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

Radiotherapy is sometimes suitable for treating pancreatic cancer. It may be used:

- when the cancer has spread to nearby structures around the pancreas such as blood vessels, and so can’t be removed through surgery (locally advanced pancreatic cancer) – this is the most common use of radiotherapy to treat pancreatic cancer
- when the cancer has spread from the pancreas to other parts of the body (advanced or metastatic pancreatic cancer), to control symptoms such as pain
- on its own or together with chemotherapy (chemoradiotherapy).

Radiotherapy may occasionally be offered after surgery that has removed the cancer, to try to make sure there aren’t any remaining cancer cells. It may be given together with chemotherapy. However, there may be a higher risk of side effects for chemoradiotherapy after surgery, compared with just chemotherapy.

Speak to your doctor or nurse about whether radiotherapy might be an option for you. Read more about surgery and chemotherapy on our website at www.pancreaticcancer.org.uk/treatments
What is radiotherapy and how does it work?
Radiotherapy uses high-energy x-rays (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. The aim is to kill as many cancer cells as possible, as accurately as possible.

Normal cells around the cancer – or where the radiation beams pass through the body – can also be damaged by the radiotherapy. This may cause side effects. The normal cells can repair themselves, so side effects usually improve after treatment stops. Cancer cells can’t repair themselves, and die. Radiotherapy treatment is carefully planned to try to make sure the cancer gets most of the radiation, and to reduce the amount of radiation given to normal cells.

Radiotherapy for locally advanced cancer
Locally advanced cancer is cancer that has spread to structures around the pancreas, such as blood vessels and lymph nodes (which are part of the immune system). The cancer can’t be removed with an operation (inoperable). In this situation radiotherapy may be used.

Radiotherapy for locally advanced cancer is most commonly used together with chemotherapy. This is known as chemoradiotherapy (see below). The aim is for the chemotherapy drugs to make the cancer cells more sensitive to the radiotherapy, so that the radiotherapy is more effective. Studies have shown that chemoradiotherapy can be an effective treatment for locally advanced cancer.

Radiotherapy or chemoradiotherapy won’t cure the cancer, but they may help control it and slow down its growth. In a small number of cases, treatment can shrink inoperable tumours enough to make it possible to remove them with surgery. Radiotherapy may also be an option after surgery when the cancer could not be completely removed, to try to stop it spreading further.

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 – this is usually capecitabine. Other chemotherapy drugs, such as gemcitabine, may be used depending on your particular case. Speak to your oncologist (specialist in cancer drugs and
radiotherapy) about this. Read more about chemotherapy at
www.pancreaticcancer.org.uk/chemotherapy

You can ask your oncologist if chemoradiotherapy is a suitable treatment for
you, and if it’s available in your specialist centre. You can also ask whether
there are any clinical trials for chemoradiotherapy that may be suitable for
you. Read more about clinical trials on our website at
www.pancreaticcancer.org.uk/clinicaltrials

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

Radiotherapy for advanced cancer
Radiotherapy can be helpful when cancer has spread beyond the pancreas to
other parts of the body (advanced or metastatic cancer). The aim is to control
and relieve symptoms to improve the quality of your daily life. Radiotherapy
used in this way is called palliative radiotherapy.

Radiotherapy is particularly effective in controlling and relieving pain caused
by large tumours pressing on other organs or structures, such as nerves or
the spine. The radiotherapy can shrink the tumour, which may help to relieve
the pain.

What are the advantages and disadvantages of
radiotherapy?
There are advantages and disadvantages for all treatments. Speak to your
oncologist about the advantages and disadvantages of radiotherapy treatment
to help you decide if it’s the right option for you. We have a list of questions to
ask that might help at the end of this fact sheet. You can also speak to our
specialist nurses about any questions or concerns by calling our free Support
Line.

What are the advantages?
The main advantage of radiotherapy is that, although it won’t cure the cancer,
it can help control its growth.

If you have locally advanced cancer, radiotherapy and chemoradiotherapy
may slow down the growth of the cancer. And for some people, it can shrink
inoperable tumours enough so that surgery to remove the tumour may then
be possible.
If you have advanced cancer, radiotherapy can help to control symptoms and relieve pain.

Each treatment session will take about 15-30 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.

**What are the disadvantages?**
The main disadvantage is the risk of side effects. The pancreas is located very close to other organs such as the stomach, bowel, liver and kidneys. This means that they are very close to the area being treated. Damage to surrounding organs can cause side effects (see below). But modern ways of giving radiotherapy and careful treatment planning aim to reduce the risk of side effects. And there are ways to manage side effects – speak to your radiotherapy team about these.

If you have chemoradiotherapy, you may have different or worse side effects, because of the chemotherapy.

If you have locally advanced cancer, you will have to go to hospital five days a week during your treatment – although you won’t need to stay in hospital. This can be tiring and inconvenient, although your radiotherapy team will try to make treatment as easy to manage as possible.

**Types of radiotherapy**
There are several different types of radiotherapy and ways to give it, which can be used to treat pancreatic cancer in the UK, including:

- image guided radiotherapy (IGRT)
- 3D conformal radiotherapy
- intensity modulated radiotherapy (IMRT)
- volumetric modulated arc radiotherapy (VMAT)
- stereotactic ablative radiotherapy (SABR).

The common types of radiotherapy used are 3D conformal radiotherapy and intensity modulated radiotherapy (IMRT).
**Image guided radiotherapy (IGRT)**
Almost all radiotherapy for pancreatic cancer in the UK is carried out as image guided radiotherapy (IGRT), including 3D conformal radiotherapy and IMRT. Images are taken before and sometimes during treatment. These are used to help plan your treatment and make sure it’s as accurate as possible. It takes into account any internal movements, for example breathing, that might mean the pancreas moves slightly. IGRT is done in different ways – speak to your doctor about how it will be done.

**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 can also vary the strength of the beam so that different areas get different doses of radiation. This may help reduce the amount of radiation given to normal tissues around the cancer.

**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 may help to reduce the risk of side effects by reducing the amount of radiation to the surrounding organs.

Ask your medical team what type of radiotherapy they are offering, and whether it is image guided.

There are also newer types of radiotherapy available, although these aren’t widely available.

**Stereotactic ablative radiotherapy**
Stereotactic ablative radiotherapy (SABR) is a new 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 available for pancreatic cancer on the NHS, but it may be available as part of a clinical trial.

SABR delivers a higher dose of radiotherapy at each treatment. Because the dose is higher, you will usually only need three to five treatments over one to two weeks. However, each treatment session will take longer than other types of radiotherapy. It is important that this treatment is carried out very
accurately. This is to reduce the risk of damage to healthy tissues from the high dose of radiation.

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.

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

**Clinical trials for radiotherapy**

Clinical trials are medical research studies that involve patients. Most trials in pancreatic cancer are looking at different treatment options with the aim of finding more effective treatments and improving the quality of people’s daily lives.

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

It is a good idea to talk to your specialist about any clinical trials involving radiotherapy or chemoradiotherapy that might be suitable for you. We also have information about current at [www.pancreaticcancer.org.uk/clinicaltrials](http://www.pancreaticcancer.org.uk/clinicaltrials)

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

**How is radiotherapy given?**

You will usually have radiotherapy as an outpatient in the radiotherapy department at your nearest specialist cancer centre. This means you won’t need to stay in hospital overnight.

Treatment will vary depending on your situation – speak to your doctors about your treatment. Each treatment session is called a fraction.

- For locally advanced cancer, as part of a course of chemoradiotherapy, radiotherapy is usually given every day, Monday to Friday. Most treatment courses last five to six weeks (25-30 fractions).
• Palliative radiotherapy to control pain is usually given in fewer treatment sessions – from one faction to a course of ten fractions. The overall dose is usually lower which reduces the risk of side effects.

Before your radiotherapy starts, it is carefully planned. You will have one or two planning sessions.

You will see the therapy radiographers (experts in giving radiotherapy) for the planning session. You may also see your doctor, a medical physicist or dosimetrist who all help to plan your radiotherapy. They work together to create a personal plan, designed for you. This means that the radiation is directed accurately at the cancer, while causing as little damage as possible to the healthy tissues around it. This helps to make the treatment as effective as possible, and reduce the risk of side effects.

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 is important to make sure the radiotherapy is given accurately each time.

**What happens during treatment?**
Each treatment session takes 15-30 minutes. Most of this time is taken up by the radiographers getting you into the right position. The actual radiotherapy treatment itself is very quick, usually only a few minutes. Therapy radiographers deliver the treatment and you will see them at each treatment session. They will monitor you, and can answer any questions you have.

You will have your treatment lying on the couch of the treatment machine. The radiographers will move you into the same position as you were in at your treatment planning session. You will probably lie on your back with your arms above your head. You will need to lie as still as you can. The machine is about one metre away from your body. This may feel very close, but people often don’t mind this too much as the machine moves around your body and you’re not enclosed inside it.

When you are in position the radiographers will leave the room during the actual treatment. They can still see you, using CCTV (closed circuit television), and talk to you through an intercom. The treatment itself only takes a few minutes, but you won’t see or feel anything while it is happening.

On some treatment visits the radiographers may also do a CT scan while you are in the treatment position. This is to check that you are in exactly the same
position as you were at the planning session, and to make sure that the cancer is being treated accurately.

You can go home as soon as each treatment session is finished.

**Getting to and from radiotherapy treatment**

Radiotherapy can be tiring, so you might want to ask a friend or relative to drive you to hospital every day, especially towards the end of treatment. Many hospitals have separate parking for their radiotherapy department. They may also offer reduced parking charges for people having radiotherapy, or even refund them. Ask the radiographers what the situation is at your hospital.

If you are relying on public transport or other people giving you a lift, you may be able to arrange your appointments to suit you, although this isn’t always possible. Some hospitals provide transport, as do local charities and support groups, so if you need help ask what is available in your area.

If you are finding that it costs a lot to travel to hospital every day, you may be eligible for financial help. Ask the radiotherapy staff for information on grants that might be available. Macmillan Cancer Support have information about financial support.

**Side effects of radiotherapy**

Radiotherapy does cause side effects, though everyone is affected differently. Many people will only have mild side effects, and severe side effects are uncommon.

Your oncologist will explain the possible side effects before treatment starts, and review you regularly during your treatment. But you should let the radiographers know as soon as you start to get any side effects. They can give you help and support to manage them. Most side effects can be managed, sometimes with medication. Side effects usually continue for about two to four weeks after treatment before they begin to improve. Sometimes, side effects can get worse straight after treatment before they start to get better. Some side effects, such as fatigue (extreme tiredness), can last for longer.

Chemoradiotherapy may cause different or more severe side effects because of the chemotherapy. We have more information about the side effects of the different chemotherapy drugs on our website at [www.pancreaticcancer.org.uk/chemotherapy](http://www.pancreaticcancer.org.uk/chemotherapy)
If you have any questions about side effects or how to manage them, you can call our specialist nurses on our free Support Line.

**Reporting urgent symptoms**
You are very unlikely to experience any side effects that need urgent attention. But if you have any of these side effects, phone your hospital straight away using the 24-hour contact number you will have been given:
- vomiting blood
- bleeding from your rectum (bottom) – this might appear as black stools (poo)
- severe abdominal (tummy) pain.

**Common side effects**

**Fatigue (extreme tiredness)**
Fatigue (extreme tiredness) is the most common side effect of radiotherapy. Travelling to hospital every day can make it worse.

Take it easy, and make sure you rest when you need to. You might find it helps to take some gentle exercise, such as going for a short walk when you feel able. Accept any offers of help, for example with household chores, shopping or meals, so you can save some energy for things you enjoy.

Tiredness can last for several weeks or months after treatment has finished.

**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 may even be sick (vomiting).

Nausea or vomiting may increase as treatment goes on, and last for a few weeks once treatment stops. Tell the radiotherapy staff if you have any nausea or vomiting as they can give you anti-sickness drugs.

Slowly sipping a fizzy drink may help, or food containing ginger such as ginger beer or ginger biscuits. If you have anti-sickness drugs they work best if you take them regularly.

**Loose watery stools (diarrhoea)**
Diarrhoea may begin a few days after radiotherapy starts and last until several weeks after the course is finished. You may also have tummy pains. Make sure you drink plenty to avoid getting dehydrated.
Speak to your doctor if diarrhoea continues to be a problem or is severe. They can give you tablets to control it. You could also speak to a dietitian at the hospital about any changes to your diet that might help.

**Skin reactions**
Some people’s skin can react to radiotherapy. It may become dry, red, sore or itchy, or go darker. Any skin reaction will usually settle down four to six weeks after treatment finishes. Although sometimes changes to the colour of the skin may be permanent.

The radiographers can give you advice about looking after your skin during treatment, such as which soaps or lotions to use. Let them know if you have a skin reaction so they can advise you how to manage it. Wearing loose-fitting cotton clothes can help to avoid irritating the area that’s being treated. Make sure you protect the skin in that area from strong sunshine – cover up and use sun cream.

**Looking after yourself during radiotherapy**
Everyone reacts differently to radiotherapy so it’s important to see how you feel and decide how much activity you can manage. Prioritise what you need to do, and take time to rest and relax. Be kind to yourself and accept offers of help from family or friends.

If you have any concerns during treatment – or even after treatment has finished – 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.

**Getting support**
The most common side effect of radiotherapy is tiredness so be kind to yourself and accept offers of help. Family, friends and neighbours may all be willing to help in different ways, such as taking you to and from your treatment sessions.

If you need more practical support, ask your GP, medical team or specialist nurse about what’s available in your area.

**Diet and nutrition**
People often cope better with cancer treatment and side effects if they can manage to eat well and maintain their weight. This is particularly important with pancreatic cancer as it usually causes symptoms such as appetite changes, weight loss, bowel changes such as loose watery stools (diarrhoea).
and in some people, diabetes. It’s also important to try to stay the same weight during treatment, as the radiotherapy is planned on the shape of your body. If you are losing weight, you must tell your doctor or specialist nurse so that they can arrange an appointment with a dietician.

You may not feel much like eating, and daily trips to hospital for radiotherapy can make it hard to find time to prepare meals and eat at regular times. But it is important to try to make sure you are getting enough calories. Some people find that eating little and often and having snacks can help.

Pancreatic cancer can also affect how the pancreas works and its ability to produce enzymes that help with the digestion of food. Signs that your body can’t digest and absorb nutrients properly include:

- weight loss
- steatorrhoea (oily, floating, smelly poo)
- diarrhoea
- abdominal (tummy) discomfort
- bloating or wind.

Many people find that taking pancreatic enzyme supplements, such as Creon®, Pancrease®, Nutrizym® and Pancrex®, make a big difference to how they feel. They can also help you maintain your weight, or put on weight if you need to. If you aren’t taking pancreatic enzyme supplements and haven’t been told about them, ask your doctor or specialist nurse if they might be helpful.

Nutritional supplements may also be useful if you have a poor appetite and you have lost weight. Your GP can tell you about different products you can get on prescription.

Treatment can also affect blood sugar levels in people with diabetes, so make sure this is monitored closely during and after treatment – your GP or diabetes team can help here.

There is more detailed information about diet on our website at www.pancreaticcancer.org.uk/diet

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.

Having visitors and going out
Radiotherapy doesn’t make you “radioactive” so it’s perfectly safe to be around other people, including pregnant women and children. Visits from family and friends, including children, can really cheer you up. You will also need to get out and about during your treatment, whether it’s for some gentle exercise or doing the shopping. You can have as many visitors or go out as often as you like, though try not to tire yourself out.

If you are having chemoradiotherapy, you will need to be careful about getting an infection, as chemotherapy can make you more at risk of getting an infection. Read our information about chemotherapy side effects at www.pancreaticcancer.org.uk/chemotherapy

**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 an appointment time that fits in with work, and daily appointments can be very disruptive.

Talk to your employer and see if flexible working is possible if you want to carry on working. You may also want to talk to your treatment team about your work situation.

You may be entitled to sick pay if you take time off from work. It’s a good idea to check the regulations with your employer and have it confirmed in writing before you start your treatment. You may also be entitled to some benefits. Macmillan Cancer Support has lots of information about work and cancer for employees and employers.

**Getting back to normal**
Most side effects from radiotherapy should improve a few weeks after stopping treatment. Generally people notice an improvement in how they feel about four weeks after treatment. But it may be six to eight weeks before you feel like doing more. You may find that tiredness lasts for longer.

**Check-ups after treatment**
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. You will probably wait a bit longer than this before having a CT scan to measure whether the cancer has responded to the treatment.

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 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 need any more radiotherapy.

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

Questions to ask
- Will radiotherapy help control my cancer?
- Will radiotherapy help me live longer?
- 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?
- 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?

Other sources of information and support
CancerHelp UK
www.cancerresearchuk.org/cancer-help/
Cancer nurses answer questions 0808 800 4040 (Mon-Fri 9am-5pm)
Information for patients from Cancer Research UK

Macmillan Cancer Support
www.macmillan.org.uk
Freephone Cancerline 0808 808 00 00 (Mon-Fri 9am-8pm)
Provides practical, medical and financial support for anyone affected by cancer.
Further information and support
Pancreatic Cancer UK is the only national charity fighting pancreatic cancer on all fronts: Support, Information, Campaigning and Research. We are striving for a long and good life for everyone diagnosed with pancreatic cancer.

Support Line
We run a confidential Support Line for anyone affected by pancreatic cancer. Our pancreatic cancer specialist nurses can provide individual specialist information about pancreatic cancer, treatment options and managing symptoms and side effects. They have time to listen, answer your questions and provide support.

Freephone: 0808 801 0707 (Monday to Friday, 10am-4pm)
Email support@pancreaticcancer.org.uk

Information
We provide information about pancreatic cancer, treatment options, side effects and living with pancreatic cancer. All our information is based on the latest evidence, and reviewed by health professionals and people affected by pancreatic cancer.

Go to www.pancreaticcancer.org.uk
Download and order publications at www.pancreaticcancer.org/publications

Support groups
There are pancreatic cancer support groups across the UK, where you can meet other people affected by pancreatic cancer, share experiences and find support.

Find your nearest support group on our website at www.pancreaticcancer.org.uk/supportgroups

Discussion forum
Join our online discussion forum to talk to others affected by pancreatic cancer. Members include people with pancreatic cancer as well as family and friends. They share their experiences and tips, and support each other.

Sign up on our website at www.pancreaticcancer.org.uk
This fact sheet has been produced by the Support and Information Team at Pancreatic Cancer UK. It has been reviewed by healthcare professionals and people affected by pancreatic cancer.

References to the sources of information used to write this fact sheet and an acknowledgement of the health professionals who reviewed the booklet are available on our website – www.pancreaticcancer.org.uk/chemotherapy

Pancreatic Cancer UK makes every effort to make sure that its 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. Please do continue to talk to your doctor, specialist nurse or other members of your care team if you are worried about any medical issues.

Give us your feedback We hope you have found this information helpful. If you have any comments or suggestions about this fact sheet or any of our other publications, you can email publications@pancreaticcancer.org.uk or write to the Information Manager at the address below.

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© Pancreatic Cancer UK May 2015
Review date May 2017
Pancreatic Cancer UK is a charity registered in England and Wales (1112708)