

Radiotherapy for pancreatic cancer

This fact sheet is for anyone diagnosed with pancreatic cancer who would like to find out more about radiotherapy to treat pancreatic cancer. It provides information about how radiotherapy is given and the side effects.

Each hospital will do things slightly differently, and treatment will vary depending on your cancer, so speak to your doctor about your own situation.

You can also speak to our specialist nurses on our Support Line about any questions you have about radiotherapy. You can call them free on 0808 801 0707, or email support@pancreaticcancer.org.uk

What is radiotherapy and how does it work?

Radiotherapy uses radiation to destroy cancer cells. Radiotherapy for pancreatic cancer is usually delivered by a machine called a linear accelerator. This directs beams of radiation, from outside the body, at the cancer, destroying the cancer cells.

Radiotherapy may also damage the normal cells around the cancer such as in the stomach, bowel, liver, kidneys, spinal cord and parts of the pancreas where there isn't cancer. This may cause side effects (see page 8). The normal cells can usually repair themselves, so side effects normally improve after treatment stops.

Radiotherapy for locally advanced pancreatic cancer

Locally advanced pancreatic cancer is cancer that has spread to structures around the pancreas, such as large blood vessels.

If you have locally advanced cancer, you may be offered radiotherapy together with chemotherapy. This is known as chemoradiotherapy (see page 6). The chemotherapy drugs may make the cancer cells more sensitive to the radiotherapy, making it more effective. Chemoradiotherapy may help control the cancer and slow down its growth.

More rarely, you may have radiotherapy or chemoradiotherapy, followed by surgery. The aim is to improve the chances of controlling the cancer or successfully removing it with surgery. This treatment may shrink the tumour enough to make surgery possible for only a few people.

Radiotherapy for borderline resectable pancreatic cancer

Chemoradiotherapy, or more rarely, radiotherapy on its own may be suitable for some people with borderline resectable pancreatic cancer. Borderline resectable cancer is cancer that has grown very close to the major blood vessels near the pancreas. It may be possible to remove the cancer, but it depends which blood vessels are affected and how far the cancer has grown.

Chemoradiotherapy or radiotherapy aims to improve the chances of controlling the cancer or successfully removing it with surgery.

Radiotherapy for advanced pancreatic cancer

If you have cancer that has spread to other parts of the body (advanced or metastatic cancer), the cancer may cause pain by pressing on other organs or nerves nearby. You may be able to have radiotherapy to help control the pain. This is called palliative radiotherapy. The radiotherapy may shrink the tumour, which can help to relieve the pain.

Palliative radiotherapy might also be helpful if the cancer has spread to other areas of the body such as the lungs or the liver.

Read more about treatments to manage pain in our booklet, **Pain and pancreatic cancer**, or on our website at pancreaticcancer.org.uk/pain

What are the advantages and disadvantages of radiotherapy?

Speak to your doctor about the advantages and disadvantages of radiotherapy for pancreatic cancer to help you decide if it's the right option for you. We have a list of questions to ask on page 12 which might help.

You can also speak to our specialist nurses about any questions or concerns on our free Support Line.

What are the advantages?

- The main advantage of radiotherapy is that it may help to control the growth of the cancer.
- For a small number of people with locally advanced pancreatic cancer and borderline resectable cancer, radiotherapy may make surgery possible.
- Each treatment session will take about 10-30 minutes and you won't usually need to stay in hospital.
- You may be able to carry on with your daily life, such as going to work, if you feel up to it.
- If you have advanced cancer, radiotherapy can help control symptoms and relieve pain.

What are the disadvantages?

Radiotherapy can sometimes damage organs that are close to the pancreas – such as the stomach, bowel, liver and kidneys. This can cause side effects (see page 8). If you have chemoradiotherapy, you may get more side effects, caused by the chemotherapy. Talk to your medical team about the risk of side effects, and find out more about how they will plan your treatment to reduce them.

If you have locally advanced cancer, you may have to go to hospital five days a week for several weeks, during your treatment, although this may vary from person to person.

Read about the side effects of chemotherapy in our fact sheet, **Chemotherapy for pancreatic cancer**, or on our website at pancreaticcancer.org.uk/chemotherapy

Types of radiotherapy

Radiotherapy for pancreatic cancer is usually image guided radiotherapy (IGRT). IGRT involves taking images before and sometimes during treatment to help make sure it is delivered as accurately as possible.

The most common types of radiotherapy for pancreatic cancer in the UK are:

- 3D conformal radiotherapy
- intensity modulated radiotherapy (IMRT)
- volumetric modulated arc radiotherapy (VMAT) or rapid arc.

Stereotactic ablative radiotherapy (SABR) is a newer type of radiotherapy. It's not routinely available for pancreatic cancer on the NHS, but it may be available as part of a clinical trial.

3D conformal radiotherapy

3D conformal radiotherapy shapes the radiation beam to the cancer. The aim is to give a high dose of radiotherapy to the cancer, and reduce the dose to normal healthy cells.

Intensity modulated radiotherapy (IMRT)

IMRT shapes the radiation beam very closely to the cancer. It uses a minimum of five radiation beams that are arranged at different angles. The beams are arranged so that the tumour gets the maximum amount of radiation, while avoiding the normal tissues.

Volumetric modulated arc radiotherapy (VMAT)

Volumetric modulated radiotherapy (VMAT) is a type of IMRT. It focuses the radiation on the cancer, and reduces the time each treatment takes. It normally involves one single beam of radiation, sometimes more. The machine will move around you in a circle. It may help to reduce the risk of side effects by reducing the amount of radiation to the surrounding organs.

Stereotactic ablative radiotherapy

Stereotactic ablative radiotherapy (SABR) is a newer type of radiotherapy. It's also known as stereotactic body radiotherapy (SBRT). You may have heard of Cyberknife®, which is a type of SABR. SABR is not routinely available for pancreatic cancer on the NHS, but it may be available as part of a clinical trial (see page 5).

SABR delivers a higher dose of radiotherapy during each treatment. Because the dose is higher, you will usually only need three to five treatments over one to two weeks. Each treatment session will take longer than other types of radiotherapy.

Some research has suggested that SABR may be effective in helping to control pancreatic cancer. But there is no evidence to show that it is more effective than other types of radiotherapy. It may be more convenient because you will need fewer treatments. But there is a risk of damage to the stomach or bowel from the high dose of radiation, which could cause side effects. We

need more research into SABR for pancreatic cancer to better understand how well it works.

Speak to your doctor about whether SABR might be suitable for you, and if there are any clinical trials you can take part in.

Clinical trials for radiotherapy

Clinical trials are medical research studies that involve patients.

There are clinical trials looking at whether different types of radiotherapy or chemoradiotherapy before surgery could help improve the results of the surgery. For example, shrinking the cancer before surgery could make it easier to remove all the cancer cells.

There are also some clinical trials looking at whether radiotherapy or chemotherapy before surgery may be helpful for people with borderline resectable pancreatic cancer.

You could talk to your doctor about any clinical trials involving radiotherapy or chemoradiotherapy that might be suitable for you.

We also have information about current clinical trials for pancreatic cancer on our website at pancreaticcancer.org.uk/clinicaltrials

And you can talk to our specialist nurses about clinical trials on our free Support Line.

How will I have radiotherapy?

Radiotherapy treatment will vary depending on your situation. It's likely that you will have radiotherapy at your local hospital or nearest specialist cancer centre – speak to your doctors about your treatment. You will go to the hospital for each treatment but you won't need to stay overnight. Each treatment session is called a fraction.

- You will usually have radiotherapy every day, Monday to Friday. Most treatment courses last five to six weeks (25-30 fractions or fractions).
- If you're having palliative radiotherapy, you will usually have fewer treatment sessions. The overall dose is usually lower which reduces the risk of side effects.

Speak to our specialist nurses on our free Support Line
0808 801 0707
support@pancreaticcancer.org.uk

How will I have chemoradiotherapy?

Chemoradiotherapy is now available in many UK centres. You will usually have chemotherapy on its own for about three to six months to begin with. You will then have a CT scan. If this shows that the cancer has not grown, you will have radiotherapy every day from Monday to Friday, for five to six weeks. You will also have a chemotherapy drug alongside this – this is usually capecitabine (Xeloda®), although you may have another drug.

Ask your oncologist if chemoradiotherapy is a suitable treatment for you, if it's available in your specialist centre, or if you could join a clinical trial looking into chemoradiotherapy.

Read more about chemotherapy, including the drug capecitabine, on our website at pancreaticcancer.org.uk/chemotherapy

Read about clinical trials for pancreatic cancer at pancreaticcancer.org.uk/clinicaltrials

Speak to our specialist nurses on our free Support Line if you have any questions about radiotherapy, chemoradiotherapy, or your treatment options.

What happens during treatment?

Your team may include these health professionals who will plan and deliver your treatment.

- A **radiologist** is a doctor who is specially trained to interpret diagnostic images such as X-rays, MRI and CT scans.
- **Clinical oncologists** are doctors who use radiotherapy and chemotherapy to treat and manage cancer. They will oversee your treatment plan.
- A **radiographer** is trained to take your X-ray, scans and to give radiotherapy treatment.
- **Dosimetrists** are involved in creating a personal radiotherapy plan, which will make sure the cancer receives the maximum dose of radiotherapy, whilst keeping your normal tissues safe.
- A **medical physicist** is a healthcare scientist who helps to work out the doses of radiotherapy you will receive and who will check all aspects of your treatment plan.

Speak to our specialist nurses on our free Support Line
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They will work together to make sure the radiotherapy is delivered as precisely as possible to the cancer cells, while avoiding the normal cells.

Planning the radiotherapy

Before your radiotherapy starts, you will normally have a planning session, which can take up to two hours.

You will have a CT scan, and the radiographers will make tiny permanent dots (tattoos) on your skin. The radiographer will use the dots to help them get you into exactly the right position for each treatment session. This helps the radiographers position you accurately for the radiotherapy.

You may be asked not to eat for two hours before your planning session and you might be given some water to drink.

Having treatment

If you were asked not to eat, or you were given some water to drink before your planning session, then you'll normally have to do this before each treatment session too. The radiographers will position you on the couch and will move the machine around you to different angles to check the measurements. You should try to relax and lie as still as you can.

The radiographers will leave the room but will watch you using cameras. You might feel the couch move as the radiographers adjust its position from outside the room. The machine will move around you to deliver the treatment and will come close to you but will not touch you.

The whole process will take about 15-30 minutes. The treatment itself isn't painful, is very quick and only takes a few minutes.

You can go home as soon as each treatment session is finished. After the treatment, it's perfectly safe to be around other people, including pregnant women and children.

Radiotherapy and chemoradiotherapy can be tiring, so it might be useful to ask a friend or relative to drive you to hospital, especially towards the end of treatment.

You may be able to get financial help towards parking or hospital travel costs – ask your medical team.

You can also read more about money and pancreatic cancer on our website at pancreaticcancer.org.uk/money

Side effects of radiotherapy

Radiotherapy does cause side effects, although they affect everyone differently. Many people will only have mild side effects, and severe side effects are not common.

If you have chemoradiotherapy, you may also get side effects from the chemotherapy.

Read more about the side effects on chemotherapy in our fact sheet, **Chemotherapy for pancreatic cancer**, or on our website at pancreaticcancer.org.uk/chemotherapy

We have described the most common side effects below, but your doctor will explain the possible side effects before treatment starts, including anything you need to contact them about straightaway. You will have regular check-ups with them during your treatment.

Let the radiographers know as soon as you start to get any side effects. It's normally possible to manage most of them, sometimes with medication. Side effects usually last for about one to two weeks after your treatment has finished, but some such as fatigue (extreme tiredness), can last for longer. Sometimes, side effects can get worse straight after treatment before they start to get better.

If you have any questions about side effects or how to manage them, speak to your doctor or nurse.

Or call our specialist nurses on our free Support Line.

Fatigue (extreme tiredness)

Fatigue is a common side effect of radiotherapy for pancreatic cancer. Travelling to hospital every day can make it worse. Tiredness can last for several weeks or months after treatment has finished.

Find out more about managing fatigue on our website at pancreaticcancer.org.uk/fatigue

Nausea and vomiting

During radiotherapy, organs such as the stomach and bowel will get some of the radiation. This may make you feel sick (nausea). A few people might actually be sick (vomiting). Nausea or vomiting may increase as treatment goes on, and last for a few weeks once treatment stops. Your nausea may be worse if you have chemoradiotherapy.

What helps?

You may be given anti-sickness drugs – these help best if you take them regularly.

Read our information about coping with nausea and vomiting on our website at pancreaticcancer.org.uk/nausea

Runny watery poo (diarrhoea)

You might get diarrhoea and, more rarely, tummy pains.

What helps?

- Drink plenty of fluids to avoid getting dehydrated (where your body loses more water than it takes in).
- Speak to your medical team if diarrhoea continues to be a problem or is severe – for example if you have diarrhoea more than four to six times a day, or if you are not able to drink enough fluid to replace what you're losing. They can give you tablets to control it.
- Ask a dietitian at the hospital about any changes to your diet that might help.

Read our tips for coping with diarrhea on our website at pancreaticcancer.org.uk/bowelhabits

Problems with eating and drinking

Some people also find that they have indigestion or heartburn before and after radiotherapy. Discuss this with your medical team if it's a problem – they might be able to give you medication to help.

You also might not feel like eating and may lose weight. Find out more about dealing with diet and weight loss on page 10.

Skin reactions

Some people's skin can react to radiotherapy although this is rare. It may become drier and more rarely, sore, itchy or darker, often on your back. Any

skin reaction will usually settle down two to four weeks after treatment finishes. Your medical team may advise you to use moisturiser and drink plenty of fluids to minimise the risk of skin problems. If you do get any skin reactions your medical team can give you advice on managing them.

Looking after yourself during radiotherapy

Everyone reacts differently to radiotherapy – see how you feel and decide how much activity you can manage. Try to take care of yourself by eating well, taking gentle exercise and making time to rest if you can.

If you have any concerns during or after treatment talk to your specialist nurse or treatment team.

You can also speak to our specialist nurses on our free Support Line – they can answer questions and talk through any worries.

Read about coping with pancreatic cancer on our website at pancreaticcancer.org.uk/dailylife

Find out about the range of services we have to support you and your family at pancreaticcancer.org.uk/getsupport

Diet and nutrition

In general, keeping your weight stable may improve how you feel and help you cope better with pancreatic cancer and treatment.

If you are eating well and haven't lost any weight, you can carry on with your normal diet. But if you have lost weight, are struggling to eat or have a poor appetite, speak to your dietitian. They can help you manage any symptoms. For example, they can give you advice about what to eat to make sure you get all the nutrients you need. Our diet tips might help with weight loss.

You may also need pancreatic enzyme supplements. These replace the enzymes that your pancreas would normally produce. They help to break down food, and can help to manage the diet symptoms of pancreatic cancer. If you haven't been told about enzyme supplements, ask your doctor, nurse or dietitian about this.

You might also find it helpful to speak to a dietitian at the hospital.

And you can speak to our specialist nurses on our free Support Line about any questions you have about diet.

There is more detailed information about diet and nutrition in our booklet, **Diet and pancreatic cancer** and on our website at pancreaticcancer.org.uk/diet

Going to work

You can work during treatment if you feel up to it and aren't too tired. But you may not always be able to get appointments that fit in with work. Talk to your employer as soon as you can and keep them updated about your situation.

Find out more about managing work and money on our website at pancreaticcancer.org.uk/money

Check-ups after radiotherapy

For locally advanced cancer, you will usually have your first check-up (follow-up appointment) with your oncologist four to six weeks after you finish radiotherapy treatment. That may vary depending on what combination of treatment you've had.

Radiotherapy may continue to have an effect after your treatment has finished. That means you will probably wait weeks or months before having a CT scan to measure whether the cancer has responded to the treatment. This depends on the stage of your cancer, whether you have any new symptoms or if you are having treatment as part of a clinical trial.

You can use the follow-up appointment to discuss any questions or concerns. It's a good idea to write down any questions you have before the appointment, and take someone with you for support or to make notes.

If you have had palliative radiotherapy to control symptoms (see page 2) you will continue to be under the care of your oncologist or palliative care team (who specialise in managing symptoms). They will check how well the radiotherapy has worked, and whether you would benefit from any more.

You can also talk to our specialist nurses about your follow-up on our free Support Line.

Questions to ask

Why is radiotherapy recommended for me?

Will radiotherapy help control my cancer?

Will radiotherapy help me to live longer?

Will radiotherapy make surgery more likely?

Will radiotherapy relieve any of my symptoms?

Will I have chemotherapy as well as radiotherapy?

What side effects am I likely to have?

Will the side effects have an impact on my daily life?

How long will the side effects last?

How can the side effects be managed?

Who do I contact if I have side effects?

Which hospital will I go to for radiotherapy?

Can I have radiotherapy closer to where I live?

Are there any clinical trials involving radiotherapy or chemoradiotherapy that I could take part in?

Are there any other treatment options that would be suitable for me?

Pancreatic Cancer UK services

We are here for everyone affected by pancreatic cancer.

We're here to support and to listen

Our free and confidential Support Line is a lifeline for thousands of people affected by pancreatic cancer. Our specialist nurses understand the issues you might be facing and their expert help will support you in coping with pancreatic cancer.

Call free on **0808 801 0707** weekdays 10am-4pm, or email **nurse@pancreaticcancer.org.uk**

We're here with the information you need

We have the most up-to-date information on everything you need to know about pancreatic cancer through our website and publications or our Support Line. We can help you every step of the way through diagnosis and treatment options to managing your symptoms and the care you receive.

Go to **pancreaticcancer.org.uk/informationandsupport**
Download or order our free publications at
pancreaticcancer.org.uk/publications or call **0808 801 0707**

Find an A-Z of medical words at **pancreaticcancer.org.uk/medicalwords**

We're here so you can share

Our Forum is a supportive place where everyone affected by pancreatic cancer can be there for each other online, any time of day or night:
forum.pancreaticcancer.org.uk

The local support groups mean you can meet other people to share your experiences: **pancreaticcancer.org.uk/supportgroups**

And our Living with Pancreatic Cancer Support Days provide local face to face support in an informal setting for people diagnosed with pancreatic cancer: **pancreaticcancer.org.uk/supportdays**

Useful organisations

Cancer Research UK

www.cancerresearchuk.org

Helpline: 0808 800 4040 (Mon-Fri 9am-5pm)

Information for anyone affected by cancer.

Healthtalk

www.healthtalk.org

Personal experiences presented in written, audio and video formats, including people talking about pancreatic cancer.

Macmillan Cancer Support

www.macmillan.org.uk

Support Line: 0808 808 00 00 (Mon-Fri 9am-8pm)

Provides practical, medical and financial support for anyone affected by cancer.

Maggie's Centres

www.maggiescentres.org

Centres around the UK and online offer free, comprehensive support for anyone affected by cancer.

NHS inform

www.nhsinform.scot

Tel: 0800 22 44 88

Provides information about different health conditions and living well, and local services in Scotland.

NHS Choices

www.nhs.uk

Provides information about health conditions, living well, care, and local services in England.

NHS Direct Wales

www.nhsdirect.wales.nhs.uk

Tel: 0845 46 47

Health information in Wales, including local services.

nidirect

www.nidirect.gov.uk

Information about local services in Northern Ireland, including health services and information and support for carers.

Speak to our specialist nurses on our free Support Line

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support@pancreaticcancer.org.uk

This fact sheet has been produced by the Support and Information Team at Pancreatic Cancer UK. It has been reviewed by health professionals and people affected by pancreatic cancer.

References to the sources of information used to write this fact sheet and a list of health professionals who reviewed it are available on our website – **pancreaticcancer.org.uk**

Pancreatic Cancer UK makes every effort to make sure that our services provide up-to-date, unbiased and accurate information about pancreatic cancer. We hope that this information will add to the medical advice you have received and help you to take part in decisions related to your treatment and care. This information should not replace information and advice from your medical team – please speak to your doctor, nurse or other members of your medical team about any questions or concerns.

Give us your feedback

We hope you have found this information helpful. We are always keen to improve our information, so let us know if you have any comments or suggestions. Email us at **publications@pancreaticcancer.org.uk** or write to the Information Manager at the address below.

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