Ways to get in touch

- Call our Support Line on 1800 200 700
- Drop in to a Daffodil Centre.
Email daffodilcentreinfo@irishcancer.ie to find your local Daffodil Centre.
- Email us: supportline@irishcancer.ie

See page 89 for more about our services.

Reading this booklet



This booklet is to help you throughout your cancer treatment and afterwards. You will probably find different sections useful at different times, so keep it for reference. If you need more information or don't understand something, ask your doctor or nurse. You can also ask one of our cancer nurses:

- Call our Support Line on Freephone 1800 200 700
- Visit a Daffodil Centre
- Email the nurses at supportline@irishcancer.ie

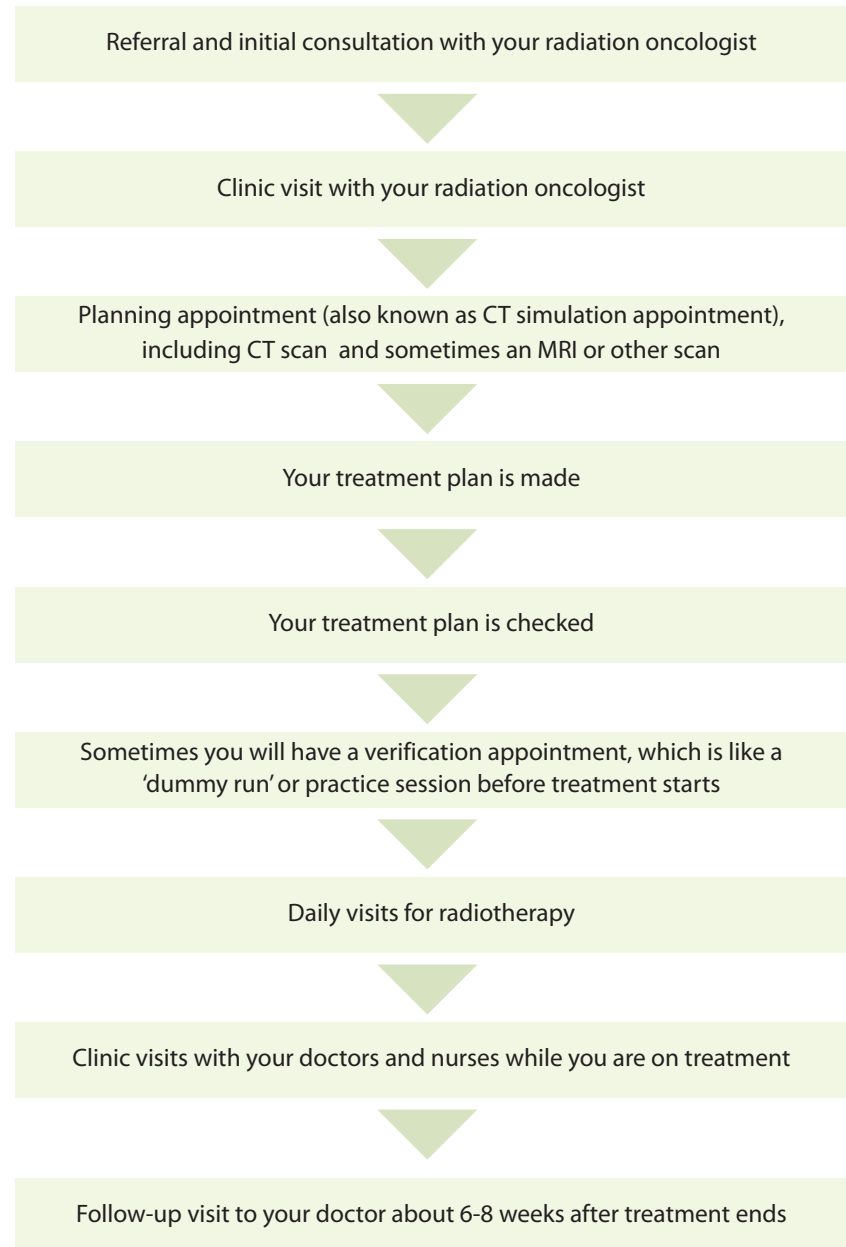
We cannot give advice about the best treatment for you. Talk to your hospital team about your treatment and care - they know your medical history and your individual circumstances.

Support Line Freephone 1800 200 700

About radiotherapy

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Patient journey for radiotherapy



Radiotherapy

- Radiotherapy is a treatment used to cure or control cancer.
- Radiotherapy involves careful planning before treatment.
- There are different ways that radiotherapy can be given.

What is radiotherapy?

Radiotherapy uses carefully measured doses of high-energy radiation to kill cancer cells in the affected area by damaging their DNA. This will stop the cancer cells from dividing and growing. Unlike chemotherapy, which usually exposes the whole body to cancer-fighting drugs, radiation therapy is usually aimed at and affects only the part of the body being treated (local treatment).



Why is radiotherapy given?

The aim of radiotherapy is to destroy cancer cells with as little damage as possible to normal cells. It can be used to treat many kinds of cancer.

Radiotherapy may be used:

To cure cancer (radical treatment)

This type of treatment aims to cure cancer and prevent it returning.

To shrink cancer before surgery

This can make a tumour easier to remove.

To stop cancer from coming back (recurring) somewhere else

Cancer can spread from where it started to other body parts. Sometimes your medical team will recommend radiotherapy to kill any cancer cells that remain after surgery or that have spread to other parts of your body.

To treat cancer that has returned (recurred)

Radiation can treat cancer that has come back after an initial diagnosis and treatment. If the cancer has come back in a part of the body that has already been treated with radiation, it is sometimes possible to give more radiation in the same place.

To relieve symptoms (palliative radiotherapy)

Palliative radiotherapy can help to relieve symptoms like pressure, pain or bleeding. If a cure is not likely, palliative treatment can lead to a better quality of life. Often a short course, sometimes only a single treatment, is needed.

How is radiotherapy given?

There are 3 main ways of giving radiotherapy:

External beam radiotherapy

External beam radiotherapy is where a beam of radiation is directed into the tumour (or the tumour site if you have already had surgery to remove the tumour). The beams of radiation come from a machine called a linear accelerator (Linac). The radiation is also aimed at a small area of normal tissue around the tumour site just in case any cancer cells have spread. External radiotherapy is the most-used type of radiotherapy. See page 17 for more about external radiotherapy.

Internal radiotherapy (brachytherapy)

This is where the radiation sources (implants) are put inside your body, on or near the tumour. The implants may be removed after a short time – maybe only 20 or 30 minutes – or they may be left in place to give the radiation over a long period of time. See page 35 for more about internal radiotherapy.

Systemic radiotherapy

Liquid radioactive drugs called radionuclides or radioisotopes are given by mouth or put into a vein (intravenously) to treat certain types of cancer such as thyroid and advanced (metastatic) prostate cancer. These drugs travel throughout the body. See 43 for more.

Planning your treatment

Radiotherapy must be carefully planned so that the highest dose is given to the tumour area and as little as possible to the nearby cells. You will have a planning appointment (CT simulation appointment) at the hospital. During this appointment you will have a scan so that your medical team can work out the best dose for you and mark out the area to be treated. You can read more about planning radiotherapy on page 17.

When is radiotherapy given?

Radiotherapy can be given on its own or in combination with other treatments, such as surgery, chemotherapy, hormone therapy and targeted therapies. For some cancer patients, radiotherapy is the only treatment needed.

Radiotherapy and surgery

You may have radiotherapy either before or after surgery.

- **Neoadjuvant radiotherapy:** You may have radiotherapy some weeks before surgery to shrink a tumour and make it easier for surgeons to remove. As a result, you may need less radical surgery, that is, less tissue removed.
- **Adjuvant radiotherapy:** In most cases radiotherapy is given after surgery to prevent the growth of any cancer cells that might remain in your body. You may also have other treatments such as chemotherapy.

Radiotherapy and chemotherapy

Radiotherapy can be given:

- Before chemotherapy to reduce the size of the tumour
- With chemotherapy, using drugs that make the cancer cells more sensitive to radiation (radiosensitisers), so that the radiotherapy treatment works better. This is called chemoradiation
- After chemotherapy to kill any cancer cells left in your body

See page 9 for a step-by-step guide to your radiotherapy treatment.

Where is radiotherapy given?

Radiotherapy is normally given in special cancer treatment centres, usually hospitals or clinics. These centres need highly trained staff and space for the large equipment involved. As a result, the centre may be some distance from the hospital where you received surgery or chemotherapy.

Most people receive radiotherapy as outpatients, travelling to the radiotherapy unit each day. For some internal radiotherapy you may have to stay in hospital for a few days.

Will I get side-effects?

Radiotherapy can temporarily damage or destroy healthy cells leading to short-term and long-term side-effects. If you have radiotherapy and chemotherapy together, the side-effects can be worse. See page 47 for more about side-effects.

Who might I meet while I am having radiotherapy treatment?

The staff you will meet regularly in the radiotherapy unit will be your doctors, radiation therapists and nurses. Depending on your needs, you may also be referred to the physiotherapists, dietitians, speech and language therapists, medical social workers, clinical psychologists and counsellors.

Radiation oncologist: A consultant who specialises in treating cancer patients using radiotherapy.

Medical oncologist: A doctor who specialises in treating cancer patients using chemotherapy and other drugs.

Radiation therapist: A healthcare professional who specialises in planning and delivering radiotherapy. They will monitor your progress, explain any side-effects and give advice about your radiation treatment.

Radiation physicist: A radiation expert who helps to plan your treatment with the radiotherapy team. They make sure that the equipment is working properly and that the machine delivers the right amount of radiation. Most patients do not meet the radiation physicist.

Dosimetrist: A scientist who plans and calculates the proper radiation dose for your treatment. They work closely with the radiation oncologist, physicist and radiation therapist. You may or may not meet the dosimetrist.

Radiographer: A healthcare professional who takes X-rays, CT and MRI scans, mammograms, and so on, that you may need before or during your cancer treatment.

Radiation oncology nurses: Nurses who specialise in radiation oncology. They will co-ordinate your care, help you learn about your radiation treatment, tell you how to manage side-effects, and take care of any dressings, medicines or other needs you have.

Mould room technician: A specially trained person who makes devices to stop you moving during treatment. For example, for head and neck cancers, they will make a special mask so that your head and shoulders can keep still during treatment. The mould room technician is often a radiation therapist.

Pre-treatment workshops



Ask your specialist nurse or visit a Daffodil Centre for information about our pre-treatment education workshops. The workshops give information about certain treatments, including what to expect and how to manage side-effects.

Clinical trials

Clinical trials are research studies that try to find new or better ways of treating cancer or reducing side-effects. Patients with cancer are sometimes asked to consider taking part in a clinical trial. This means that instead of the standard treatment you may get a new trial drug. Or you may be given existing treatments used in different ways, for example, a different drug dose or using two treatments together.

Because the drugs are still in trial, you'll be very closely monitored for unexpected side-effects and may have extra tests and appointments.

Trials often investigate very specific features of a particular cancer or treatment, so you may not be suitable for a trial even if it is researching your particular cancer. Your doctor can advise you about this.

More information

It's best to talk to your doctor if you're interested in taking part in a clinical trial. For more information, you can read our factsheet ***Cancer and Clinical Trials***. It's available to read or download on our website, www.cancer.ie. You can also get a free copy by calling our Support Line on 1800 200 700 or by dropping into a Daffodil Centre. You can see a list of current cancer trials at www.cancertrials.ie

Planning external radiotherapy treatment

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Tests and planning

Radiation beams can damage normal cells as well as cancer cells.

To make sure your treatment is as precise as possible to avoid damage to healthy cells, you will have at least one planning appointment (CT simulation appointment) at the hospital before you have your radiotherapy. The radiation oncologist will examine you, review your medical history and test results, and pinpoint the exact area to be treated.

Planning your treatment may take time – anything from one day to weeks – and then waiting for treatment may take more time. Try not to worry if you think it is taking too long. It just means that the doctors and team are making sure that the treatment is specially designed for your needs. Planning palliative treatment is more straightforward.

Ask questions if you are unsure about any part of your treatment planning.



Treatment planning includes:

Physical exam

You will have a physical examination to check your general health. You may need to have some X-rays, scans and blood tests done as well. Before starting treatment, make sure to tell your doctor about any medicines you are taking, including herbal remedies. They may advise you to stop taking these remedies during your course of radiotherapy. Tell them also if you have any allergies or sensitive skin.

CT planning (simulation)

Your first visit to the radiotherapy unit will involve a CT scan. The main purpose of the scan is to pinpoint the area to be treated (treatment field) and decide on the position you will be in when you have your radiotherapy treatment. It's important that your position is comfortable, as you will need to stay in the same position every time you have radiotherapy.

You will lie still on a flat surface. Laser lights will be used to make sure you're lying in a straight position on the bed. After the scan, the radiation therapist will mark your skin so that the machine can be lined up using these marks as a guide when you are having your treatment. CT planning can last for up to 30 minutes.

Skin markings

The radiation therapist will mark the treatment field with dots of semi-permanent ink or with tiny tattoo dots to make sure that you are in the same position each time for treatment. With the semi-permanent ink, the marks will fade away over time, but they're needed until your treatment is finished, so don't use soap or scrub these marks.

The tattoos are permanent, so you may need to sign a consent form before you have them. The dots are very tiny, though. They can be removed later with a laser.

Immobilisation

You need to stay as still as possible during the planning and treatment sessions. Every effort will be made to make you as comfortable as possible. Foam pads, special vacuum bags and immobilisation devices may be used to help you stay in the treatment position. Sometimes the mould room technician or radiation therapist can make special devices or supports for you. For example, a body mould, mask, mouth bite or head frame. For more on immobilisation devices, see page 22.



Pregnancy test

For women, it's important to check that you're not pregnant before you start treatment. Radiation can harm a growing baby. You will have a pregnancy test if there's any chance you could be pregnant.

Once all your tests and planning are completed, you can go home. Your doctor, the radiation physicists, radiation therapists and the dosimetrist will work together to calculate the dose of radiation you need based on the treatment goals. Talk to the team if you have any worries or concerns.

Immobilisation devices

Immobilisation devices help to keep you in the right position every time you have treatment. There are different types, depending on which part of the body is being treated.

Body mould / 'Vac bag'

You will be asked to lie down and hold your arms above your head.

You will then lie on a bag (like a bean bag) the length of your body. Once you are comfortable and in the correct position for treatment, a vacuum will be attached to the bag and the air sucked out.

This will make a mould around your body so that you are always in the same position for your planning and treatment.



Head frame

A head frame is used for intracranial stereotactic radiosurgery only (see page 30). A circular metal frame is held in place by four attachments that line up with your skull. Two are in your forehead and two are in the back of your head. Your neurosurgeon (specialist brain doctor) will put your head frame on. An anaesthetic will be used to numb the skin where the frame will be attached. You will feel some pressure at first but you should not feel pain.



Mask

If you are having radiotherapy to your head or neck, you may need to wear a mask during treatment. The mask can be made from either clear plastic (Perspex) or a type of mesh plastic (thermoplastic).

For the Perspex mask, the mould room technician will put some cream on your face. They then put strips of plaster of Paris bandage on top of this to make a mould. This takes a few minutes to set and is then removed. A Perspex mask is made from this mould.

A thermoplastic mask uses a type of mesh plastic that becomes soft and pliable when heated in warm water. The warm plastic is draped carefully over your head. It will feel like a warm face cloth placed over your face at first but it cools very quickly. The holes in the plastic will allow you to breathe easily through it. The radiation therapist and mould room technician mould the plastic to the shape of your head as it cools.



Dental mouth bite

To make a dental mouth bite, you will be asked to bite into a plastic mould full of putty. This mould is like a gum shield. The putty will dry in 10 minutes and make a mould of your upper teeth. The radiation therapist will then attach a small frame to your mould. They might ask you to remove your mouth bite a few times to check that it fits correctly.



Giving consent for treatment

Before you start any treatment, you should be asked to sign a consent form saying that you understand what the treatment is for and that you give permission for treatment to be given. Before treatment, you should be given full information about:

- What the treatment is for
- The type and amount of treatment you will have
- The benefits and risks of the treatment
- Possible side-effects
- Any other treatments that may be available
- Any suitable clinical trial. For more information on clinical trials, see page 16

If you are confused about the information given to you, let your doctor or nurse know straight away. They can explain it to you again. Some treatments can be hard to understand and may need to be explained more than once. You can still change your mind after you have started treatment. Talk to your doctor or nurse if you have any worries about your treatment plan.

What are the benefits and risks of treatment?

With every medical treatment there are benefits and risks. The high doses of radiation will harm not only cancer cells but also normal cells. Your doctor will discuss with you in advance the benefits of treatment and any possible short-term or longer-term side-effects. Also, they will give you advice on how to look after yourself and help relieve any symptoms. See page 45 for more details about side-effects of treatment.

Getting external radiotherapy

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Getting external radiotherapy

- Each treatment session will last about 20 minutes.
- Receiving radiation is painless; it's like having an X-ray.
- Treatment is usually given once a day, 5 days a week for a set number of weeks.

First day of treatment

On the day of your first treatment, you will come to the radiotherapy unit. It is best to wear comfortable clothes that are easy to take off and put on. Some hospitals provide gowns.

The radiation therapists who deliver the treatment will explain to you what happens and what to expect – all the sights, sounds and likely side-effects. It is natural to feel anxious about radiotherapy, so every effort will be made to put you at ease. If you have any questions or concerns, no matter how small, talk to your radiation therapist.



The radiation therapists will help you onto the treatment table and will adjust both the table and the machine to the exact positions needed. You will be put in the same position as for your CT planning scan. Because you need to keep still for a few minutes during treatment, they will make you as comfortable as possible.

When you are ready, the radiation therapist will leave the room to set up the machine. The lights will be turned down and laser lights will be used to line up the beam with the marks on your skin that show where the radiation will be aimed. Relax as much as you can and just breathe normally.

Getting your treatment

The radiation machines are operated from outside the room in the control area. The radiation therapists will be watching you carefully on a closed-circuit television. They can hear and see you and can talk to you through an intercom. If you need them, just speak and they will immediately stop the treatment and enter the room. If you are wearing a mask, just wave your hand. The machines can be stopped at any time. The radiation therapists control the movements of the machine at all times.

You need to stay as still as possible during the treatment so that radiation only reaches the treatment areas and that the same area is treated each time. Just breathe normally. The machine may move around you, but it will not touch you. After a few minutes, your treatment will be over for that day.

Receiving radiation is painless – just like having an X-ray. Even though it is painless you still may feel anxious about the machines. They are large and most of them make a buzzing noise as they move around your body aiming at the treatment area from different angles. Some people worry that they will be completely enclosed by the machine, but this does not happen. To help you relax, some treatment rooms have music and you can always talk to the radiation therapist at any time during your treatment.

You must remain as still as possible during treatment – just breathe normally.

How long will treatment take?

From start to finish, the treatment session can take up to 20 minutes, allowing time for getting on and off the treatment table and for the machine to be set up. This routine will go on each weekday until your course of treatment is finished. You will usually go home after each day's treatment.

Your radiation therapist will give you information about who to contact if you have any problems at home between sessions.

How much radiotherapy will I have?

The total dose of radiation and the number of treatments you need will depend on:

- The size, location and type of cancer
- Your general health
- Other treatments you are having, such as chemotherapy, surgery, or targeted therapies

This means the dose and length of treatment can vary between patients, even those with the same type of cancer. Depending on the hospital you attend, sometimes your appointment can be made for the same time each day. Normally, there is no radiotherapy treatment on Saturdays and Sundays. Each treatment is called a fraction so you will receive, for example, five fractions per week.

External radiotherapy is usually given once daily, 5 days a week for 3 to 8 weeks.

When the aim is not to cure cancer but to control its symptoms, the course of treatment is much shorter, usually 1 to 10 doses.

Types of external radiotherapy

Techniques in radiotherapy are developing all the time. The types of external radiotherapy that are currently available in Ireland include:

Conformal radiotherapy

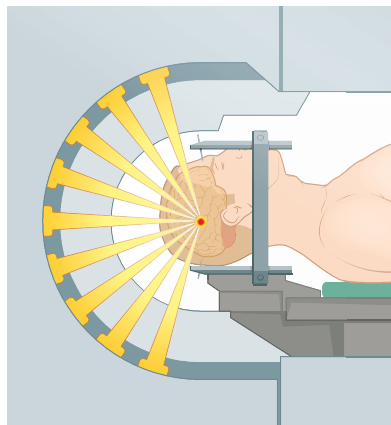
Conformal radiotherapy is also called three-dimensional (3D) conformal radiotherapy. It is a very commonly used type of radiotherapy. Conformal radiotherapy uses a device inside the linear accelerator that can be adjusted to match your tumour. The radiation beams are precisely focused so that nearby healthy tissue is spared. This results in fewer side-effects, allowing a higher dose of radiation to be given.

Stereotactic radiotherapy and radiosurgery

Stereotactic radiotherapy is a very technical and accurate way of giving radiotherapy. It uses smaller, more precise radiation beams than standard radiotherapy. These beams are targeted at the tumour from several angles, which combine to give a high dose of radiation. Stereotactic radiotherapy is generally used on small tumours that are not suitable for surgery, such as brain or lung tumours.

If stereotactic treatment is given to your brain, it is called intracranial stereotactic radiotherapy. If it is given to any other part of your body, it is called extracranial stereotactic radiotherapy or stereotactic body radiotherapy.

Stereotactic radiosurgery is like stereotactic radiotherapy, except that it is given in just one dose. It is used to treat tumours in your head (intracranial radiotherapy).



Stereotactic radiosurgery is like stereotactic radiotherapy, except that it is given in just one dose.

Deep-inspiration breath-hold (DIBH) treatment

DIBH is used when radiotherapy is given to the chest area. The idea is that you take deep breaths and hold them for short periods while the radiation is delivered, to shift your heart and other structures away from the beam of radiation. For example, when giving radiotherapy to the left breast, which is near the heart. When you stop holding your breath, the radiation beam is switched off. Your radiation therapist will help you during this treatment so that you know how to breathe the right way.

Intensity-modulated radiotherapy (IMRT)

Intensity-modulated radiotherapy (IMRT) can shape the radiotherapy beams so that different doses of radiotherapy can be given to different parts of the treatment area. For example, if you are having radiation to your throat for throat cancer, the lymph nodes in your neck will also need treatment but at a much lower dose. With IMRT you will receive a higher dose to your throat and a lower dose to your neck lymph nodes. IMRT also helps to reduce doses of radiation to normal, healthy tissues compared to standard radiotherapy.

Volumetric-modulated arc therapy (VMAT) is a form of IMRT that allows for even more efficient and accurate use of intensity-modulated radiotherapy. VMAT is not suitable for everyone – your multidisciplinary team will decide about this treatment based on your needs. It is also not as widely available as IMRT.

Image-guided radiotherapy (IGRT)

Often tumours can move between and during radiotherapy. For example, when you breathe, swallow or fill your bladder. Image-guided radiotherapy (IGRT) allows for changes in your tumour's location. Images are taken of your body every time you have treatment. These images help your therapists to adjust your radiotherapy so that it is targeting the tumour. By constantly checking the size and location of the tumour, your doctors can make sure that your treatment is as accurate as possible.

Total body irradiation (TBI)

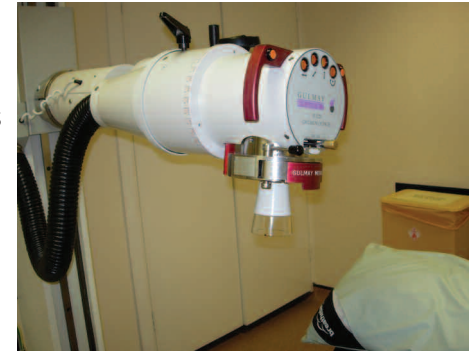
For some types of leukaemia, lymphoma or myeloma, doctors may use radiotherapy to the whole body. This is called total body irradiation. This is part of the preparation for a bone marrow transplant or a stem cell transplant. The radiation kills off all bone marrow, including cancer cells, before healthy bone marrow is given back to you.

For more information on total body irradiation see our website www.cancer.ie or talk to one of our cancer nurses by calling our Support Line on Freephone 1800 200 700 or by visiting a Daffodil Centre.



Contact/electron radiotherapy

Contact radiotherapy can be used to treat cancers on the surface of your skin. This includes basal cell carcinomas (BCCs), squamous cell carcinomas (SCCs) and other skin conditions. It uses energies much lower than those of the linear accelerators. Sometimes it is used to treat secondary cancer in the bone, for example in the ribs. Different sizes of applicators can be used, depending on the size of the treatment area. The applicator is put into the head of the machine and then placed on the skin surface. This is why it is called contact radiotherapy.





Internal radiotherapy (brachytherapy)

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Internal radiotherapy (brachytherapy)



- A radioactive source is placed inside your body on or near the tumour.
- This treatment can often be given over a shorter timeframe than external radiotherapy.

How is internal radiotherapy used?

In brachytherapy ('brack-ee-there-a-pee') radiation sources are placed directly into the body. This means doses of radiation can be given to cancer cells, while avoiding damage to the area around the cancer. The radiation is sealed in an implant, which can be in the form of a tube, seed or capsule.

You may need internal radiotherapy only once or a small number of times. You might have external radiotherapy or other treatments too, or you might only have brachytherapy. It depends on the type of cancer you have and what your consultant thinks will work best for you. Brachytherapy is mainly used to treat cancers of the:

- Cervix, womb and vagina
- Head and neck, including mouth and lip cancers
- Prostate
- Eye (ocular)
- Lung
- Oesophagus, rectum and bile duct
- Breast

With internal radiotherapy, a high dose of radiation is given directly to the tumour, sparing normal tissue. The course of treatment is usually shorter than with external radiotherapy.

Brachytherapy can be given in several ways either as an outpatient (where you will go home after treatment) or inpatient (where you stay in hospital). It depends on the type of implant used.



Brachytherapy seeds are put into the body



Size of brachytherapy seeds

Types of implants

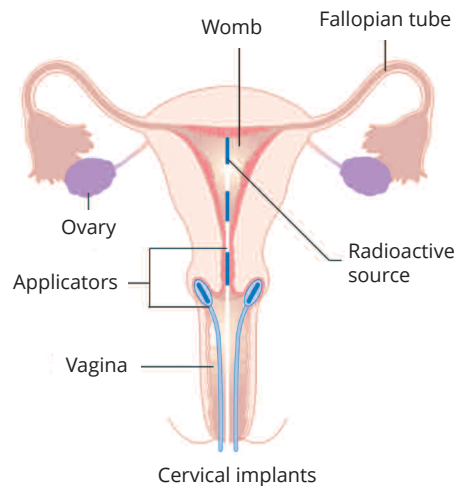
The implants may be temporary or permanent.

Temporary implants

The implants are put into your body and removed after a short time (often 20-30 minutes), once the prescribed dose is given. Temporary implants are used in most cases.

Permanent implants

Permanent implants are mainly used to treat prostate cancer. Tiny radioactive “seeds” are left in the body and lose their radiation gradually over time. See page 41 for more about prostate brachytherapy.



Picture: Cancer Research UK / Wikimedia Commons

Planning your treatment

You may be admitted to the hospital or radiotherapy unit the day before your treatment.

Tests

Depending on the location of the tumour, you may need extra tests such as blood tests, X-rays, ultrasounds, or CT scans.

Method of delivery

Your doctors will decide what kind of implant you need. It depends on the size and location of the tumour, and the type of cancer you have.

Dosage

The dose of radiation will be carefully calculated by your radiation oncologist, physicist, dosimetrist (scientist who plans and calculates the radiation dose) and radiation therapist. The dose will depend on:

- The type of cancer
- Where the cancer is located
- Your general health
- Any other cancer treatments you have had

High-dose rate (HDR)

This means giving a high dose of radiation for a short time – so the implant may only be left in for 20-30 minutes.

Low-dose rate (LDR)

This means the implants are left for a longer time (up to a few days), to give a lower dose of radiation over a longer period. You'll normally stay in hospital until it's time for the implants to be removed.

For prostate cancer, seeds are left in the body permanently and gradually stop giving off radiation after a few months. You don't normally need to stay in hospital if you're having permanent implants.

Consent

Your doctor should ask you to sign a consent form before any treatment begins. Ask as many questions about this treatment as you wish. It can be hard to understand when explained for the first time. Your doctor may draw diagrams to help with any explanations. See page 24 for more information on giving consent.

Getting your treatment

Usually, the applicator or seeds will be put in under general anaesthetic, but you may have a local anaesthetic (to numb the area being treated), depending on the type of implant you're having. For brachytherapy to the pelvis, usually a spinal anaesthetic is given. Applicators may be thin wires or plastic tubes called catheters. The applicator can be placed directly into the tumour or put into a body cavity, for example the womb. Or it may be placed in the area where your tumour was removed during surgery.

Depending on your cancer you may have one or more applicators. Once the applicators are in place, an X-ray or CT scan will be taken to check if they are in the correct place.

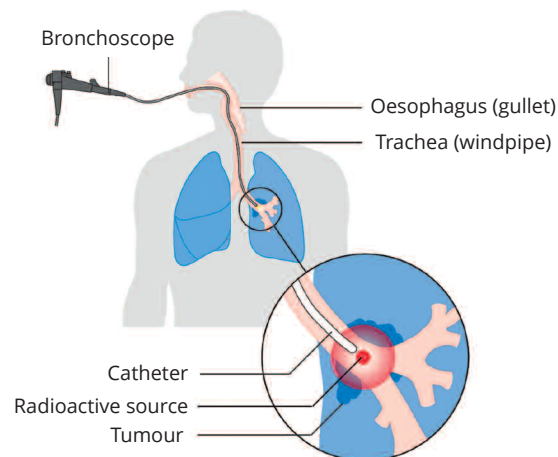


Diagram showing how you have internal radiotherapy for lung cancer.
Image courtesy of Cancer Research UK / Wikimedia Commons

Temporary implants

You will be taken to a special room for treatment. The applicators will first be attached to a machine. When this machine is switched on it passes a small radioactive source into the applicator. You may hear this referred to as "afterloading". What happens during treatment depends on the location of the tumour and the dose you receive.

Your doctor, radiation therapist and nurse will carefully explain what will happen during treatment, how long the applicator and implant must stay in place, when you can go home, and any precautions you must take.

Permanent implants

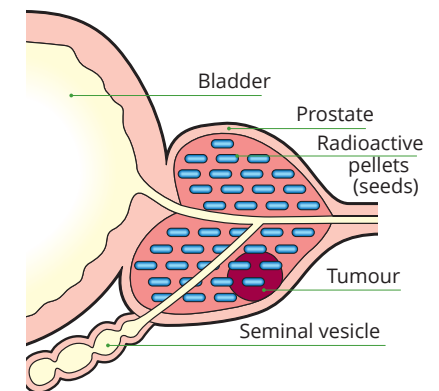
Permanent implant brachytherapy is mainly used to treat prostate cancer, as described below.

Brachytherapy for prostate cancer

Brachytherapy to the prostate can be given in two ways: low-dose rate (LDR) or high-dose rate (HDR). Your doctor will decide which rate you need depending on the stage of the cancer.

With low-dose rate brachytherapy, small radioactive seeds (or pellets) are put into the prostate. This usually happens under general anaesthetic so you will not feel anything.

About 60-80 of the seeds are put in using long needles and an ultrasound or X-ray to control where they go. The seeds are left in place and slowly release radiation over a number of months but stops within 1 year.



The treatment is usually over in a single visit. You will also have a long tube (catheter) put in to drain your urine. Once the catheter is removed and you can pass urine again, as well as eat and drink, you will be allowed home. You may be prescribed antibiotics to prevent an infection afterwards.

High-dose rate brachytherapy uses a temporary implant. This is where applicators (rods) are put into your tumour to allow a radioactive material to reach the area for a few minutes. After the treatment all the rods are removed. There is no radiation source left in your prostate gland. You will be given a general or spinal anaesthetic so you do not feel anything during the operation.

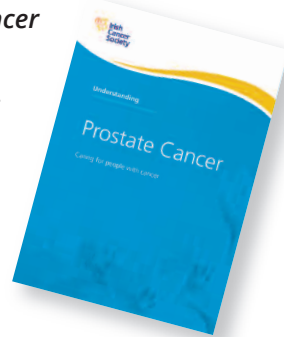
Will I get side-effects

In the days after having prostate brachytherapy, you may notice:

- Mild soreness in the area between your testicles and your back passage (perineum)
- Bruising and discolouration between your legs
- Blood in the urine. Drinking plenty of water helps prevent blood clots and flushes the bladder
- Needing to pass urine more often, irritated bladder

Talk to your specialist nurse if you are worried about any symptoms you have after treatment. See page 60 for more about side-effects of radiotherapy to the pelvic area.

See our booklet *Understanding prostate cancer* for more detailed information about radiotherapy treatment for prostate cancer. Call our Support Line on 1800 200 700 or drop into a Daffodil Centre for a copy. It's also on our website www.cancer.ie



Systemic treatment

Some cancers may be treated with a radioactive source called a radionuclide or radioisotope. These are given in tablet form or through an injection into your blood. Thyroid cancer and advanced (metastatic) prostate cancer in your bones are 2 cancers commonly treated with this type of radiotherapy. Sometimes this is referred to as radioisotope treatment.

Examples of radioactive injections are strontium 89 and radium-223 (Alpharadin® / Xofigo®). They can help to shrink areas of cancer in your bone, which can relieve pain. The treatment is usually given once a month for about 6 months. Your doctor will tell you if this treatment is suitable for you.

Because the radiation source is not sealed within an implant, you will have radioactivity in your body for a few days after treatment. You will be given advice on what safety precautions you need to take. For example, flushing the toilet twice, washing your hands well, using separate kitchen utensils and towels and not kissing or having sex.

With radioactive drug injections for prostate cancer, you should be able to go home and mix with other people straight after treatment, although you may be advised to avoid long periods of close physical contact. With thyroid treatment you will stay in a separate en-suite room for 1-2 days until your body has gotten rid of the radiation. The hospital team will give you safety advice when you are going home.

For more information, call 1800 200 700 for a copy of our booklets *Understanding Metastatic prostate cancer* and *Understanding Thyroid cancer*. You can also pick up copies at a Daffodil Centre or download them from www.cancer.ie





Managing side-effects

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What are the side-effects of radiotherapy?

Radiotherapy will affect normal tissue within the treatment area. Any side-effects you get will depend on which part of your body is being treated and the number of treatments you get. Radiotherapy is not painful but may cause discomfort in the treated area afterwards.

Most side-effects are temporary and are rarely severe.

Short-term (acute) side-effects normally develop within 2 weeks of starting treatment. These usually last for a few weeks.

Long-term (chronic) side-effects are much less common. They may happen months to years after treatment and may sometimes be permanent.

General side-effects are side-effects that are not linked to the area of the body being treated. For example, fatigue.

Tell your doctor, nurse or radiation therapist about any symptoms or side-effects that you notice.

Before treatment, your doctor will discuss any likely short- or long-term side-effects with you and ways to manage them.

They will also meet you weekly to see how you are getting on. Being aware of the side-effects beforehand can help you to cope with them if you do get any. Always tell your medical team as soon as possible if you notice any changes such as a change in weight, sleeping habits, increased discomfort or pain.

Email: supportline@irishcancer.ie

What can I do to reduce side-effects?

To make sure that your radiotherapy works as well as possible and to reduce side-effects, it may help to stop smoking during treatment. Your doctor may recommend that you give up alcohol and smoking completely, especially if you are being treated for head and neck or lung cancers. If you would like to stop smoking, contact the HSE Quit Team on Callsave 1800 201 203 or Freetext QUIT to 50100. Some hospitals have smoking cessation officers who can help and support you – you can ask your doctor or nurse for a referral to this service.

It's also important to eat a balanced diet and drink plenty of fluids during treatment to promote healing and good health. Many people think that radiotherapy causes nausea and vomiting, as with chemotherapy. But nausea and vomiting will only happen if your abdomen or pelvic regions or brain are being treated.

Fatigue

Fatigue means feeling extremely tired. It is quite common during radiotherapy, especially towards the end of treatment. There may be many reasons for feeling tired or fatigued. The body uses a lot of energy for healing during radiotherapy. Travelling to and from the hospital each day for weeks can make you more tired than usual. You may feel tired for some weeks or even months.

Usually, fatigue starts to improve once treatment is over, but it can carry on for some people. Tell your doctor, radiation therapist or nurse if fatigue is affecting you. They can advise on ways to save your energy and cope with everyday activities.

Our booklet *Coping with fatigue* has more advice. Call our Support Line on 1800 200 700 or drop into a Daffodil Centre for a free copy. It's also on our website www.cancer.ie

Hints and tips: fatigue



- **Ask your doctor about exercising.** Being active can help with fatigue. Your doctor may also be able to recommend an exercise programme for you.
- **Get to know when your energy levels tend to be better.** You may have to decide which tasks are important to finish and do them over the course of the day or when you have most energy.
- **Ask for help at work or at home** with any jobs that you find tiring.
- **Try to eat a well-balanced diet.** Eat little and often if your appetite is poor. Our booklet *Diet and Cancer* has tips to help.
- **Try to avoid stress.** Talk to friends and family about any worries you have and take time to enjoy yourself. Counselling (see page 84) may help too.
- **If you are not sleeping well, good bedtime routine and try relaxation techniques.** Avoid stimulants like caffeine and alcohol in the evening and try not to use electronic devices for an hour before bedtime.
- **Short naps (less than an hour) and rest periods can be helpful,** as long as they don't stop you from sleeping at night.
- **Try complementary therapies** such as meditation, acupuncture or massage, if your doctor says they're safe for you.

Skin changes

You may have a skin reaction as a result of radiotherapy. Only the skin within the treatment area will be affected. Skin may become red, sore or itchy, or it may peel and flake.

'After radiation on my breast, the areola lost most of its brown colour and was a light pink. Also, the nipple appeared to be a little crusty.'

Your radiation therapist and nurse will give you advice on how to look after your skin during and after radiotherapy.

Skin reactions usually happen after 3 to 4 weeks of treatment. During your treatment, your radiation therapists will check for any skin reactions, but you should also let them know straight away if you feel any soreness or have any other changes. Your doctor may prescribe a cream or lotion for you to use. Skin reactions usually settle down 2 to 4 weeks after treatment has finished. After the redness has faded your skin may peel, but it should heal quickly. The skin may also remain a little darker than the surrounding skin.

The hints and tips (on the next page) will help you to care for your skin and keep it in good condition during and after your radiotherapy treatment.

In general, you may find it more comfortable to wear loose, casual clothing made from natural fibres. It is best to avoid tight collars

and ties if you receive radiotherapy to your head and neck. Also avoid wearing starched or stiff clothing over the treated area. For radiotherapy to the pelvic area, do not wear girdles, corsets or anything tight. Shoulder straps and bra straps rubbing against treated skin can also cause skin irritation. If your breast area is being treated, it may be more comfortable to wear a vest rather than a bra.

Hints and tips: skin care

- **Do not scratch or rub the treated area** as it may become sore. Gently pat yourself dry with a soft towel after a bath or shower.
- **Avoid soaps, talcum powders, deodorants, lotions, perfumes** as they may irritate the treated area.
- **Apply unperfumed moisturisers** like aqueous cream to the area.
- **Do not apply creams, lotions, dressings, herbal remedies** unless prescribed or recommended by your specialist.
- **Do not wet shave within the treated area.** Also avoid using shaving lotion or hair removal products on the treated area.
- **Protect your skin from cold weather** by wrapping up well.
- **Never expose the treated area to the sun.** Always use a total sunblock on the treated area and use a sunscreen (SPF 30 or higher) on non-treated skin. Cover treated skin with light clothing when outdoors.
- **Do not apply sunscreen before radiation treatment.**
- **Do not apply heat or cold** (heating pads, hot water bottles, ice packs, etc) to the treated area. Avoid hot baths, saunas and steam rooms.
- **Do not use adhesive tape on the treated skin.** When bandaging, use paper tape outside the treated area.

Emotional effects

Going through cancer treatment can affect your emotions. For more information on managing your emotions see page 83.

Specific side-effects

There are different side-effects depending on which area of the body is being treated. Some of the most common side-effects are listed in this section, but there may be others which are not listed here. Talk to your treatment team about what to expect from your particular treatment.

Side-effects from radiotherapy to the head and neck area

Depending on the area of the head and neck being treated, you may experience some of the following side-effects:

Mouth problems

Radiotherapy to the mouth area can cause a sore mouth and throat, because the cells that line these areas are very sensitive to treatment. It's important that you keep your teeth, gums and mouth very clean, as this will help to control the soreness and reduce the risk of a mouth or throat infection.

Taste changes

Radiotherapy can affect the taste buds in your mouth. You may find that food tastes bland, salty, metallic or like cardboard. If this happens, you may lose interest in food. If your appetite is poor, ask your nurse or radiation therapist to refer you to a dietitian who will check your weight and give you further advice. Your taste and appetite should improve greatly once treatment has ended.

Dry mouth (xerostomia – “zero-sto-mee-a”)

You may notice that your mouth and throat feel dry all the time. This is because radiotherapy can cause the salivary glands to make less saliva (spit) than usual. You may also find that saliva can become thick and stringy, making swallowing and speech a little difficult too. The dryness may improve with time but can be permanent. It may be helpful to sip cool drinks during the day and use sauces or gravy to make food moist and easier to swallow. Keep your lips moist with aqueous cream. There are also many types of artificial saliva products available which help to keep your mouth moist. Sugar-free chewing gum can help to stimulate saliva.



Sticky mucus

You may find that you have a lot of sticky mucus in your throat. If the mucus turns green or yellow, tell your doctor. It may need to be treated with medication.

Soreness

Your mouth and throat will most likely become red and sore, and mouth ulcers may develop (mucositis). Sometimes eating food may become difficult and swallowing painful. Your voice may also become hoarse. Let your doctor or nurse know as soon as possible if these happen. You will be prescribed painkillers if you need them. Your doctor or dietitian will advise you on how to change your diet to make eating more comfortable.

Dental problems

You will need to take special care of your teeth as they will be more prone to decay because of the lack of saliva. Avoid sucking sweets when your mouth feels dry as it increases your risk of both tooth decay and a fungal infection called thrush. It is better to use water or a sugar-free chewing gum. You will usually be asked to put fluoride gel on your teeth every day to help prevent decay. After radiotherapy, you will need to have regular dental check-ups (every 4–6 months).

Jaw stiffness

Sometimes radiation to your head and neck can cause a stiffness in certain facial muscles. This is called trismus. The stiffness can reduce your mouth opening. You will be shown some simple mouth-opening exercises that should be done at least twice every day to keep your mouth as flexible as possible.

For more information on mouth problems and radiotherapy treatment, call our Support Line on 1800 200 700 and ask for a copy of our booklet *Understanding head and neck cancers*. You can also pick a copy up at a Daffodil Centre or download it from www.cancer.ie

Hints and tips: mouth care

- **Gently brush your teeth with a small, very soft toothbrush** five or six times a day, especially after meals and before bedtime. It may help to soften the brush in warm water before brushing.
- **Use a mild fluoride toothpaste only.**
- **If you have dentures, remove them every night** and if your gums are sore.
- **Use special mouthwashes** to keep your mouth clean and fresh and to ease mild soreness or pain.
- **Only use mouthwashes recommended by your dentist, radiation therapist or nurse.** Some mouthwashes contain alcohol and are too harsh.
- **Sip cool water during the day.** Add ice cubes to keep it cool.
- **Avoid eating hot, spicy or very cold food and drink.**
- **If your mouth is sore, choose soup (not too hot), smoothies and yogurts.**
- **Avoid alcohol (especially spirits) and tobacco** as they can irritate the lining of your mouth and throat. They can also make side-effects more severe.
- **Let your doctor know if you need to have teeth taken out (extracted).**
- **Visit your dentist at least every 6 months.**

Hair loss (alopecia)

Radiotherapy can cause hair loss, but only in the area being treated. Most hair loss is temporary and will start to grow back within 2 to 3 months of finishing treatment. But hair loss in the treatment area can be permanent, depending on the radiation dose. There's more about hair loss on our website, www.cancer.ie.

Difficulty with eating and drinking

Surgery and radiotherapy to your neck, like your larynx, may cause difficulty with both eating and drinking. For example, you may have difficulty swallowing. If you have any difficulty eating or drinking, talk to your doctor, radiation therapist or nurse as soon as possible. They can give you simple advice on the best foods to eat or what mouthwash to use. The discomfort will usually ease 5 to 8 weeks after you finish treatment.

Weight loss

If you continue to lose weight because you have difficulty in eating, you may need to be fed in another way. This may mean that you need to spend a short time in hospital. Liquid food can be given into a vein (intravenously) or by a tube into your stomach called a PEG tube, until you can eat properly again.

Hints and tips: eating and drinking



- **Drink about 2 litres of fluid (3 to 4 pints) each day.**
- **Eat when you are hungry.**
- **Eat small snacks during the day** rather than large meals.
- **If you are trying to put on weight, increase calories by adding butter, spreads or cream to your food.**
- **Keep simple meals in the freezer, ready to use for when you feel hungry.**
- **If you live alone, arrange for a friend or relative to bring food to you or find out about meal-delivery services.** Ask your GP, nurse, medical social worker or community welfare officer what kind of help is available in your area.

Diet and cancer

If you have difficulty eating or drinking or you are concerned about weight loss, we have a helpful booklet called *Diet and Cancer*. Call our Support Line on 1800 200 700 for a free copy. You can also pick it up from a Daffodil Centre or download it from www.cancer.ie



Voice changes

Radiotherapy to your neck, in particular your larynx, may cause the sound of your voice to change or you may lose your voice for a while. If you have a voice prosthesis or you're using an electrolarynx, you may notice that the quality of your voice is poor. This common side-effect of treatment is temporary. Your speech and language therapist will explain it in more detail.

Side-effects from radiotherapy to the breast

Skin changes

Short-term skin changes can include breast or nipple soreness, changes to the appearance of the skin (for example, a change in colour) and peeling, flaking skin in the treated area or on the nipple.



Breastfeeding after radiotherapy

You will probably find it hard to breastfeed from a breast treated with radiotherapy, as the amount of milk it produces will be reduced.

Hyperpigmentation and broken veins

Hyperpigmentation is where the skin on the treated area becomes deeply tanned. A pattern of tiny broken veins called telangiectasia may also be visible on your skin. These changes are usually permanent.

Swelling

Your breast may start to swell a little during your radiotherapy treatment and it may look swollen for a month or two after treatment. This is due to fluid retention (oedema). In rare cases it may last longer.

Hardening or thickening of the breast tissue

This can happen months or years after treatment. If this happens your breast will feel harder and look smaller than before treatment.

Pain in the chest wall / ribcage

You might have brief shooting pains in this area, which are caused by the radiotherapy irritating or causing swelling in the tissues there. Over-the-counter painkillers should ease any pain. But let your medical team know if the pain is bothering you or it carries on for more than a few weeks after treatment.

Restricted arm and shoulder movement

It is normal for women to have restricted arm movement after their surgery and / or radiotherapy. Your surgeon and radiation therapists can give you advice about exercises you should do to manage this and improve your range of movement.

Lymphoedema

If you have radiotherapy to your breast area, you are at risk of developing lymphoedema. This is a swelling caused by a build-up of lymph fluid in your tissues. If you notice swelling anywhere on your arm, hand or breast area, talk to your nurse, doctor or radiation therapist for advice. Ask to be referred to a trained lymphoedema therapist.

For more information on lymphoedema, talk to a nurse on our Support Line 1800 200 700 or read more about it on our website www.cancer.ie

Side-effects from radiotherapy to the chest area

Difficulty in swallowing and weight loss

If you have radiotherapy to your lung or oesophagus (food pipe), you may find it hard to swallow solid foods. You may also lose weight as a result. It may help to have a soft, plain diet for a while. If swallowing is very uncomfortable your doctor may prescribe painkillers or liquid medicines or antacids. After about 5 to 8 weeks the discomfort usually disappears.

Cough and shortness of breath

You may notice that you develop a dry or mucus-type cough and some shortness of breath with radiotherapy to your lung or oesophagus. Sometimes this side-effect may not appear until several months after your treatment. If it happens, you should tell your doctor as soon as possible. It is important to report any changes in your breathing at any time during and after your treatment.

Side-effects from radiotherapy to the abdomen (tummy) and pelvis

Diarrhoea

Diarrhoea – passing watery bowel motions more than 3 times a day – is a fairly common side-effect of radiation to this area. You may also have bleeding or a mucous discharge from your back passage.

Hints and tips: diarrhoea

- **Drink lots of fluids** to replace those you are losing.
- **Ask your doctor about your diet** – for example, you might need to avoid high-fibre foods like raw fruit and vegetables for a while.

Constipation

Not having a bowel motion often enough. This is common with radiotherapy to the tummy and pelvic area. You may also have stomach cramps and wind.

Hints and tips: constipation

- **Drink lots of fluids.**
- **Try resting your feet on something while you are on the toilet**, so that your knees are above your hips.



Tell your radiation therapist or nurse if you have any bowel changes. They can give you advice on how to manage them and prescribe medicine to help. These symptoms usually start to settle down a short time after your treatment has ended.

Bladder problems

Sometimes radiotherapy to your pelvis can cause difficulty with passing urine. This can happen with both internal and external radiotherapy. Your bladder may become inflamed (cystitis) after treatment sessions. This may cause pain, discomfort or a burning sensation while passing urine. You may also feel the urge to pass urine frequently, both during the day and at night. Sometimes you may find that you can only pass very small amounts of urine or none at all. Occasionally, blood may appear in your urine.

If you notice any of these changes, tell your doctor, radiation therapist or nurse straight away, especially if you cannot pass urine.



Hints and tips: bladder problems

- **Drink as much fluid as possible** to help relieve symptoms.
- **Drink cranberry juice or lemon barley water.** Cranberry juice may not be advised if you are on certain medication, such as a blood thinner, so check this with your doctor first.
- **Avoid alcohol, tea, coffee, carbonated drinks, acidic fruit juices** such as orange juice, as they irritate your bladder.

Irritation to the 'back passage'

Radiotherapy can cause irritation or itchiness to your rectum or 'back passage' (proctitis). This is a common side-effect if the area being treated is in your lower pelvis, such as the prostate or bladder. If you have haemorrhoids (piles), radiotherapy may irritate them.

Loss of appetite and weight loss

Radiotherapy to your abdomen and pelvis can cause nausea and loss of appetite. This in turn may lead to weight loss. Some people feel sick at the start of a course of treatment but find that nausea disappears within a day or two. Tell your radiation therapist or your doctor if you suffer from nausea as medication can be given to control it. If eating becomes a problem for you, your dietitian or doctor can advise you. See page 56 for more details on eating and drinking.

Sexual problems after pelvic radiotherapy

For both men and women, radiotherapy to your pelvic area can cause sexual problems. Problems can be physical, but treatment can also affect your desire for sex. See page 74 for more about this. It's usually safe to have sex during and after radiotherapy treatment, unless your doctor tells you not to. Women having pelvic brachytherapy won't be able to have sex while the implant is in place. It's important to use contraception during and after radiotherapy. See page 76 for more.

Sex after brachytherapy for prostate cancer

There is a small risk that a seed may come out in your semen. You are advised to use a condom for a period of 2 months after prostate brachytherapy. Don't worry if your semen is black or brown in colour. This is normal. It is caused by bleeding when the seeds are put in.

For men

Erection problems

Radiotherapy to the pelvic area for men can cause erection problems by affecting the nerves or blood vessels in that area. You may find it hard to get or keep an erection strong enough for sex. The problems might be short term or permanent. Erection problems usually happen in the first year after treatment.

Talk to your doctor if you're worried about this or are having erection problems. There are treatments that may be able to help. Some men find that an orgasm has less semen or they have a 'dry' orgasm, where no semen is ejaculated.

For women

Irritation or dryness

You may have symptoms such as vaginal itching, burning or dryness. This can make sex uncomfortable. There are treatments like lubricants and hormonal creams to help with these problems, so tell your specialist nurse, consultant or radiation therapist if you're having these side-effects.



Bleeding

You may also experience light bleeding during sex. This is because radiotherapy can make the lining of the vagina more fragile. It's best to get any bleeding checked out, so let your medical team know if you have this side-effect.

Menopausal symptoms

If radiation causes your periods to stop, you may get menopausal symptoms like hot flushes, dry skin, dryness of your vagina, reduced sexual desire, night sweats and mood swings. These can affect you physically and mentally when it comes to having sex.

Most menopausal symptoms can be prevented or reversed by replacing the hormones that your ovaries previously made. This is called hormone replacement therapy (HRT). HRT can be given in different ways. For example, in tablet form or through an implant device put under your skin, or by a slow-release patch worn on your arm or leg. Talk to your doctor about HRT.

For advice on managing menopausal symptoms see our website www.cancer.ie

Shortening/narrowing of the vagina

Your vagina may become shorter or narrower if scar tissue forms after pelvic radiotherapy. Also, the walls of the vagina can become less stretchy and drier than before treatment. These changes may make it uncomfortable to have sex. Vaginal dilation may prevent the vagina becoming shorter or narrower by preventing scar tissue developing in the vagina. Regular gentle sex can help too. Dilation means 'stretching and opening'. Dilators are plastic tubes of different sizes that you use with a lubricant. You can also use a vibrator.

Your specialist nurse will talk to you about dilation and how to use a dilator or vibrator, if it might be helpful to you. You may feel embarrassed or uncomfortable about using a dilator. Your specialist nurse or medical team will understand your concerns and will always respect your feelings. See page 74 for more details on how radiotherapy can affect your sex life.

Fertility problems after pelvic radiotherapy

Radiotherapy to the pelvis area can affect fertility for both men and women. Infertility is quite common after radiotherapy to the pelvis.

Talk to your consultant before treatment starts if you were hoping to start a family or have more children after treatment, to see if there are any options open to you.



Female fertility

Radiation to the pelvis can affect a woman's ovaries. Some or all of the eggs stored in the ovaries may be destroyed and you may stop producing female sex hormones, which can lead to early menopause. With lower doses of radiation the ovaries may heal. But changes to fertility are more often permanent. It is sometimes possible to do a small operation to move the ovaries away from the treatment area. This is called ovarian transposition. Or you may be able to freeze eggs before treatment starts.

Male fertility

Sperm can be damaged or their number reduced if your testicles are in the area being treated by radiation. For example, treatment for prostate or bladder cancer. This can lead to temporary or permanent infertility. Talk to your doctor and your partner if avoiding infertility is important for you. It's sometimes possible to store sperm before you have radiotherapy. The sperm can then be used at a later date.

Storing eggs or sperm

Rotunda IVF at the Rotunda Hospital in Dublin provides a service where eggs or sperm can be frozen. This may not be possible for every person. For example, storing eggs can take time, and you may need to start treatment straight away, depending on the type of cancer you have. Talk to your cancer specialist to see if this service is suitable for you, or call our Support Line 1800 200 700 for more information or for advice in confidence.

Coping with infertility

It is not easy to hear that your fertility may be affected as a result of cancer. The sense of loss can be painful, no matter what age you are. Your reaction can vary from acceptance to shock, sadness and silence to anger and depression.

It can help to talk through your feelings with someone who is a good listener or with a professional counsellor. You can also call our Support Line on 1800 200 700 or visit a Daffodil Centre for information and support from a cancer nurse.



Life during and after radiotherapy

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How will treatment affect my lifestyle?

Having a course of radiotherapy treatment can be tiring, as you usually have to go to hospital 5 days a week for a number of weeks. This can be even harder if you have to travel some distance to the hospital or radiotherapy centre for your treatment or if you're experiencing some side-effects of treatment as well. Sometimes it may affect your ability to work or look after your family.

Travelling to the radiotherapy centre

If you find it tiring to travel back and forth to the hospital every day, see if any friends or family can give you a lift. You can also ask your radiation therapist or nurse if you can speak to the medical social worker at the hospital, who may have suggestions and advice for you.

The Irish Cancer Society's Travel2Care scheme can help with travelling expenses. See page 92 for more details. Your medical social worker, specialist nurse, GP or hospital doctor can apply on your behalf, or any health professional involved in your care.

Hints and tips: asking for help

Radiotherapy can be tiring and time-consuming, so don't be shy about asking for help. Friends and family may not know the best way to help you, so tell them what you need. For example, lifts to the hospital, practical help at home or just some company or support. You could also talk to one of our cancer nurses. Visit a Daffodil Centre or call our Support Line on 1800 200 700.

Support Line Freephone 1800 200 700

Guest accommodation

Depending on where you live and your circumstances, it may be possible to stay at the hospital in guest accommodation. Your cancer specialist may have to write a letter requesting this service for you. If a friend or partner is staying with you, there will be a charge to cover their accommodation and meals.

If you need advice about nearby B&Bs or hotels, the radiotherapy staff may be able to help.



Fatigue and work

How big an effect radiotherapy will have on you depends on your general health and the extent of your treatment. Some people find that they can carry on as normal and continue working. They may just prefer to take time off for their treatment sessions and return to work after a nap. Others might find it very tiring and prefer to stay at home and take sick leave from work or school or college. Don't be afraid to ask for help if you feel overwhelmed, especially if you have young children or older parents to care for. Call our Support Line on 1800 200 700 for a copy of our booklet *Coping with Fatigue*.

Taking exercise

Try to remain active, and ideally take some exercise both during and after radiotherapy treatment. Research shows that there are many benefits to exercise:

- It helps to reduce the symptoms of fatigue, the side-effects of cancer treatments, and improves your overall quality of life.
- Regular exercise (ideally 30 minutes of moderate activity 3-5 times a week) builds up your physical fitness level, improves your energy, strength, balance, stamina and co-ordination.
- Regular exercise along with a healthy diet can help reduce the risk of breast cancer and bowel cancer coming back.
- Exercise encourages your body to release endorphins. These are often called 'feel-good hormones'. When released, they can lift your mood and sense of wellbeing, and lower stress levels. Start gradually if you have not been taking regular exercise before your cancer diagnosis. Remember a little exercise is better than none. Even a short walk is a good place to start. Your doctor, specialist nurse or physiotherapist can all give you advice. You might also be referred to a physical activity programme. Your nearest cancer support centre may run a physical activity programme or have information about one in your area. See page 95 for more about cancer support centres.



Relaxation

It's important that you make time for activities that relax you. Stress uses up energy and might make you feel tired. The following suggestions may help:

- Talk to others about anything that is worrying you. If you find it difficult to talk to family and friends, ask your doctor to refer you to a counsellor. You can also make an appointment with an Irish Cancer Society-funded counsellor based in your local cancer support centre. See page 95 for more about support centres.
- Try to take your mind off your worries by reading, seeing friends and listening to music.
- Take light exercise such as walking.
- See if there are relaxation classes or groups in your local cancer support centre. For example, meditation or mindfulness. See page 95 for more.
- If you can, try to avoid situations that make you anxious.

Will treatment affect my sex life?

Some people go through radiotherapy with no change to their sex lives at all. Others find that their sex lives are temporarily or permanently changed in some way due to treatment. This usually happens with radiotherapy to the pelvic area. For information on sexual side-effects from pelvic radiotherapy, see page 63. Some men who have radiotherapy to the abdomen (tummy) area get a sharp pain when they ejaculate. This side-effect should ease a few weeks after treatment ends.

There is usually no medical reason to stop having sex during radiotherapy, unless treatment involves your pelvic area.

However, you may not feel like having sex during or after radiotherapy treatment, especially if you are very tired or have side-effects that are bothering you.



There is no set time for you to be ready to have sex again. It varies from person to person. Even if you do not feel like having sex, you can still enjoy a close and loving relationship with your partner. Touching and holding each other can help you to stay physically close.

You may find that talking about your feelings may ease any worries you have. If you find it hard to express your feelings to your partner or a close friend, talk to your doctor or nurse. Our Support Line 1800 200 700 and Daffodil Centres can help you find accredited therapists and supportive information if you would like to talk to someone. This can help you and your partner deal with a change in your sexual relationship and find ways of being close again.

Some people fear that cancer can be passed on to a partner during sex. There is no truth to this.

Sharing your worries about sex

If you're worried that radiotherapy could affect your sex life, talk to your radiation therapist or consultant before your treatment begins. They can tell you about any side-effects of treatment that could affect your sex life. Try not to feel embarrassed. Your medical team are used to talking about these things.

Contraception

It's important to use contraception during radiotherapy treatment and for a time afterwards. Even if your treatment is likely to cause infertility, you may still be fertile for a while. Radiation can harm a developing baby, so it's very important that you or your partner don't become pregnant. Talk with your doctor about contraception.

Will treatment affect my fertility?

Most radiotherapy treatment has no effect on your ability to have children unless your ovaries or testicles are in the area being treated. For more about fertility, see page 66 on side-effects from radiotherapy to the pelvic area.



Cancer and complementary therapies

Complementary therapies are treatments and activities that you can have along with your standard medical treatment to try and feel better. For example, massage, counselling and aromatherapy.

Complementary therapies can't treat or cure cancer, but some people say that complementary therapies help them to feel more relaxed and better able to cope with their cancer and the side-effects of treatment.

It's very important to talk to your doctor if you're thinking of using complementary therapies. Some can interfere with your treatment or be harmful to you, even if you have used them safely before your cancer diagnosis.

Integrative care

Integrative care means combining (integrating) your standard cancer treatment with complementary therapies to try to feel as well as possible and to cope better with your cancer.

What's the difference between complementary and alternative therapies?

- Complementary therapies are used **together with** standard medical treatment.
- Alternative therapies are used **instead of** standard medical care.

Modern medical treatments are very effective at curing cancer and keeping it under control. An unproven alternative could harm your health, or you might miss out on a treatment that could really help you.

More information

To find out more about complementary therapies, you can talk to one of our cancer nurses – call our Support Line on 1800 200 700 or visit a Daffodil Centre. You can also ask for a free copy of our booklet *Understanding cancer and complementary therapies*, or download it from our website www.cancer.ie

Life after radiotherapy treatment

It can take some time to adjust to life after cancer treatment. It isn't unusual to feel quite low and lost after your treatment has ended, especially during the first few months. Feelings you may have include:

- **Fear of cancer coming back** and worrying about every small symptom.
- **Loneliness** without the company and support of your medical team and fellow patients.
- **Stress** at having to deal with things that may have been on hold during your treatment, such as your finances, going back to work and family issues.
- **Isolation or guilt** if your family and friends expect you to get back to normal before you are ready.
- **Anxiety and self-doubt** about sexual and romantic relationships.
- **Anger** at what has happened and the effect on you and your loved ones.
- **Depression or sadness.**

There is more about how to cope with these feelings and adjusting to life after cancer on our website www.cancer.ie See page 81 for more about coping and emotional support.

Support Line Freephone 1800 200 700

What follow-up will I need?

After your treatment has ended you will still need regular check-ups. This is called follow-up. The follow-up may involve having a physical exam, blood tests and scans.

At first you will see your consultant every 3 months, but these check-ups will become less frequent over time.

Tell your doctor or nurse how you have been since your last appointment. Remember to tell them about any new symptoms, aches or pains you have, or if you are finding it hard to cope.

It's important to attend your follow-up appointments, so your doctor can check for signs of the cancer coming back (recurrence) and to help with any side-effects that you may have. They can also check for signs of new side-effects that may develop after you have finished treatment. It is better to be aware of these as early as possible so that suitable treatment can be given.

If you are between check-ups and have a symptom or problem that is worrying you, call your specialist nurse for advice or to arrange an earlier outpatient appointment if necessary.

If you become unwell and can't contact your specialist nurse or hospital team, go to your GP or the emergency department at the hospital.

After-treatment workshops

You might like to join our Life and Cancer – Enhancing Survivorship (LACES) programme when you have finished treatment. This workshop covers topics such as diet, exercise, wellbeing, finance and self-management and gives information on support and services to help you. Call our Support Line or visit a Daffodil Centre for details.

Living a healthy lifestyle

Many people want to live a healthy lifestyle after their treatment has ended. Having a healthy lifestyle can help you to:

- Feel better
- Heal and recover faster
- Keep up your energy and strength

A healthy lifestyle includes:

- Exercising
- Eating well
- Not smoking
- Avoiding alcohol
- Protecting yourself from the sun

It's also important to have any vaccines recommended for you. For example, Covid 19 and pneumonia. Some vaccinations may not be suitable if you've had cancer treatment, so check with your doctor which you should have and make sure you get them.

If you want more information or advice, call our Support Line on 1800 200 700 or visit a Daffodil Centre. You can also go to our website www.cancer.ie for tips and publications on healthy living.



Coping and support

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How can I cope with my feelings?

Some people say that trying to cope with their thoughts and feelings is the hardest part of having cancer.

You may find it hard to come to terms with your diagnosis, you may blame yourself, resent other people who are healthy or feel very anxious or depressed. Emotions like sadness, fear, grief, hopelessness and anger can happen at different times, sometimes months or years after treatment.

Our booklet *Understanding the emotional effects of cancer* discusses in detail how you may be feeling. Call our Support Line on 1800 200 700 or visit a Daffodil Centre for a free copy.

A cancer diagnosis can be hard on you - mentally and emotionally. Give yourself time and space to deal with your emotions and get help if you need it.



Anxiety and depression

If you feel that anxiety or low moods are getting the better of you or you're finding it hard to cope, it's important to get help. Try to talk with someone you know who is a good listener, join a support group or tell your GP. Medical social workers can also offer support to you and your family.

Your doctor may also suggest medication to help with anxiety or depression. Often a short course of medication can work well. Professional counselling can also be very helpful.

Counselling

If you're feeling very distressed or finding it hard to cope, a trained counsellor who is not involved in your situation can help you to express your feelings, worries and fears and make sense of them. Counselling can also give you emotional support, help you to make decisions and learn ways to cope better.

Free one-to-one counselling is available through some local cancer support centres. To find out more about counselling call our Support Line on Freephone 1800 200 700 or visit a Daffodil Centre. Or email the nurses at supportline@irishcancer.ie

A list of counsellors funded by the Irish Cancer Society is available at www.cancer.ie

'Talking about cancer made it less awful and helped ease my fears. I learned to cope and understand myself better.'

Get support

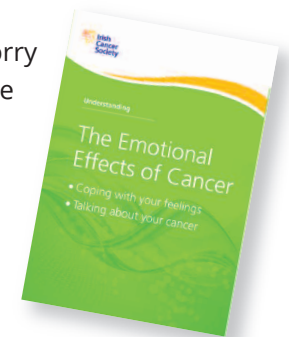


You can still use support centres and other services after you have finished active treatment. For example, you may benefit from having some counselling or joining an exercise or relaxation class or a support group. To find out what's available, drop into your local cancer support centre or Daffodil Centre, or call our Support Line on 1800 200 700. For more about cancer support centres see page 95.

You and your family

Every family deals with cancer in its own way. You may feel that you don't want your illness to upset family life, feel guilty that you can't join in as much as before, or that you're letting down your partner or children. You may also worry about the emotional impact your illness will have on your loved ones. Our booklet ***Understanding the emotional effects of cancer*** can help to you find ways to talk about your cancer and to ask for the help and support you need.

If you or your family members need more support or advice, speak to the medical social worker at the hospital or get in touch with one of our cancer nurses. Call us on 1800 200 700 or visit a Daffodil Centre. The nurses can also support you if you have children and aren't sure what to say to them. You could also read our booklet ***Talking to Children about Cancer***, which has practical advice about how to talk to children of different ages.



Coping with the financial impact of cancer

A diagnosis of cancer often means that you will have extra expenses, like car parking during hospital visits, medication, travel, heating and childcare costs. If you can't work or you are unemployed, this may cause even more stress. It may be harder for you to deal with cancer if you are worried about money.

Medical expenses

Medical expenses that you might have to pay include:

- Visits to your family doctor (GP)
- Visits to hospital
- Overnight stays in hospital
- Medicines
- Medical aids and equipment (appliances), like wigs

How much you pay towards your medical expenses depends on whether or not you qualify for a medical card and what type of health insurance you have, if any.

If you have a medical card, you will probably have very little to pay for hospital and GP (family doctor) care or your medication. If you are over 70, you can get a free GP visit card.

Medical cards are usually for people on low incomes, but sometimes a card can be given even if your income is above the limit. For example, if you have a large amount of medical expenses. This is known as a discretionary medical card.

An emergency medical card may be issued if you are terminally ill and in palliative care, irrespective of your income.

If you don't have a medical card you will have to pay some of the cost of your care and medication.

If you have health insurance the insurance company will pay some of the costs, but the amount will depend on your insurance plan. It's important to contact your insurance company before starting treatment to check you're covered.

Benefits and allowances

There are benefits that can help people who are ill and their family. For example, Illness Benefit, Disability Allowance, Invalidity Pension, Carer's Allowance, Carer's Benefit, Carer's Leave.

If you want more information on benefits and allowances, contact:

- The **medical social worker** in the hospital you are attending
- **Citizens Information** – Tel: 0818 074 000
- **Department of Employment Affairs and Social Protection** – Tel: 0818 662 244 or ask to speak to a DSP representative at your local health centre or DSP office.

Always have your PPS number to hand when you are asking about entitlements and benefits. It's also a good idea to keep a copy of completed forms, so take a photo or photocopy them before posting.



If you have money problems

If you are getting into debt or you are in debt, the Money Advice and Budgeting Service (MABS) can help you. MABS can look at your situation, work out your budget, help you to deal with your debts and manage your payments. The service is free and confidential. Call the MABS Helpline 0818 07 2000 for information.

If you are finding it hard to cope financially, contact your medical social worker in the hospital or your local health centre for advice. The Irish Cancer Society can also give some help towards travel costs in certain cases. See page 92 for more details of our Volunteer Driver Service and the Travel2Care fund.

You can also call our Cancer Support Line 1800 200 700 or visit a Daffodil Centre and the nurse will suggest ways to help you manage.

Money and finances

Go to www.cancer.ie and see our **managing money** page for information on:

- **Medical costs and help available**
- **Benefits and allowances that you or your family may qualify for**
- **Travel services**
- **Ways to cope with the cost of cancer**

Our Benefits Hub on our website has lots of information on government supports for people who are unwell and their carers. It also has advice on how to apply.

Support Line Freephone 1800 200 700

Irish Cancer Society services

Our Cancer Support Department provides a range of cancer support services for people with cancer, at home and in hospital, including:

- **Support Line**
- **Daffodil Centres**
- **Survivor Support**
- **Support in your area**
- **Patient travel and financial support services**
- **Night nursing**
- **Publications and website information**

Support Line Freephone 1800 200 700

Call our Support Line and speak to one of our cancer nurses for confidential advice, support and information.

The Support Line is open Monday–Friday, 9am to 5pm. You can email us at any time on supportline@irishcancer.ie or visit our Online Community at www.cancer.ie

For the deaf community, our Support Line is using the Sign Language Interpreting Service (SLIS) using IRIS. Contact IRIS by text 087 980 6996 or email: remote@slis.ie



Email: supportline@irishcancer.ie

Daffodil Centres

Visit our Daffodil Centres, located in 13 hospitals nationwide. The centres are staffed by cancer nurses and trained volunteers who provide free confidential advice, support and information to anyone concerned about or affected by cancer.



Who can use the Daffodil Centres?

Daffodil Centres are open to everyone – you don't need an appointment. Just call in if you want to talk or need information on any aspect of cancer including:

- Cancer treatments and side-effects
- End-of-life services
- Chemotherapy group education sessions
- Lifestyle and cancer prevention
- Emotional support
- Local cancer support groups and centres
- Practical entitlements and services
- Living with and beyond cancer

You can email daffodilcentreinfo@irishcancer.ie or visit www.cancer.ie to find your local Daffodil Centre.

Survivor Support



Speak to someone who has been through a diagnosis similar to yours. Our trained volunteers are available to provide emotional and practical support to anyone going through or finished with their treatment.

Support in your area

We work with cancer support groups and centres and the National Cancer Control Programme to ensure patients and their families have access to high-quality confidential support in a location that's convenient to them. The Society funds professional one-to-one counselling (including telephone and video-call counselling) and group survivorship programmes in communities across the country.

For information about what's available near you, call our Support Line on 1800 200 700 or go to www.cancer.ie and search 'Find support'.

Patient travel and financial support services



We provide practical and financial support for patients in need, travelling to and from their cancer appointments. There are two services available through the Society:

- **Travel2Care** is a limited fund, made available by the National Cancer Control Programme, for patients who are travelling for cancer tests or treatment to one of the national designated cancer centres or their approved satellite centres. Patients must be travelling over 50km one way to access the fund.
- **Irish Cancer Society Volunteer Driver Service** is for patients undergoing chemotherapy treatments in our partner hospitals who are having difficulty getting to and from their local appointments.

To access either of these services please contact your hospital healthcare professional.

Irish Cancer Society Night Nursing



We provide end-of-life care for cancer patients in their own home. We offer up to 10 nights of care for each patient. Our service allows patients to remain at home for the last days of their lives surrounded by their families and loved ones. This is a unique service in Ireland, providing palliative nursing care at night between 11pm and 7am to cancer patients.

The health professional who is looking after your loved one can request a night nurse for you, so talk to your palliative care team member, GP or public health nurse about this.

Email: supportline@irishcancer.ie

Publications and website information



We provide information on a range of topics including cancer types, treatments and side-effects, coping with cancer, children and cancer, and financial concerns. Visit our website www.cancer.ie or call our Support Line for free copies of our publications.

If you would like more information on any of our services, call our Support Line on 1800 200 700 or visit a Daffodil Centre.

Local cancer support services

The Irish Cancer Society works with cancer support services all over Ireland. They have a range of services for cancer patients and their families, during and after treatment, many of which are free. For example:

- **Professional counselling** (the Irish Cancer Society funds up to 8 sessions of free one-to-one counselling through many local cancer support services)



- **Support groups**, often led by professionals like social workers, counsellors, psychologists, or cancer nurses
- **Special exercise programmes**
- **Stress management and relaxation techniques**, such as mindfulness and meditation
- **Complementary therapies** like massage and reflexology

- **Specialist services** such as prosthesis or wig fitting and manual lymph drainage
- **Mind and body sessions**, for example, yoga and tai chi
- **Expressive therapies** such as creative writing and art
- **Free Irish Cancer Society publications** and other high-quality, trustworthy information on a range of topics



Cancer support services usually have a drop-in service where you can call in for a cup of tea and find out what's available.

You can call our Support Line on Freephone 1800 200 700 to find your nearest cancer support centre. Or go to www.cancer.ie and search 'Find support'.

What does that word mean?

Adjuvant treatment Treatment for cancer given after surgery. For example, chemotherapy or radiotherapy.

Alopecia Loss of hair. No hair where you normally have hair.

Brachytherapy A form of treatment where solid radioactive material is placed inside your body on or near the tumour. Also called internal radiotherapy.

External radiotherapy A form of treatment using a machine that aims high-energy rays at a specific part of your body. Also called external beam radiotherapy. See linear accelerator.

Fraction A single dose of radiotherapy treatment.

Implant A radioactive material placed inside your body on or near a tumour. It can consist of tubes, wires or seeds and may be temporary or permanent. See also brachytherapy.

Internal radiotherapy (brachytherapy) Radiation sources are placed directly into the body, in the form of a tube, seed or capsule.

Linac Short name for a linear accelerator.

Linear accelerator A machine that uses electricity to create high-energy radiation to treat cancers with great accuracy.

Mould A mask made from either clear plastic (Perspex) or thermoplastic to prevent movement of your head and shoulders during treatment. Sometimes the mould is called a mask, orfit or shell.

Neo-adjuvant treatment Radiotherapy or chemotherapy that can be given before surgery to shrink the size of a tumour.

Palliative radiotherapy A form of radiation treatment that aims to shrink tumours and relieve your pain or other symptoms. It does not cure cancer but can help to make you comfortable and improve your quality of life.

Radiation oncologist A medical doctor who specialises in treating cancer patients using radiotherapy.

Radiation therapist A healthcare professional specially trained in the planning, delivery and monitoring of radiation therapy.

Radical treatment A form of treatment where the main aim is to cure cancer and give long-term benefits.

Radioactive/ radioactivity When radiation is released from high-energy particles.

Radionuclide A radioactive liquid or capsule used in very specific cases. For example, cancer of the thyroid. Sometimes referred to as a radioisotope.

Radiotherapy A form of cancer treatment using careful and precise doses of radiation.

Staging Tests that measure the size and extent of cancer.

Tattoo Very small marks made on your skin with dark permanent ink. These show where the radiation beam is to be aimed during treatment, and for setting patients up and placing them in the correct position for treatment.

Treatment field (area) The area of your body that will be treated. The radiation beam will not be aimed outside this area.

Vacuum bag A special bag (like a bean bag), which helps you to stay in the same position for your radiotherapy treatment.

X-rays Radiation used in low doses to diagnose disease and in high doses to treat cancer and other diseases. It is painless.

Questions to ask your doctor

Here is a list of questions you might like to ask. It is always better to ask than to worry.

Why do I need radiotherapy?

How successful is radiotherapy for my cancer?

How long will my treatment take?

How long will I have to wait before starting treatment?

If there is a delay in treatment, will my cancer get worse or will the treatment be less successful?

Do I have to stay in hospital for radiotherapy?

What side-effects or after-effects will I have?

Will I be radioactive?

Do I need to take any precautions at home?

Do I need to use contraception during my radiotherapy treatment?

I already have problems with my health. Will radiotherapy make them worse?

Do I need to make any changes to my diet, job, lifestyle?

How will you know if my treatment has worked?

Your own questions

Acknowledgments

This booklet has been produced by the Irish Cancer Society to meet the need for improved communication, information and support for cancer patients and their families throughout diagnosis and treatment. We would like to thank all those patients, families and professionals whose support and advice made this publication possible. We also acknowledge the contribution of the many consultants, nurses and other healthcare professionals who so kindly gave up their time and expertise to contribute to previous editions of this booklet.

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Join the Irish Cancer Society team

If you want to make a difference to people affected by cancer, join our team!

Support people affected by cancer

Reaching out directly to people with cancer is one of the most rewarding ways to help:

- Help people needing lifts to hospital by becoming a volunteer driver
- Give one-on-one support to someone newly diagnosed with cancer as part of our Survivor Support programme
- Give information and support to people concerned about or affected by cancer at one of our hospital-based Daffodil Centres

Share your experiences

Use your voice to bring reassurance to cancer patients and their families, help people to connect with our services or inspire them to get involved as a volunteer:

- Share your cancer story
- Tell people about our services
- Describe what it's like to organise or take part in a fundraising event

Raise money

All our services are funded by the public's generosity:

- Donate direct
- Take part in one of our fundraising events or challenges
- Organise your own event

Contact our Support Line on Freephone 1800 200 700 if you want to get involved!

Did you like this booklet?

We would love to hear your comments or suggestions.
Please email reviewers@irishcancer.ie

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