

Patient information from the BMJ Group

Pancreas cancer

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Pancreas cancer

Pancreas cancer is a serious illness. If you've been told you have pancreas cancer, you'll probably feel many different emotions, including anxiety about what lies ahead. You may be able to have surgery to remove the cancer. And there are other treatments that can slow the cancer down and help you feel more comfortable.

We've brought together the best research about pancreas cancer and weighed up the evidence about treatments. You can use our information to talk to your doctor and decide which treatments are best for you.

What is pancreas cancer?

Finding out that you or someone close to you has pancreas cancer is a big shock. It's a serious illness that affects your pancreas, a gland that lies behind your stomach.

If you've been diagnosed with pancreas cancer, you'll probably feel many different emotions, including anxiety about what lies ahead.

By the time most people find out they have pancreas cancer it has spread elsewhere in their body and cannot be cured. But there are treatments that can improve your symptoms and may help you live longer. And if your disease is caught in the early stages, you may be able to have surgery to remove the cancer.

The treatment you have will depend on what part of your **pancreas** is affected, how large the cancer is, and whether it has spread. A lot will also depend on how you feel about your illness and how you would like it to be treated.

Key points about pancreas cancer

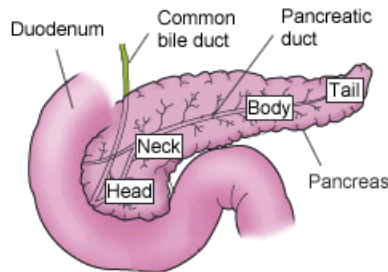
- For many people, the cancer has spread by the time it's diagnosed.
- Yellow skin (jaundice) is a common symptom.
- If your pancreas cancer is caught early, you may be able to have surgery to remove the cancer. But most people with this cancer are diagnosed too late to have surgery

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- Most treatments help symptoms and aim to slow the growth of your cancer, but don't cure the disease.
- Living with a serious disease like pancreas cancer isn't easy. [Getting support](#) can make it easier to cope.

Your pancreas

Your pancreas lies just behind your stomach. It's a gland that helps you break down the food you eat. It also helps you use or store the energy you get from food. ^[1] ^[2]



The different parts of your pancreas are called the head, neck, body, and tail.

- Your pancreas is about 15 centimetres (6 inches) long. ^[2]
- It lies deep in your abdomen, behind your stomach, and in front of your spine.
- It has different parts. Doctors call these the head, the neck, the body, and the tail.
- It has a network of tubes called ducts. These carry the digestive juices that break down food.

Your pancreas is part of your digestive system. This is the name given to the parts of your body that break down the food you eat. These parts of your body may be affected by your cancer and by any surgery you have.

See [More about your digestive system](#) .

What your pancreas does

Your pancreas does two important jobs. ^[2]

- It makes pancreatic juices. They contain chemicals called **enzymes** that help digest food.
- It makes chemicals called hormones. Two of these, **insulin** and glucagon, help control the amount of sugar in your blood.

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The pancreas has different kinds of cells to do these two jobs. Pancreas cancer usually starts in the cells that transport pancreatic juices.

See [More about your pancreas and bile duct](#) .

What happens in pancreas cancer?

When your body's cells are healthy, they grow and divide to form new cells as your body needs them. When cells grow old and die, new cells take their place.

Sometimes this process breaks down. New cells form too rapidly, when the body doesn't need them, and old cells don't die when they should. The extra cells can form a mass of tissue called a growth or tumour. ^[2]

- Some tumours are **benign**. This means they don't spread to other parts of your body and they are not cancerous.
- Some tumours are **malignant**. This means they spread and they are cancerous.

Pancreas cancer often starts in the head of the pancreas. ^[3] The tumour may block one or more of the tubes (ducts) in or around your pancreas. It may also spread to other parts of your pancreas or your intestines.

How it spreads

Cancer spreads when some cancer cells break away from the main tumour. The extra cells can spread directly to nerves, muscles, or blood vessels around your pancreas. Or the cancer could spread to nearby parts of your [digestive system](#) . ^[1] ^[2]

Some cancer cells may reach more distant parts of your body, such as your [liver](#) , intestines, lungs, and bones. ^[1] ^[2]

Cancer cells can travel through your bloodstream or through your [lymphatic system](#) , a system of tubes that helps your body fight infections. And cancer cells can easily get into nearby [lymph nodes](#) . From here they can travel to other parts of the body.

When cancer spreads from its original place to another part of the body, this is called a **metastasis**. The new tumour has the same kind of abnormal cells and the same name as the original tumour. For example, if pancreas cancer spreads to the liver, the cancer cells in the liver are pancreas cancer cells. The disease is still pancreas cancer, not liver cancer. ^[2]

Making decisions about your treatment

There's no right or wrong way for you to deal with your cancer. Some people have treatments that may help them live longer but can have serious side effects. Other people choose not to have these treatments, which means they may not live as long. They prefer to avoid the risk of serious side effects.

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The most important thing is for you to feel comfortable with the decisions you make. Your medical team and those who care about you should listen to what you say and respect your wishes.

Pancreas cancer: why me?

No one knows the exact cause of pancreas cancer. Doctors can't explain why some people get it and others don't. They think that chance plays a part. But there are some things that make it more likely that someone will get pancreas cancer. These are called **risk factors**.

Risk factors for pancreas cancer include smoking and being older. Also, if someone else in your family has or had pancreas cancer or certain other types of cancer, you may be more likely to get pancreas cancer. ^[1] ^[2]

If you smoke heavily, you're more likely to get pancreas cancer than someone who doesn't smoke. Smoking is one risk factor you can do something about. To learn more, see our articles on [Smoking](#) .

Risk factors make it more likely you'll get an illness. However, having risk factors doesn't mean you'll definitely get pancreas cancer. Many people with these risk factors don't get cancer. But if you're worried, your doctor may be able to suggest ways you can reduce your risk.

Two possible ways of reducing your risk are: ^[5]

- Not smoking (to learn more about quitting, see [Smoking](#))
- Eating healthily, with plenty of fruits and vegetables.

There aren't any screening tests that can pick up pancreas cancer at an early stage, like those for breast cancer and cervical cancer.

Age and ethnic group

Older people are more likely to get pancreas cancer. The disease usually happens in people over 60. ^[1]

Afro-Caribbean people are more likely to get pancreas cancer than white or Asian people. ^[6] The cancer is also more common in people with Jewish ancestry. ^[7]

Smoking and drinking

If you smoke, you're twice as likely to get pancreas cancer than someone who doesn't smoke. ^[7]

If you drink heavily, you may be more likely to get pancreas cancer. ^[8] ^[9] But we can't say for certain. ^[7]

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Diet and exercise

If you eat a lot of meat or fatty foods, you may be more likely to get pancreas cancer.^[8] The risk may also increase if you don't eat enough fruit and vegetables.^[8]

Some researchers have linked drinking a lot of coffee with a higher risk of pancreas cancer, but more recent studies have not shown this.^[10]

Exercise may protect you against pancreas cancer, especially if you are obese.^[11]

Being very overweight

If you are very overweight (doctors call this being **obese**) you have a higher risk of getting this cancer. Obesity is when your **body mass index** (BMI) is 30 or more.^[12] Your BMI tells your doctor whether your weight is healthy. It's worked out according to both your height and weight.

Your doctor will weigh and measure you. These numbers go into a mathematical formula that gives a single number. This is your BMI. You can [work out your own BMI](#) .

Family history and genes

Pancreas cancer can run in families. About 1 in 10 people who have pancreas cancer have inherited changes in their **genes** that lead to pancreas cancer.^[1]

If your mother, father, sister, or brother has (or had) pancreas cancer, you are more likely to get pancreas cancer than someone with no family history of the disease.^[1]

If a close relative has (or had) [colon cancer](#) , [ovarian cancer](#) , [prostate cancer](#) , [breast cancer](#) , or [melanoma](#) , this may also increase your risk of getting pancreas cancer.

If someone in your family has been told they have pancreas cancer (or one of the cancers in the list above), you may be worried that you or others in your family are at risk.

To learn more, see [Pancreas cancer in the family](#) .

People with a rare inherited condition called **hereditary pancreatitis** have a 40 percent risk of getting pancreas cancer before the age of 70. If you inherit this disease from your father, the risk is even higher.^[13]

Other illnesses

There seems to be a link between diabetes and pancreas cancer. But researchers aren't sure whether having **diabetes** makes you more likely to get pancreas cancer. Diabetes means you can't control the level of sugar in your blood. This is usually because of problems with a **hormone** called **insulin** . Insulin is made by the **pancreas** and normally helps control sugar levels.

To learn more, see our articles on [diabetes](#) .

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Pancreatitis is a painful infection in which your pancreas becomes swollen. If you have pancreatitis that lasts a long time, you may be more likely to get pancreas cancer. But we can't say for certain.

If you've had surgery to treat an ulcer in your stomach, you may be slightly more likely to get pancreas cancer.

Stages of pancreas cancer

Doctors work out what stage your cancer is using the TNM system. It's used for many different types of cancer.

The TNM system

- T is for **tumour** (a lump of cancer cells)
- N is for **nodes** (lymph nodes are part of your lymphatic system)
- M is for **metastasis** (when the cancer spreads to other parts of your body).

Doctors look at each of these aspects and give each a number. Generally, lower numbers mean your cancer is smaller and has not spread far (if at all).

- For T: The number tells you how big your cancer is and whether, or how far, the cancer has spread outside your pancreas to organs nearby.
- For N: The number tells you whether your pancreas cancer has spread to your lymph nodes. Cancer cells can grow in the nodes and then travel from them to other parts of the body.
- For M: The number tells you whether your pancreas cancer has spread to other parts of your body.

The numbers are then sometimes followed by letters. These tell the doctor how the cancer was found and they give more detail about how far it has spread. This table shows what each letter and number says about your cancer. ^[15]

T (tumour)	
TX	You have cancer cells but your doctor can't find a tumour.
T0	There's no sign of pancreas cancer.
Tis	Your tumour is only in the lining of the pancreatic ducts. Doctors call this carcinoma in situ.
T1	Your tumour is 2 centimetres (four-fifths of an inch) or less across. It hasn't spread outside your pancreas.
T2	Your tumour is more than 2 centimetres (four-fifths of an inch) across. It hasn't spread outside the pancreas.

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T3	Your tumour has spread outside your pancreas but it hasn't spread into large blood vessels nearby.
T4	Your tumour has spread to large blood vessels near your pancreas.
N (nodes)	
NX	It's not certain if the cancer has spread to your lymph nodes.
N0	Your pancreas cancer hasn't spread to your lymph nodes.
N1	Your pancreas cancer has spread to lymph nodes near your pancreas.
M (metastasis)	
MX	It's not certain if the cancer has spread to another part of your body.
M0	Your pancreas cancer hasn't spread to another part of your body.
M1	Your pancreas cancer has spread to another part of your body.

If your pancreas cancer is described as T1, N1, M0, it means that the tumour (lump) is less than 2 centimetres (four-fifths of an inch) across, and it has spread to lymph nodes nearby but not to other parts of your body.

Stages of cancer

Doctors use the TNM system to **stage** your cancer on a scale of 0 to 4.^[10] Stage 0 is the least advanced stage of pancreas cancer (doctors call it carcinoma in situ) and stage 4 is the most advanced.^[15]

Stage	TNM classification
Stage 0	Tis, N0, M0
Stage 1a	T1, N0, M0
Stage 1b	T2, N0, M0
Stage 2a	T3, N0, M0
Stage 2b	T1, N1, M0
	T2, N1, M0
	T3, N1, M0
Stage 3	T4, N0, M0
	T4, N1, M0
Stage 4	Any T, any N, M1

This system can also be used to tell whether cancer can be treated by surgery.^[10]

- Doctors often call stage 1 or stage 2 pancreas cancer **resectable**. It means that they can operate to remove it.

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- Stage 3 is often called **locally advanced** disease.
- Stage 4 is often called **metastatic** disease. This means it has spread to other parts of your body.

About 4 in 100 people with pancreas cancer are diagnosed early enough to have surgery.

[16]

What are the symptoms of pancreas cancer?

In the early stages, pancreas cancer doesn't cause any symptoms. This is why it's often called a silent disease.

You get symptoms when the cancer grows and spreads. The most common symptoms are:

- Pain in your mid-back or tummy
- Yellow skin/eyes (jaundice)
- Feeling very tired
- Losing your appetite
- Losing weight.

These symptoms can be caused by other illnesses that are less serious than pancreas cancer. But it's important not to ignore these symptoms. The sooner your doctor checks them out, the more quickly you can get treatment for whatever is causing them. You should go to your GP first. He or she may refer you to a hospital specialist.

You may also be able to get treatment to help with some of the symptoms.

Symptoms from the cancer in your pancreas

Jaundice

Jaundice makes your skin turn yellow. It also makes the whites of your eyes go yellow. It happens when there's too much of a chemical called **bilirubin** in your blood.

Bilirubin is a waste product from worn-out blood cells. Your body normally gets rid of bilirubin in bile, which is a fluid made in your **liver**. Bile passes through a tube called the common bile duct. This empties into the top part of your intestines (your duodenum).

Pancreas cancer can block your common bile duct because the duct runs right by your **pancreas**. If this happens, you can't get rid of the bile. So bilirubin builds up in your blood and stains your skin yellow. It also makes your urine darker. And because there's no bilirubin in your stools, they look paler.

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See [More about your pancreas and bile duct](#) .

Pancreas cancer isn't the only cause of jaundice. You can get jaundice if:

- Your liver isn't working properly. This can happen because of an infection. Some medicines can also cause liver damage
- Your common bile duct is blocked, either by a hard lump called a gallstone, or by something else.

You can have [surgery to bypass your bile duct](#) . This should get rid of the jaundice.

Itching

Your skin may become very itchy. This probably happens because your cancer is blocking your common bile duct. So the chemicals that normally leave your body in bile build up in your blood.

This itching can be hard to relieve. But there are drugs that you can take to see if they help. You can ask your doctor about these.

You can have [surgery to bypass your bile duct](#) . This should relieve the itching.

Symptoms from cancer spreading to other parts of your body

If your cancer spreads outside your pancreas, you may get pain in your upper back or your upper abdomen. But not everyone with pancreas cancer gets pain.

If you have pancreas cancer, it's natural to worry that a new pain means your cancer is spreading. But bear in mind that everyone gets aches and pains from time to time, whether or not they have pancreas cancer. Your pain may be due to something completely different. If you're anxious, be sure to tell your doctor or nurse, so that you can have tests to check it out.

Many people with cancer are frightened that they will have serious pain at some point. There are many ways that doctors can control pain successfully.

To read more about this, see [Keeping comfortable and free of pain](#) .

Symptoms you can get at any time

- Losing your appetite
- Feeling sick
- Losing weight
- Feeling weak
- Feeling tired

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Many people with pancreas cancer also feel nauseous and find it hard to keep their food down. You may lose your appetite and food may not taste like it normally does.^[2] So you may not feel like eating and find it hard to keep your weight up. This makes you feel tired and weak. It's a vicious circle because the more tired you get, the less you feel like eating and the weaker you feel.

If your pancreas isn't working properly, the food you eat may not be properly digested. Or you may feel filled up easily.

There are many things you can do to try to keep up your weight. **Pancreatic enzymes** may help. These come as tablets that can help you digest your food more easily.

Ask your doctor to refer you to a qualified **dietitian** , who can help you work out a diet to help you.

You'll need to rest, but some gentle exercise can help you feel better and give you more of an appetite.^[2] Ask your doctor about exercise.

Feeling depressed or anxious

If you have an illness like pancreas cancer it's natural to feel anxious or low. This can happen when you first find out you have the disease or when you're having treatment.

But if you feel down most of the time, you may be depressed. Depression isn't something you have to put up with. There are treatments for depression which can help.

To learn more, see our information on [Depression in adults](#) .

Some people with pancreas cancer are depressed even before they know they have cancer.^[17] This doesn't mean that depression causes pancreas cancer. It may be that the changes in the pancreas may lead to an imbalance of **hormones** and chemicals that in turn can cause depression.^[17]

Living with a serious disease like pancreas cancer isn't easy. You may have all kinds of worries about your treatment or your future.

To learn more, see [Getting support to help you cope](#) .

How do doctors diagnose pancreas cancer?

Diagnosis

Pancreas cancer isn't always easy to diagnose. The first doctor you go to is likely to be your GP.

Your GP may think that your symptoms could be due to pancreas cancer, but he or she won't be able to make a firm diagnosis. You'll need to be referred to your local hospital for tests to be sure what is wrong.

Your doctors will find out whether you have pancreas cancer based on:

Pancreas cancer

- Your symptoms
- A physical examination
- Special tests that include taking a small sample of cells from your **pancreas** (a biopsy).

Seeing your GP

Your GP will ask you about your symptoms and examine you. This will include:

- Looking at the colour of your eyes and skin for signs of jaundice
- Feeling for swelling around your **liver**.

Your GP may also ask you for a urine sample and take a small amount of blood for tests.

If your GP thinks that you could have cancer, he or she should refer you to a hospital consultant or specialist clinic. You should get an appointment within two weeks of going to the GP. ^[20]

GPs have guidelines to help them decide who needs an urgent appointment. The guidelines say you should see a specialist urgently if you have one or both of the following symptoms:

- Jaundice (your skin goes yellow)
- A lump in your abdomen (upper stomach) that can be felt by your GP.

If your GP doesn't think you have cancer, he or she can still refer you to a hospital specialist, but you may have to wait longer for an appointment.

Seeing a specialist

The hospital specialist you see if you have suspected pancreas cancer is usually a gastroenterologist or a general/gastroenterological surgeon. He or she will also ask you about your symptoms and examine you. But this may take longer than with the GP. It may include:

- Listening to your chest to check your heart and lungs
- Looking at your skin and eyes for signs of jaundice (see [What are the symptoms of pancreas cancer?](#))
- Feeling your stomach and abdomen for signs of swelling or any build-up of fluid
- Checking your **lymph nodes** for swelling

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- Checking your health in general.

You may need to have some tests. These will help your doctor find out if you have pancreas cancer or some other illness.

They will also help your doctor decide which treatment may be best for you.

Samples

Your doctor may take samples of your blood, urine, or stools. Here are some of the things he or she will look at:

- **Bilirubin.** Bilirubin is a waste product from worn-out blood cells. Normally it's removed from your body through your common bile duct. But if your bile duct is blocked by pancreas cancer, you may have high levels of bilirubin in your blood, urine, or stools. See [More about your pancreas and bile duct](#) .
- **Liver enzymes.** These show whether your liver is working normally.
- **Cancer markers.** High levels of certain substances in your blood may mean you have cancer. Chemicals like this are called cancer markers. The one for pancreas cancer is called **CA 19-9**. But it's only released from some types of pancreas cancer.

Scans

Scans are images of your internal organs. There are different ways of getting scans. Doctors can use sound waves, radio waves, or special **x-rays** that can pass through body tissues. But because of the position of the pancreas, it isn't easy to get good pictures of your pancreas to see if you have a tumour.

Here are the most common scans used to find out if you have pancreas cancer:^[21]

- [Ultrasound](#)
- [CT scan](#) (or CAT scan)
- [ERCP](#) (endoscopic retrograde cholangiopancreatography).

Biopsy

Your doctor may want to take out a small piece of your pancreas to look at under a microscope. This is called a biopsy.

A biopsy is the best way of diagnosing pancreas cancer. Unless you're going to have surgery, your doctor should offer you this procedure.

There are different ways of doing a biopsy.

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- The doctor may put a very fine needle through your skin into your pancreas to take out some cells. He or she uses an x-ray machine or [CT scan](#) to see where to guide the needle. This is called **fine needle aspiration**. You'll have a [local anaesthetic](#) to numb the area. The needle is usually put through your abdomen. It takes about 10 to 15 minutes. It can be uncomfortable.
- Or your doctor may get a sample when you have a type of scan called an [ERCP](#) or another type called [endoscopic ultrasound \(EUS\)](#) .

Staging your cancer

Doctors classify pancreas cancer according to the stage it has reached. Knowing what stage your cancer is helps your doctor decide which treatment is best for you. It also gives you some idea of what may happen to you.

The stage of cancer depends on:

- The size of your tumour (lump)
- Whether it has spread to your lymph nodes
- Whether it has spread to other parts of your body.

To learn more, see [Stages of pancreas cancer](#) .

How common is pancreas cancer?

Pancreas cancer isn't as common as some other cancers.

Every year, about 8,500 people in the UK are diagnosed with pancreas cancer. ^[18] ^[19]

- It's mostly found in people aged between 60 and 80. It is rare among people younger than 50. ^[2]
- Pancreas cancer affects both sexes equally. But below the age of 70 more men get it than women. ^[19]

What treatments work for pancreas cancer?

Finding out that you or someone close to you has pancreas cancer is a big shock. It's a serious illness that affects your pancreas, a gland that lies behind your stomach.

The treatment you have depends on what part of your [pancreas](#) is affected, how large the cancer is, and whether it has spread. A lot will also depend on how you feel about your illness and how you would like it to be treated.

Key points about treating pancreas cancer

- If your cancer is caught in its early stages, you may be able to have surgery to remove part of, or all of, your pancreas and organs nearby.
- For people diagnosed with early pancreas cancer, surgery may help them live longer.
- Your doctors may also advise you to have **chemotherapy** or **radiotherapy** after your operation to kill any cancer cells left behind. This may help you live longer than surgery on its own.
- Chemotherapy can have unpleasant side effects. You need to decide with your doctor whether it's right for you.
- If you have advanced cancer, treatments cannot cure you, but they can help to control your cancer and improve your symptoms.

Which treatments work?

The treatment you have for pancreas cancer will partly depend on the stage of your cancer when you're diagnosed. Most people are diagnosed at a fairly late stage, when the cancer has spread outside their pancreas. But if your cancer is diagnosed early on, and is small enough, you may be able to have surgery to remove it. To read more about the stages of cancer, see [Stages of pancreas cancer](#) .

- [Treatments for pancreas cancer that is diagnosed early](#) : If pancreas cancer is diagnosed early, it may be suitable for treatment with surgery. Other treatments, such as chemotherapy and radiotherapy, can be used to help kill any cancer cells left behind after the operation. [More...](#)
- [Treatments for advanced pancreas cancer](#) : If the cancer has spread outside your pancreas, you may not be suitable for surgery. But other treatments can help to control your cancer. [More...](#)

Treatment Group 1

Treatments for pancreas cancer that is diagnosed early

The treatment you have depends on what part of your **pancreas** is affected and how large the cancer is. A lot will also depend on how you feel about your illness and how you would like it to be treated. But if pancreas cancer is diagnosed early enough, doctors often recommend surgery.

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Key points about treating early pancreas cancer

- You may have an operation called a Whipple's procedure to remove the cancer from your pancreas. It also removes some of your stomach and the other organs nearby. It's a serious operation. It may help you live longer.
- There are also other types of surgery. For example, one type is designed not to remove any of your stomach. But the research isn't clear on whether other types of surgery are better or worse than the Whipple's procedure.
- **Chemotherapy**, using a drug called fluorouracil or a drug called gemcitabine, may help you live longer if you have it after surgery. But chemotherapy has side effects.
- Chemotherapy can be used together with **radiotherapy**. But it's not clear whether using both treatments together is any better than having chemotherapy on its own.

Which treatments work best? We've looked at the best research and given a rating for each treatment according to how well it works. All of these treatments are for **people who are able to have surgery**.

For help in deciding which treatment is best for you, see How to use research to support your treatment decisions.

Treatments for pancreas cancer that is diagnosed early

Usual treatment for early cancer

- [Surgery](#): Surgeons usually remove part of your pancreas, stomach, and other organs nearby. This is the normal treatment for early pancreas cancer. [More...](#)

Treatments that work

- [Chemotherapy using fluorouracil after surgery](#): This is when drugs are used to kill cancer cells that were left behind after surgery to remove your pancreas cancer. Fluorouracil (or 5-FU) is the usual drug used for pancreas cancer. [More...](#)

Treatments that need further study

- [Chemotherapy using gemcitabine after surgery](#): Evidence suggests that the drug gemcitabine may help you live longer if you have it after surgery. [More...](#)
- [Chemotherapy with radiotherapy after surgery](#): These two treatments are sometimes used together after surgery. You may hear this called chemoradiotherapy. [More...](#)
- [Vaccines and immunotherapy](#)

Other treatments

There are other treatments for pancreas cancer that we haven't covered in detail here, including other drugs and different combinations of treatments. Most of them are still being tested, so you'll only have them as part of a clinical trial. Clinical trials are research studies of new treatments, and patients volunteer to take part.

If you're interested, ask your doctor about these. Or you can visit the website of [Cancer Research UK](#).

Treatment Group 2

Treatments for advanced pancreas cancer

If you have advanced pancreas cancer, it means the cancer has spread outside your pancreas. This makes it too difficult to remove using surgery. But treatment can still help to control your cancer, help your symptoms, and make you feel better.

The treatments we look at on this page are for people who can't have surgery to remove their cancer, either because the tumour is too large or because it has spread. To read more, see [Stages of pancreas cancer](#).

Key points about treating advanced pancreas cancer

- Most people with pancreas cancer are diagnosed with advanced disease. Treatment doesn't usually aim to cure this kind of cancer. But it can help to control your cancer.
- Chemotherapy can help people with pancreas cancer that isn't suitable for surgery. The research shows that chemotherapy can help people live longer.
- Radiotherapy can also be used to treat advanced pancreas cancer. If it's used, it's often combined with chemotherapy. However, the research isn't clear about whether both treatments together are better than chemotherapy on its own.
- Chemotherapy and radiotherapy can have unpleasant side effects. You need to decide with your doctor whether these treatments are right for you.

Treatments for advanced pancreas cancer

Treatments that work

- [Chemotherapy](#): Treatment with chemotherapy drugs can help people with advanced pancreas cancer live longer. The research doesn't give a clear answer about which drug or combination of drugs works best. [More...](#)

Pancreas cancer

Treatments that need further study

- [Chemotherapy plus radiotherapy](#) : Some doctors have tried adding radiotherapy to chemotherapy. But it's not clear whether having both treatments is any better than just having chemotherapy on its own. [More...](#)

Other treatments

These treatments won't help you to live longer but they can prevent or reduce some of the discomfort caused by pancreas cancer.

- [Having a tube put inside your bile duct](#)
- [Surgery to bypass your bile duct](#)
- [Keeping comfortable and free of pain](#)
- [Getting support to help you cope](#)

There are other treatments for pancreas cancer that we haven't covered in detail here, including other drugs and different combinations of treatments. Most of them are still being tested, so you'll have them only as part of a clinical trial. Clinical trials are research studies of new treatments, and patients volunteer to take part.

If you're interested, ask your doctor about these. Or you can visit the website of [Cancer Research UK](#) .

What will happen to me?

A lot depends on whether surgeons can operate to remove your cancer when they find it. The outlook is slowly improving.

Most people with pancreas cancer find out they have it when the disease is at a late stage. It's too late to have [surgery](#) because the tumour is too large or because it has spread too much.

To learn more, see [Stages of pancreas cancer](#) .

For many people, the treatments for pancreas cancer don't work as well as they do for other types of cancer. There are striking success stories, and some people do live for many years after they discover they have pancreas cancer, but most don't.

Everyone has different priorities in their life. Wherever possible, your treatment should help you get what you want out of life. You may wish to spend time with friends or family, or you may want to stay as active or independent as possible.

Cancer specialists don't talk about treatments that cure you, because it's difficult to say when there has been a cure. Doctors may see no sign of cancer, but they can't be sure

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that it will not come back. Instead, they look at the number of people who live two, three, five, or 10 years after their treatment. Doctors call these numbers **survival rates**.

You may hear your doctors use other words that measure the success of treatments for pancreas cancer. They mean a number of different things.

- **Response:** a complete response means there is no sign of any cancer cells after treatment. A partial response means treatment has made the cancer smaller.
- **Remission:** this means you no longer have any sign of cancer and are in good health.
- **Time to relapse (or time to recurrence):** this is the amount of time before the cancer comes back after it has responded completely to treatment.
- **Disease-free survival:** this is a measure of how long people live after treatment without any signs of the cancer coming back.

A lot of the treatments that are used for pancreas cancer are not trying to cure the cancer. They aim to slow the growth of your cancer, help your symptoms, make you feel better, and allow you to live as long as possible.

If you have pancreas cancer, you may want to know more about what will happen to you, or you may not. Some people would rather not know this information. We've provided statistics (see [Survival rates for pancreas cancer](#)) on how many people with pancreas cancer are still alive one and five years after diagnosis. If you read this information, remember that the figures are based on the results seen with large groups of patients. They cannot predict what will happen to you personally. Other things, such as your overall health and when your pancreas cancer was diagnosed, will affect what happens to you.

Living with a serious disease like pancreas cancer isn't easy. You may have all kinds of worries about your treatment, your finances, or your future. But there are many people who can help you.

To find out more, see [Getting support to help you cope](#).

Clinical trials

Many doctors encourage people with pancreas cancer to take part in **clinical trials**. These are research studies of new treatments in which patients can volunteer to take part.

Studies may look at new drugs and different combinations of treatments. They may also include experimental cancer [vaccines](#) to help your immune system fight off cancer. If you're interested, ask your doctor about clinical trials in your area. Or you can visit the website of [Cancer Research UK](#).

Questions to ask your doctor

Being diagnosed with a serious illness such as pancreas cancer is a shock. You may find it hard to think of everything you want to ask your doctor.

It might help to make a list of questions before an appointment to see your doctor. You could also take notes during your consultation. You may like to take a close friend or relative with you. These questions below may help if you have been diagnosed by a doctor specialising in pancreas cancer.

General questions

- Where did my cancer start?
- Is my cancer in the head, body, or tail of my pancreas ?
- Has my cancer spread?
- Do I need more tests to check if it has spread?
- What is the stage of my disease?
- What treatment choices do I have?
- Can you operate?
- Will you be able to help with the pain?
- What help or support can I get to help me cope?
- Can I get help with my diet and exercise?
- Are there any clinical trials I could join?

Questions about surgery

- Why do you think I should have surgery?
- Will surgery mean I live longer?
- What kind of operation do you recommend?
- What are the risks of surgery?
- Where would I go to have surgery? Is it a specialist centre?
- How will I feel after the operation?

Pancreas cancer

- Will it be painful afterwards? And how can this be treated?
- Will my diet have to be changed?
- How long will I be in the hospital?
- When will I get back to my normal activities?

Questions about medical treatments

- What treatments do you recommend?
- Why do I need these treatments? What are the benefits?
- Will they help me live longer or will they just help my symptoms?
- What are the side effects of these treatments?
- Can the side effects be treated?
- How should I expect to feel during treatment?
- How will treatment affect my normal activities?
- How long will it go on?
- Will I need to be in hospital or can treatment be done as an outpatient?
- How will I know if the treatment is working?

Survival rates for pancreas cancer

These are the survival rates for pancreas cancer. ^[22]

Please bear in mind that these numbers are from research studies. You are not a statistic, and no-one can tell you what's going to happen to you.

Survival for one year

Sadly, most people are diagnosed with advanced cancer and will have less than one year to live.

About 13 in 100 people with pancreas cancer live for one year after they find out they have the disease.

Pancreas cancer

Survival for five years

Up to 3 in 100 people who are diagnosed with pancreas cancer are alive five years later.

If your cancer is diagnosed early

The outlook for people whose cancer is diagnosed early is better than this. If surgery is possible, then about 15 in 100 people will be alive five years later.

Treatments:

Surgery

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

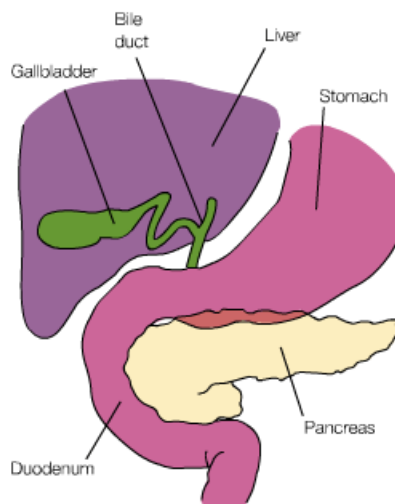
[How good is the research on surgery?](#)

This information is for people who have pancreas cancer that is diagnosed early. It tells you about surgery, a treatment used for pancreas surgery. It is based on the best and most up-to-date research.

Does it work?

Doctors usually advise people to have surgery if their pancreas cancer is in the early stages. There's some evidence that people with small tumours live longer if they have surgery than if they don't. Most doctors believe that surgery is helpful, even though there haven't been any good scientific studies to prove this.

What is it?



Surgery for pancreas cancer may remove part of the pancreas, the gallbladder, and part of the bowel (the duodenum).

Pancreas cancer

Surgery involves removing part of, or all of, your pancreas and other organs close by. The aim of surgery is to get rid of the cancer.

You may be suitable for surgery if you have early-stage cancer and you have no other major health problems. But this surgery cannot cure people whose cancer is more advanced and has spread. If you have advanced cancer, see [Treatments for advanced pancreas cancer](#) .

To read more about the stages of cancer, see [Stages of pancreas cancer](#) .

There are different ways of doing the operation, depending on where your cancer is. It might be in the head, body, or tail of the pancreas.

The usual operation to get rid of pancreas cancer is called **Whipple's procedure**, named after the doctor who first described it. This operation removes the head of the pancreas. It also removes:

- Part of your stomach
- Your duodenum (the first bit of your small intestine)
- Your [gallbladder](#)
- Part of your common bile duct.

To learn more about these parts of your body, see [More about your digestive system](#) .

Surgeons can also do this operation so that only part of the duodenum is removed and none of the stomach. They think this may mean that afterwards you can digest your food better. Doctors call this surgery a **pylorus-preserving pancreaticoduodenectomy**, or PPPD for short.

Both types of operation are serious. You'll need a [general anaesthetic](#) to keep you asleep during surgery. And you're likely to need two weeks to three weeks in hospital.

^[23] For more details about what surgery may mean for you, see [After your operation](#) .

If you only have cancer in the 'tail' of your pancreas, you may have a **distal pancreatectomy**. We haven't looked in detail at the research for this type of operation. It's sometimes done as keyhole surgery through smaller cuts in your skin. ^[24]

Your pancreas surgery will be performed at hospitals which do many of these operations and have large teams to support this complex operation: these are called high-volume centres. Your GP or hospital specialist will be able to recommend you to the nearest such centre.

How can it help?

Doctors think that having surgery for early-stage pancreas cancer can help people live longer. But there isn't very much research on this. That's because doctors usually recommend surgery for anyone whose pancreas cancer is caught at an early stage. Doctors don't think it would be right to deny people treatment just to see how long they live.

There has been some research comparing surgery with a combination of chemotherapy and radiotherapy. It was a very small study, but it found that surgery helped people to live longer. ^[27]

- People who had surgery lived for 17 months, on average.
- People who had chemotherapy and radiotherapy lived for 11 months.

Another study followed over 100,000 people who were treated for early-stage pancreas cancer. About 23 in 100 people were alive five years after surgery. ^[28] This compared with 5 in 100 people who didn't have surgery. However, this study wasn't the most reliable kind, which splits people randomly between treatments (a randomised controlled trial). So it's possible that the people who didn't have surgery had more severe cancer in the first place. This could be the reason why they didn't live as long, rather than the difference in their treatment.

Different types of surgery

We don't know if removing part of the stomach during surgery helps people live longer or not. The studies comparing different types of surgery haven't been large enough to tell us for sure. Some studies suggest people may live longer if they don't have part of the stomach removed. ^[29]

But the research does suggest that people who have surgery that doesn't remove any of the stomach:

- Live at least as long as people who have part of their stomach removed (the usual Whipple's procedure) ^[30]
- Have the same quality of life after the operation ^{[29] [31] [32]}
- May find it easier to keep weight on.

Surgery will not work for everyone who is diagnosed with early-stage cancer. Some cancer cells may have already gone into your bloodstream before your surgery but not have shown up in tests. These cells may have travelled to other parts of your body and caused secondary cancers (also called **metastases**). Pancreas surgery cannot get rid of these cancers.

Pancreas cancer

How does it work?

The aim of surgery is to get rid of all the cancer. If there are no cancer cells left, the original tumour can't spread to other parts of your body.

In the standard operation, the lower part of your stomach and all of your duodenum are removed. This affects your digestion. Your body may not be able to absorb all the nutrients you need from your food, so you may find it hard not to lose weight.

Surgeons started doing surgery that doesn't remove the lower part of the stomach to try to get around this problem. By leaving the stomach and duodenum in place, they hope that you'll be able to digest your food better and get plenty of nutrients.

Can it be harmful?

Removing part of the pancreas and other tissues is a serious operation and problems can happen during or after it.

The complications we found in the studies included bleeding, leaks of pancreatic juice, bowel contents, or bile (a chemical that helps you break down food), wound infection, and inflammation .

There is a small risk of dying after surgery for pancreas cancer. But in a specialist hospital, this risk could be as low as 2 in 100 or 3 in 100. ^[23]

Problems with digestion after surgery are common. This happens when food stays in the stomach too long. It is usually temporary. Doctors think that people who have surgery that doesn't remove any of the stomach have fewer problems digesting food. But research studies have not confirmed this.

In most studies, complications are similar whether or not part of the stomach is removed during surgery.

The table below shows how often people in one study got complications after the different types of surgery. ^[23] Although slightly different numbers of people got problems depending on the type of operation they had, the differences **are likely to have happened by chance**. We've included the table to give you a rough idea of how often problems happen. But these numbers don't prove that one type of surgery is better than another.

Complication	Usual surgery (Whipple's procedure)	Surgery leaving stomach intact
Problems with digestion	45%	31%
Bleeding	6%	3%
Leaks	2%	3%
Infection	6%	6%
Breathing problems	15%	11%
Circulation problems	8%	5%

Pancreas cancer

Kidney problems	5%	8%
Needing another operation	2%	3%

To learn more about complications of surgery, see [After your operation](#) .

How good is the research on surgery?

To know for certain that surgery is better than no treatment for early pancreas cancer, doctors would need to do a study comparing people who had surgery with people who didn't. But doctors don't think it would be fair to do this type of research. They're so sure that surgery helps, they think it wouldn't be right to deprive some patients of surgery just to do a study.

One very small study did find that surgery was better than a combination of [radiotherapy](#) and [chemotherapy](#) for early-stage pancreas cancer. ^[27]

Different types of surgery

The standard operation for pancreas cancer is called a **Whipple's procedure**. It involves removing part of your stomach. There are also other types of surgery that don't affect your stomach.

Two reviews of the research ([systematic reviews](#)) looked at several studies comparing the Whipple's procedure with surgery that doesn't remove part of the stomach. ^[30] ^[29] The first review didn't find a difference between the operations in whether people had problems or died soon after surgery, or in how long people lived overall. But it did find that people lost less blood and had a shorter operation if they didn't have part of their stomach removed. The second review found that people were more likely to survive for at least five years, and were less likely to die soon after surgery, if they'd had surgery that didn't remove part of the stomach. ^[29]

But most of the studies looked at fairly small numbers of people. This makes the results less certain. If your doctor recommends surgery, he or she can explain what type of operation is likely to be best for you.

Chemotherapy using fluorouracil after surgery

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy using fluorouracil after surgery?](#)

This information is for people who have pancreas cancer that is diagnosed early. It tells you about chemotherapy using fluorouracil, given after surgery, a treatment used for pancreas cancer. It is based on the best and most up-to-date research.

Pancreas cancer

Does it work?

Yes. If you have a course of **chemotherapy** using a drug called fluorouracil after surgery to remove your **pancreas**, it may help you to live about six months longer.

It can be difficult to decide whether to have chemotherapy after your operation because the side effects can be very unpleasant. You need to talk to your doctor about whether chemotherapy is right for you.

What is it?

Chemotherapy uses drugs that stop cancer growing. Fluorouracil is a type of drug given during chemotherapy treatment. It's also known as 5-FU. You'll have it through a tube directly into your bloodstream (an **intravenous infusion**), or it can be taken by mouth. It is usually given with a vitamin called folic acid, which makes it work better.

You may also take other drugs with the fluorouracil, and you may have treatment with **radiotherapy**.

The chemotherapy will probably start four to six weeks after your operation to get rid of the cancer, when you and your doctors feel you are well enough.

To learn more about this operation, see [Surgery](#).

How can it help?

Chemotherapy with fluorouracil may help you live a little longer. According to the research: [\[33\]](#)

- After two years, 38 in 100 people who had chemotherapy after surgery were still alive. This compared with 28 in 100 people who just had surgery.
- After five years, 19 in 100 people who had chemotherapy and surgery were still alive. This compared with 12 in 100 people who just had surgery.
- On average, people who had chemotherapy after their operation lived about six months longer than people who didn't.

How does it work?

The aim of surgery is to get rid of the cancer. But some cancer cells may have got into your bloodstream before your surgery. These cells may have travelled to other parts of your body and caused secondary cancers, also called **metastases**. The aim of chemotherapy after your operation is to kill any cancer cells that your surgeons weren't able to remove.

Fluorouracil aims to prevent cancer cells from multiplying, so it can stop the tumour from getting bigger and spreading.

Can it be harmful?

All drugs used in chemotherapy have some harmful effects. They kill cells that divide quickly, and most of these are cancer cells. But chemotherapy can also damage healthy cells that divide quickly, and this can cause problems. We've listed the most common side effects found in studies.^[34] They are:

- Feeling sick and vomiting
- Losing your appetite
- Diarrhoea . Fluorouracil can affect your digestive system
- Infection. This happens because you have fewer white blood cells, which help you fight infection
- Hair loss. This happens because your hair cells get damaged, but your hair will grow back
- Harm to your baby if you become pregnant. You must be careful not to get pregnant while you are taking fluorouracil.

How good is the research on chemotherapy using fluorouracil after surgery?

A review of the research (called a **systematic review**) looked at several good-quality studies.^[35] It found that **chemotherapy** using the drug fluorouracil could help people with pancreas cancer. People who had this chemotherapy drug after surgery lived longer, on average, than people who had surgery on its own.

Chemotherapy using gemcitabine after surgery

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy using gemcitabine after surgery?](#)

This information is for people who have pancreas cancer that is diagnosed early. It tells you about chemotherapy using gemcitabine, given after surgery, a treatment used for pancreas cancer. It is based on the best and most up-to-date research.

Does it work?

Chemotherapy that includes a drug called gemcitabine might help you live longer if you have it after surgery to remove your pancreas cancer. This treatment is also often used for [cancer that can't be operated on](#) .

It can be difficult to decide whether to have chemotherapy after surgery because there can be serious side effects. You need to talk to your doctor about your individual case.

What is it?

Gemcitabine is a chemotherapy drug that stops cancer growing. It is used after pancreas surgery to kill any cancer cells that may have spread from the **pancreas** to other parts of your body. Sometimes it is combined with **radiotherapy** .

The National Institute for Health and Care Excellence (NICE), the government body that advises which treatments should be used by the NHS, doesn't recommend gemcitabine after surgery for pancreas cancer. This is because there hasn't been enough research yet.^[16] However, some recent studies found that it might work as well as fluorouracil, either after surgery, or for cancer that can't be operated on.^[36] ^[37] You may be offered gemcitabine as part of a **clinical trial** .

You are given gemcitabine as a drip (also called an **intravenous infusion** , or an IV for short) into your veins. It usually takes about 30 minutes. You'll probably start having gemcitabine a few weeks after your operation, when you and your doctors feel you are well enough.

To learn more, see [After your operation](#) .

How can it help?

Gemcitabine might help you live longer after surgery, although there needs to be more good research.

We did find one study that compared people who had gemcitabine after surgery with people who had no additional treatment.^[38] After an average of 53 months, 74 in 100 people in the gemcitabine group had their cancer return, compared with 92 in 100 in the other group. But people were no more likely to have lived at least four years, and of those who had survived, their quality of life was no better, after having gemcitabine.

Two recent studies found that gemcitabine worked just as well as fluorouracil in helping people live longer.^[36] ^[37] In the biggest of these studies, which included more than 1,000 people who had surgery for pancreas cancer, people who took either drug lived for an average of about two years after their surgery.^[36]

To learn more, see [Chemotherapy using fluorouracil after surgery](#) .

How does it work?

Your operation aimed to get rid of all your cancer. But some cancer cells may have travelled to other parts of your body and caused secondary cancers (this is called **metastasis**). The aim of chemotherapy after your operation is to kill any cancer cells that your surgeons weren't able to remove. Gemcitabine is used to stop cancer cells multiplying.

Can it be harmful?

All drugs used in chemotherapy have some harmful effects. They kill cells that divide quickly, and most of these are cancer cells. But chemotherapy can also damage healthy cells that divide quickly.

We've listed the most common side effects of gemcitabine. [\[39\]](#) [\[40\]](#)

- Infection: This happens because you have fewer white blood cells, which help fight infections.
- Anaemia: This happens because you have too few red blood cells. Anaemia can make you get tired and breathless easily.
- Hair loss: Gemcitabine damages your hair cells but not as much as some other chemotherapy drugs. If you do lose hair, it will grow back once you're done with your treatment.
- Nausea, vomiting, and loss of appetite: This happens because the drug affects your digestive system.
- Swollen ankles: You may need to take drugs called diuretics to reduce the swelling.
- A rash: You can treat this with steroids.
- Flu-like symptoms, such as aching and fever.
- Bruising and bleeding.
- Harm to your baby if you're pregnant.

In the studies of patients having gemcitabine: [\[39\]](#)

- Less than 1 in 10 patients got anaemia
- About one-quarter had a fall in white blood cells, which help fight infections
- About 1 in 20 got low levels of **platelets**, the blood cells that help blood to clot. Low levels of platelets can lead to bruising and bleeding into the skin.

How good is the research on chemotherapy using gemcitabine after surgery?

We found a review of the research (called a [systematic review](#)) that looked at studies of gemcitabine in pancreas cancer. ^[41] But very few of these studies were good studies ([randomised controlled trials](#)) and most did not publish all their results.

However, a good-quality study was published after this review was done. It included 368 people who had either surgery followed by gemcitabine treatment or just surgery. ^[38] After an average of 53 months, 74 in 100 people in the gemcitabine group had their cancer return, compared with 92 in 100 in the surgery-only group.

Two recent studies found that gemcitabine worked just as well as fluorouracil in helping people live longer. ^[36] ^[37] In the biggest of these studies, which included more than 1,000 people, people who took either drug lived for an average of about two years after their surgery. ^[36]

Vaccines and immunotherapy

In this section

[Do they work?](#)

[What are they?](#)

This information is for people who have pancreas cancer that is diagnosed early. It tells you about vaccines and immunotherapy, which are experimental treatments for pancreas cancer.

Do they work?

We don't know for certain. But doctors are studying immunotherapy and vaccines to see if they can help the body's immune system fight the cancer. These studies are called [clinical trials](#) . When more good-quality clinical trials have been run, we should have a better idea if these treatments work.

What are they?

Immunotherapy is a new kind of treatment that may help people with pancreas cancer. It is a drug treatment that helps your body's immune system (the parts of your body that help fight infections) work harder to kill off cancer cells.

You may have heard of the drug interferon. This is a kind of immunotherapy. It's used as a treatment for many types of cancer. Researchers are trying to find out if interferon will help people who have pancreas cancer.

Vaccines are also a type of immunotherapy. They are made from a person's own cancer cells after the cancer is removed by surgery. Vaccines help your immune system recognise and kill new cancer cells before they grow into a lump (tumour). You can only have a

Pancreas cancer

vaccine if you've had surgery as a treatment. It may help stop the cancer from coming back.

Some research centres offer vaccines and immunotherapy for people with pancreas cancer. But these treatments are still being tested. Sometimes very new treatments like immunotherapy are offered to patients as part of a clinical trial. Clinical trials are research studies of new treatments. Patients volunteer to take part.

If you're interested, ask your doctor whether there are any trials in your area. Or you can visit the website of [Cancer Research UK](#).

Chemotherapy with radiotherapy after surgery

In this section

[How good is the research on chemotherapy with radiotherapy after surgery?](#)

This information is for people who have pancreas cancer that is diagnosed early. It tells you about chemotherapy and radiotherapy after you've had surgery to remove pancreas cancer.

We don't know. There isn't enough research to be sure. From the studies that have been done, having both chemotherapy and radiotherapy after surgery doesn't seem to help people live longer, compared to just having surgery.

Some doctors might suggest you have both radiotherapy and chemotherapy after surgery. This may be useful for certain types of tumour, dependent on how completely they have been removed after surgery. The aim is to get rid of as many of the cancer cells as possible.

Radiotherapy uses high-energy x-rays to shrink cancer cells. A large machine directs the rays at your abdomen. It affects cancer cells only in the treated area. You have to go to hospital for sessions, often five days a week for about six weeks.

Chemotherapy drugs such as fluorouracil (5-FU) or gemcitabine make your tumour more sensitive to radiation. So the radiation should work better. You have these drugs as an intravenous ('IV') infusion directly into your veins. The drugs travel throughout your body. You'll need to have the drugs once or twice a week during the time you're having radiotherapy. You normally have them as an outpatient treatment.

Having both chemotherapy and radiotherapy after surgery may not help you to live longer. There's not much research, and, in the studies that have been done, people haven't lived longer after having both treatments, compared with having just surgery. ^[33] ^[42] ^[43] ^[44] ^[45] ^[46]

It's possible that this treatment may help if your surgeon has been unable to remove all the cancer in your operation. But if the cancer has been completely removed, it may actually do more harm than good.

Pancreas cancer

The theory is that using both radiotherapy and chemotherapy should get rid of any cancer cells remaining after surgery. However, both these treatments have side effects. It's possible that just having surgery might be better for some people.

Chemotherapy and radiotherapy can both have unwanted side effects. If you have both together, that increases your chances of having side effects.

Both chemotherapy and radiotherapy can cause nausea and vomiting, or diarrhoea. You may also feel very tired. Radiotherapy can cause you to lose hair on the part of the body being treated. Chemotherapy may cause you to lose all your hair, depending on the drug used.

Chemotherapy can also increase your chances of getting an infection, because it reduces the number of infection-fighting white blood cells your body makes.

In one study, almost 8 in 10 people got some unwanted side effects from having chemotherapy and radiotherapy. ^[45]

How good is the research on chemotherapy with radiotherapy after surgery?

We found one summary of the research (called a systematic review) and four good-quality studies (randomised controlled trials). ^{[33] [47] [43] [44] [45]} Although this sounds like a lot, the trials were quite small and we need to see more research to be sure about the effects of having combined chemotherapy and radiotherapy after surgery. It may be that the treatment helps some groups of people more than others. So far, the results have not shown that the treatment helps people to live longer.

Chemotherapy for advanced pancreas cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy for advanced pancreas cancer?](#)

This information is for people who have advanced pancreas cancer. It tells you about chemotherapy, a treatment for advanced pancreas cancer. It is based on the best and most up-to-date research.

Does it work?

Yes. **Chemotherapy** can help people with advanced **pancreas** cancer. It doesn't cure the disease, but it can mean you live longer.

If you have advanced pancreas cancer, the tumour has spread outside your pancreas. This means it can't be removed with surgery. To read more, see [Stages of pancreas cancer](#) .

What is it?

Chemotherapy uses drugs to stop cancer growing. One chemotherapy drug that's often used for pancreas cancer is called fluorouracil. It's also known as 5-FU. You have it through a tube directly into your bloodstream (an IV drip or intravenous infusion), or you can take it by mouth.

Another chemotherapy drug often used is called gemcitabine. It's given as a drip.

The National Institute for Health and Care Excellence (NICE), the government body that advises doctors on which treatments should be available on the NHS, has recommended that people with pancreas cancer that has spread and who are not suitable for surgery should be offered gemcitabine. ^[16]

But NICE says you have to be strong enough to cope with the treatment. They do not recommend chemotherapy for anyone who is in hospital because of their cancer or who is so ill they need a lot of help with day-to-day living. ^[16]

Sometimes, doctors recommend a combination of several different chemotherapy drugs.

How can it help?

Chemotherapy may help people with advanced pancreas cancer live slightly longer. ^[48]
^[49]

In the UK, the most commonly used chemotherapy drug in advanced pancreas cancer is gemcitabine. Gemcitabine may be given on its own or in combination with other chemotherapy drugs.

Combining other chemotherapy drugs with gemcitabine may help you to live longer than having just gemcitabine. ^[49] ^[50] ^[51]

In one study, patients receiving a combination of drugs known as FOLFIRINOX lived almost twice as long as patients who received gemcitabine alone. However, FOLFIRINOX has more side effects than gemcitabine, and it is unknown whether it should be used after surgery. ^[52] Until more research is done, we don't know whether FOLFIRINOX is better than gemcitabine.

How does it work?

If your cancer has spread too far to be removed by surgery, chemotherapy can help to shrink the cancer. This may reduce the damage the cancer does to your body, and help you to live longer.

Can it be harmful?

The research didn't give much information on side effects. ^[48] ^[49] It did say that people having chemotherapy were more likely to feel sick.

Pancreas cancer

To read more about the side effects of chemotherapy, see [Chemotherapy using fluorouracil after surgery](#) and [Chemotherapy using gemcitabine after surgery](#) .

How good is the research on chemotherapy for advanced pancreas cancer?

There are several studies showing that **chemotherapy** can help people with advanced **pancreas** cancer. ^[48] ^[49] People are more likely to be alive one year later if they are treated with chemotherapy.

The research doesn't show which chemotherapy drug, or combination of drugs, is best. The research hints that, for people who just have one drug, gemcitabine may be better than fluorouracil. But there's not enough research to be sure.

Chemotherapy plus radiotherapy for advanced pancreas cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy plus radiotherapy for advanced pancreas cancer?](#)

This information is for people who have advanced pancreas cancer. It tells you about chemotherapy plus radiotherapy, a treatment for advanced pancreas cancer. It is based on the best and most up-to-date research.

Does it work?

Having [chemotherapy on its own](#) can help people with advanced **pancreas** cancer. It doesn't cure the disease, but it can help you live longer. We don't know whether adding **radiotherapy** to **chemotherapy** gives an extra benefit. There's not much research looking at both treatments together.

If you have advanced pancreas cancer, the tumour has spread outside your pancreas. This means it can't be removed with surgery. To read more, see [Stages of pancreas cancer](#) .

What is it?

Chemotherapy uses drugs to stop cancer growing. One chemotherapy drug that's used for pancreas cancer is called fluorouracil. It's also known as 5-FU. You have it through a tube directly into your bloodstream (an IV drip or **intravenous infusion**), or you can take it as tablets.

Another chemotherapy drug is called gemcitabine. It's given as a drip.

You may be given one chemotherapy drug or a combination of several.

Pancreas cancer

Radiotherapy uses high-energy x-rays to kill cancer cells. You'll need to go to hospital for treatment. A large machine is used to generate the x-rays. You'll have several sessions over a few weeks.

Having chemotherapy and radiotherapy together aims to combine the benefits of both treatments. But we don't know if this works.

How can it help?

We're not sure whether having chemotherapy and radiotherapy together are better than having chemotherapy on its own. There's not much research, and the results are mixed.

One small study found that having chemotherapy and radiotherapy together was slightly better than just having chemotherapy.^[48] The people in the study had pancreas cancer that had spread too far to be treated with surgery. Everyone was given a combination of three chemotherapy drugs: streptozotocin, methotrexate, and fluorouracil. Some people also had radiotherapy.

- People who just had chemotherapy lived an average of eight months.
- People who had both treatments lived an average of 10.5 months.

Another recent study found that people having gemcitabine and radiotherapy together lived for about 11 months, while people who just had the gemcitabine lived for nine months.^[53]

However, these were just two small studies. Two other studies didn't find any extra benefit to having radiotherapy as well as chemotherapy.^[48]

Having two treatments at once also increases your risk of side effects.^[48] So, it's not clear yet whether there's an advantage to having both treatments, instead of just having chemotherapy.

How does it work?

If your cancer has spread too far to be removed by surgery, chemotherapy can help to shrink the cancer. It may help you to live longer. Adding radiotherapy aims to combine the benefits of both treatments. But we don't know if having both treatments really is better.

Can it be harmful?

Both chemotherapy and radiotherapy can cause side effects.

Radiotherapy can cause tiredness, reddening of skin, and problems with digestion, including nausea, vomiting, and diarrhoea. But these side effects usually go away when treatment is over.^[54]

Pancreas cancer

Chemotherapy can also cause problems with digestion, among other side effects. To learn more, see [Chemotherapy using fluorouracil after surgery](#) and [Chemotherapy using gemcitabine after surgery](#) .

The research we looked at didn't give much information about the side effects of having both treatments. But it did say that having chemotherapy and radiotherapy together caused more side effects than just having chemotherapy.^[48]

It's important to talk to your doctor about the side effects of these treatments. You need to weigh up the possible benefits against the harmful effects.

How good is the research on chemotherapy plus radiotherapy for advanced pancreas cancer?

Doctors sometimes recommend a combination of chemotherapy and radiotherapy for pancreas cancer that has spread too far to be operated on. But only a few small studies have looked at this combination of treatments.^[48] So, we can't say whether having both together is any better than just having chemotherapy.

Having a tube put inside your bile duct

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[Can it be harmful?](#)

This information is for people who have advanced pancreas cancer. It tells you about having a tube (called a stent) put inside your bile duct, a treatment used for pancreas cancer.

Does it work?

This treatment won't cure pancreas cancer. But it may help you feel more comfortable, if your cancer is blocking your bile duct.

What is it?

If your cancer is blocking your common bile duct, you may need to have a small tube called a stent put in. The operation is done to help with your symptoms. It cannot cure or slow down pancreas cancer.

Your common bile duct is a tube that passes near your pancreas. The tube drains a fluid, called bile, from your liver into your intestines. Having a blocked common bile duct means that bile builds up and can cause jaundice and itching. If you have jaundice, your skin and eyes turn yellow, you may lack energy, you may feel sick, and your stomach and bowels may feel uncomfortable. To read more, see [What are the symptoms of pancreas cancer?](#)

Pancreas cancer

Most people have a stent made out of plastic. Stents can also be made of different types of metal. They go inside your common bile duct and keep it open. This should help symptoms of jaundice or itching and make you feel more comfortable.^[55] This procedure cannot cure your pancreas cancer. To read more, see [More about your pancreas and bile duct](#).

This is how a stent is usually put in.

- Your doctor passes a thin, flexible tube through your mouth, into your stomach, and then down into the first part of your small intestine (your duodenum) until it reaches the opening of your bile duct. The tube is called an endoscope. It has a camera on the end so your doctor can see inside your body.
- Once the tube is in place, your doctor will inject a dye along it. He or she will then take **x-ray** pictures to find where the duct is blocked.
- The stent is then passed carefully down the tube and placed in the bile duct to hold it open. This means bile can drain through the bile duct to the intestines.

If you had a test called an [ERCP](#) (endoscopic retrograde cholangiopancreatography) to help diagnose your cancer, your doctor may already have put a stent in your common bile duct.

You will probably have a **sedative** injection to help you relax while the stent goes in. It's unlikely that you'll need to stay in hospital overnight.

Some people have a stent put in through their skin using a needle and a guide wire. But this method isn't very common.

How can it help?

Having a stent usually relieves jaundice quickly. But in some people, jaundice can take a few weeks to go completely.

Another option is [surgery to bypass a blockage in your bile duct](#). Having a stent put in is simpler than surgery.

Can it be harmful?

For most people, having a stent is simple and safe. It's rare for anything to go wrong. It's possible that you may bleed inside as the stent is put in. Also, it is possible for the tube to tear other organs as it is passed down to your pancreas. Rarely you may get inflammation of pancreas, called pancreatitis. The stent can also become blocked or infected. So you may need further treatment to fix it.^[55] Talk to your doctor about how often problems happen.

Surgery to bypass your bile duct

Pancreas cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[Can it be harmful?](#)

This information is for people who have advanced pancreas cancer. It tells you about surgery to bypass your bile duct, a treatment used for pancreas cancer.

Does it work?

This treatment won't cure pancreas cancer. But it may help you feel more comfortable, if your cancer is blocking your bile duct.

What is it?

If your cancer is blocking your common bile duct, you may need surgery to bypass the blockage. The operation is done to help with your symptoms. It cannot cure or slow down pancreas cancer.

Your common bile duct is a tube that passes near your **pancreas**. The tube drains a fluid, called bile, from your **liver** into your intestines. Having a blocked common bile duct means that bile builds up and can cause jaundice and itching. If you have jaundice, your skin and eyes turn yellow, you may lack energy, you may feel sick, and your stomach and bowels may feel uncomfortable. To read more, see [What are the symptoms of pancreas cancer?](#)

Your surgeon will cut your bile duct just above the blockage and rejoin it to your intestine. Sometimes surgeons will join your **gallbladder** directly to your intestine. After your operation, bile will bypass all or part of your bile duct and drain into your intestine.

Surgeons can do this operation by putting an instrument called a laparoscope through a small cut in the abdomen (doctors sometimes call this keyhole surgery). Or you may need a larger cut in your abdomen (open surgery).^[56] To read more, see [More about your pancreas and bile duct](#).

How can it help?

This surgery can stop you from getting bouts of jaundice. The operation is more serious and takes longer than another treatment called a **stent**. You'll need to spend some time in hospital.^[55]

Can it be harmful?

Like all operations, there are risks with surgery to bypass your bile duct. For example, it's possible that you will bleed inside or get an infection. Talk to your doctor about the risks of this surgery in your hospital.

Keeping comfortable and free of pain

In this section

Pancreas cancer

[What is it?](#)

This information is for people who have advanced pancreas cancer. It tells you about keeping you comfortable and free of pain when you have pancreas cancer.

What is it?

There's no cure for advanced pancreas cancer. But doctors can keep you comfortable and free of pain and other symptoms. Your health care team can also give you and your family support when you feel anxious or uncertain.

Doctors often call this **supportive care** or **palliative care**. You may be able to stay at home or you can stay in hospital. Or you may be able to stay at a hospice, a place that specialises in giving this kind of support.

We've listed some of the symptoms that doctors can help you with at this stage of your cancer. ^[1] ^[55] ^[56]

Jaundice and itching

If you have symptoms of jaundice (yellow skin, pale stools, and dark urine) or if you have itchy skin, it may be because your pancreas cancer is blocking your common bile duct. This is a tube that passes near your pancreas. If it's blocked, certain chemicals build up in your blood. These chemicals cause the jaundice and itching.

To learn more, see [What are the symptoms of pancreas cancer?](#)

If you have [surgery to bypass your bile duct](#), it may help relieve these symptoms.

You may have had a [stent](#) put in to keep your common bile duct open. If your stent isn't working, you may get jaundice or itching. Your doctor may be able to replace your stent.

If doctors can't unblock your common bile duct, you can have a tube put in to drain the fluid (bile) that's building up. The tube will go through your skin.

Feeling nauseous and unable to eat

You may feel nauseous either because of the illness itself or because you've had chemotherapy.

You can take medicines to keep you from feeling nauseous. This should help you feel more like eating. It's well worth talking to the [dietitian](#) at the hospital.

You may need to have high-energy drinks and soups to help boost your calorie intake without having to eat a lot. You may also need supplements or other medicines to help you digest your food.

If you're finding it hard to eat, you can have liquid food. This can go through a tube in your nose, or alternatively straight into your bloodstream.

Feeling tired

If you aren't eating well and your cancer is making you sick, you may feel very tired.

Don't feel guilty that you can't do as much in the home as you used to. Take rests when you need to, and get family and friends to help out. You may be surprised how glad they are to help. A lot of people don't know what to do or say to someone with cancer. But if they're given tasks and can feel useful, it can make it easier for them and for you.

Pain

If you have advanced pancreas cancer, it's probably painful. But there are many different medicines that can help with the pain.

Doctors usually recommend the simplest drugs first, such as paracetamol or an NSAID (non-steroidal anti-inflammatory drug). If these don't help, you can try stronger drugs, such as morphine . It can take time to find the right drug and the right dose, but there's no need to try to be brave. Be sure to tell your nurse or doctor if you are in pain between doses of painkillers.

There are other ways to control pain. Make sure you're sitting or lying comfortably with enough back supports and warm pads. This can really make a difference. You may also wish to try relaxation techniques or massage.

Other treatments include: ^[1]

- Injections to block nerves
- An operation to cut nerves that are carrying pain messages
- Radiotherapy to shrink tumours (cancerous lumps) that are painful or pressing on other parts of your body. Radiotherapy uses high-energy x-rays to kill cancer cells.

Getting support to help you cope

In this section
[What is it?](#)

This information is for people who have advanced pancreas cancer. It tells you about getting support to help you cope.

What is it?

Living with a serious disease such as pancreas cancer isn't easy.

You may be worried about all kinds of things, such as how to care or provide for yourself and your family or whether you'll have to stay in hospital. You may be worried about side effects of treatments. You may wish to find out more about financial help or home care.

Pancreas cancer

If your illness gets worse, you may feel too frightened to ask how long you have to live or whether you'll be in pain. Or you may need to talk to someone about your future.

Everyone who has cancer deals with their worries, sadness, and other emotions in their own way. Some find it easy to talk to their family and friends about what may happen to them, while others don't.

There are plenty of people who can help you. It may be that you can get the information and support you need from your health care team, a social worker, a counsellor, or a member of your religious community if you are part of one.

There are also support groups where patients and families can get together to talk through their worries and share what they have learned about coping with the disease. Ask your GP if there's a support group near you.

Family and friends can be helpful when you need to talk about your cancer with your doctor or nurse. They can ask some of the difficult questions and help you with the answers.

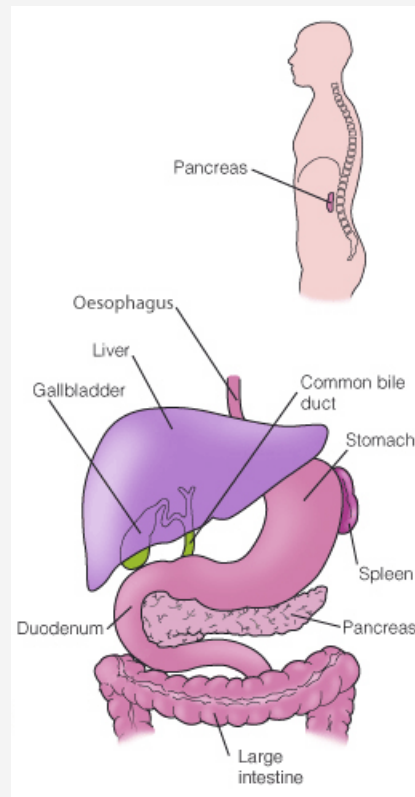
Remember that you don't have to put up with pain or distress. There are drugs that can stop the pain and make you feel more relaxed and calm.

Further informations:

More about your digestive system

Your pancreas is part of your digestive system, which includes the parts of your body that help you deal with the food you eat.

Pancreas cancer



Your pancreas is part of your digestive system.

Your **pancreas** lies behind your stomach.

One end of your pancreas joins your duodenum. This is the first part of your small intestine, the tube that takes food away from your stomach.

The other end of your pancreas lies near your **spleen**. Your spleen removes worn-out cells from your blood. It helps you fight infections too.

The pancreas is also near your **liver**, your **gallbladder**, and your large intestine.

Your liver does several important jobs, including storing nutrients and getting rid of alcohol from your body.

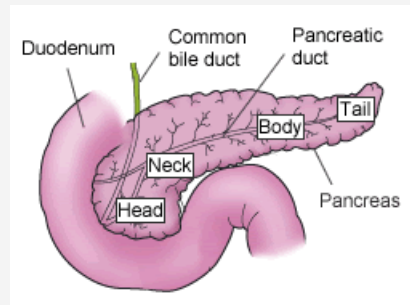
Your liver also makes a fluid called bile, which is stored in your gallbladder. Bile is a chemical that helps you break down food. Bile passes through the common bile duct into your duodenum.

See [More about your pancreas and bile duct](#).

Your small intestine (including your duodenum) and your large intestine make up the long tube that carries food out of your stomach. Food and water are absorbed from your intestines into your blood. Waste products stay in your intestine and pass out in your stools.

More about your pancreas and bile duct

Your **pancreas** makes juices that help break down food. ^[1]



The different parts of your pancreas are called the head, neck, body, and tail.

- Pancreatic juices come out of your pancreas through a network of small tubes, called ducts.
- The juices drain into a larger tube called the pancreatic duct.
- Your pancreatic duct empties into your duodenum, the part of your intestines just below your stomach.

When you eat, food is stored and mixed with acid in your stomach. Partly digested food passes out of your stomach into the duodenum. The flow of food is controlled by a valve between your stomach and your duodenum.

- In your duodenum, pancreatic juices help to break down the food from your stomach.
- The juices travel with the food through your intestines. As the food is broken down, your body absorbs the nutrients and water through your intestines.

Your common bile duct carries a fluid called bile. ^[4] If you have pancreas cancer and your common bile duct is blocked, bile can't flow through and out into your duodenum.

- Bile is a yellow-green fluid.
- It's made in your **liver** and stored in your **gallbladder**, a small bag that lies under your liver.
- It helps to break down fats in the duodenum.
- Bile also contains bilirubin. This is a waste product from worn-out blood cells. Old blood cells are broken up in your liver. Bilirubin is reddish-brown. It passes through your intestines and into your stools, giving them their brown colour.

Pancreas cancer in the family

Occasionally, pancreas cancer affects more than one person in a family. This could happen by chance. But there seems to be a type of pancreas cancer that can be passed on in some families. This probably happens because of a mistake in one or more [genes](#) that are inherited.

But doctors haven't found any genes that definitely cause pancreas cancer. There is no genetic test or screening test for pancreas cancer.

There's also a link between pancreas cancer and other types of cancer, such as [melanoma](#) (a type of skin cancer), [breast cancer](#), [ovarian cancer](#), and [colon cancer](#). If any of these types of cancer run in your family, you may be able to have tests to see if you have inherited the genes that may be causing these cancers.

To learn more, see [Genetic disorders and pancreas cancer](#).

If you have a faulty gene that's linked to pancreas cancer, doctors aren't sure how to lower your chances of getting cancer. They don't know whether you should have regular check-ups for cancer or have surgery to prevent pancreas cancer from starting. ^[10]

Researchers are trying to find out more about pancreas cancer that runs in families. An organisation called EUROPAC has set up a register of families at high risk of this disease. This may help them find the faulty genes that increase the risk of cancer of the pancreas. ^[1]

EUROPAC is also doing research to develop reliable screening tests for people who are at high risk of getting pancreas cancer. These tests include scans (such as [ultrasound](#), a [CT scan](#), or [ERCP](#)) and tests on a sample of juices from the pancreas. If you think your family may be at risk, talk to your doctor. He or she can put you in touch with EUROPAC to see whether you are suitable to be included in this research.

Genetic disorders and pancreas cancer

You may be at higher risk of getting pancreas cancer if other disorders run in your family.

Breast cancer

Some women with [breast cancer](#) have a faulty version of a gene called **BRCA2**. If you inherit a faulty version of this gene, you're more likely to get pancreas cancer. About 1 in 10 people with pancreas cancer have this faulty gene. ^[14]

About 1 in 100 Ashkenazi Jews have a faulty BRCA2 gene. Ashkenazi Jews have a much greater chance of getting pancreas cancer than other Jewish people or non-Jews. Doctors can test for defects in the BRCA2 gene.

Pancreas cancer

To find out more, ask your doctor to refer you to a genetic counsellor.

Peutz-Jeghers syndrome

If you have this syndrome, you get small growths (called polyps) in the part of your gut (your small intestine) below your stomach. You also get brown spots on your lips.

Peutz-Jeghers syndrome is very rare. But if you inherit it, you have an increased chance of getting pancreas cancer.

Melanoma

Melanoma is a type of skin cancer. It is very rare for it to be passed on in families. The kind that is passed on is called **familial multiple mole melanoma** (or FAMMM for short). If you have FAMMM, you get lots of cancerous lumps in your skin, not just one as usually happens with this type of skin cancer. You also have a higher chance of getting pancreas cancer.

Colon cancer

About 1 in 200 people have a condition called **hereditary non-polyposis colorectal cancer** (HNPCC for short). They have inherited an increased chance of getting [colon cancer](#), cancer of the womb lining (endometrial cancer), stomach cancer, and [ovarian cancer](#). They may also have an increased chance of getting pancreas cancer.

Doctors can test for HNPCC. If you think you may be affected, ask your doctor to refer you to a genetic counsellor.

Pancreatitis

You can inherit a form of pancreatitis. Pancreatitis means your pancreas swells from time to time. It's very painful. We now know some of the genes that cause this type of pancreatitis.

Ultrasound

If you have pancreas cancer, the tube that drains bile from your liver and gallbladder to your intestine may become blocked. This tube is called the common bile duct. An ultrasound scan can show whether your common bile duct is blocked.

To learn more, see [More about your pancreas and bile duct](#).

An ultrasound scan will also show if you have lumps called gallstones, which also can block your bile duct. This can cause some of the same symptoms as pancreas cancer.

An ultrasound scanner is a machine that uses sound waves to create a picture of the inside of your body. There are two ways of doing an ultrasound scan of the area around your pancreas. ^[21]

Pancreas cancer

External ultrasound

The doctor places an ultrasound device (or **probe**) on the skin of your abdomen and moves it around. This doesn't always give a good enough picture to detect changes that could be cancer in organs and tissues.

Endoscopic ultrasound (EUS)

The doctor passes a thin, flexible tube through your mouth and stomach and down into the first part of your small intestine (your duodenum). The tube is called an endoscope. At the end of the tube is a light and an ultrasound device. The test is usually used to see if your cancer can be removed with surgery. It works better than an external ultrasound.

^[21] But it's not available everywhere.

If you have this type of ultrasound, you'll be given painkillers and a **sedative** to keep you calm. It may make you feel uncomfortable and nauseous. ^[21] You mustn't eat anything the night before.

This procedure can have side effects, such as:

- **Inflammation** of the pancreas
- An infection
- Bleeding.

Computerised tomography (CT scan)

A **CT scan** uses an **x-ray** machine that's linked to a computer. It takes a series of pictures. It's sometimes called a CAT scan.

A CT scan gives a detailed picture of your **pancreas** and the surrounding area. Doctors can check the images for signs of cancer.

You'll need to drink plenty of fluids and avoid eating for several hours before the scan. And your doctor will inject a dye that will help to show up your internal organs and blood vessels. You then will lie on a bed that passes through the machine as the machine takes pictures.

The CT scan is the **best first test** for pancreas cancer because doctors can easily see if the cancer has spread.

Endoscopic retrograde cholangiopancreatography (ERCP)

This technique is a way for your doctor to look closely at the thin tubes that come out of your pancreas. These tubes are called ducts. They carry juices out of the pancreas. Pancreas cancer often starts in the ducts.

Your doctor passes a thin, flexible tube through your mouth and stomach and down into the first part of your small intestine (your duodenum). The tube is called an endoscope. Your doctor will inject a dye down the endoscope. The dye makes your pancreas and the surrounding area easier to see. Your doctor will take x-ray pictures of your abdomen. [21]

If you have an ERCP, you'll be given painkillers and a sedative to relax you. It may make you feel uncomfortable and nauseous. You mustn't eat anything the night before. It will last about 30 minutes to 40 minutes and you can have it done as an outpatient.

This procedure can have side effects, such as:

- Inflammation of the pancreas (called pancreatitis)
- An infection
- Bleeding.

During the ERCP, your doctor can use the endoscope to take a sample of any lumps in or near your pancreas. Doctors can look at these in a laboratory to see if the lump is cancer. This is called a biopsy.

You can also have a **stent** put in during an ERCP. This is a small tube that keeps your bile duct open.

To learn more, see [Having a tube put inside your bile duct](#).

After your operation

Here are some of the problems that you may get after surgery to remove pancreas cancer. [25]

- **Pain:** This is especially likely in the first few days after surgery. This can be helped by regular doses of strong painkillers. Be sure to tell your nurse or doctor if you're in pain.
- **Internal bleeding:** This sometimes happens when surgeons have to join part of your stomach to your intestines. Your doctor may need to put a tube with a small

Pancreas cancer

camera (an endoscope) down into your stomach to see what has happened. You may need another operation to stop the bleeding.

- **Leaking:** You may get a leak inside your body. Doctors call this a fistula. Digestive juices may leak into your abdomen. This can damage the other tissues there. It can also damage blood vessels and is another reason some people bleed inside after their surgery. If it's a minor leak, your doctor may just keep a close eye on it. But if the leak is more serious, you may need an operation to repair it. The leak may be of various types: bile, pancreas juice, or bowel content.
- **Infection:** This can happen in the skin near your wound or inside your abdomen. Your medical team will look out for signs of infection so that they can treat it quickly with antibiotics .
- **Problems digesting some kinds of food:** You may find it hard to digest food if you have all or part of your pancreas removed. This is because you may no longer make enough juices in your pancreas containing enzymes . These are chemicals that help you digest food. You may need to take enzyme supplements if the problem continues once you get home. Your health care team should also suggest a diet plan and medicines to help you with symptoms such as diarrhoea , pain, cramps, and feelings of fullness. ^[25]
- **Problems with bowel movements:** It's normal not to be able to have bowel movements in the first couple of days after your operation. But sometimes the problem can last for several days to one week. So you may not be able to digest food properly. Medicines may help to get your bowels moving again. You may have to eat only liquid food such as soups for a while. If you can't eat at all, you can have special liquid food through a tube in your nose or directly into your intestines. ^[25] Or you may be given food through a drip in your arm.
- **Problems with blood sugar levels:** You may not be making enough of a hormone called insulin, which helps you control the amount of sugar in your blood. This could put you at risk of diabetes . You may be given an insulin injection straight after your operation to help your body control your sugar levels. Once you're home, your doctor should check you for diabetes. Most people who develop diabetes can manage it by eating a special diet and taking tablets. However, some may need to have injections.

When you go home, you'll need to rest while your body heals, probably for at least one month. ^[25] Your medical team will advise you when you can start driving again and when you're fit enough to go back to work or to start doing your usual activities.

Once you start feeling better, your doctor/physiotherapist may recommend a regular walking regimen to help alleviate fatigue after your surgery. ^[26]

Pancreas cancer

Glossary:

pancreas

Your pancreas is an organ that's behind your stomach. It makes several different chemicals. Some of the chemicals help your body digest food. Your pancreas also makes a chemical called insulin, which helps your body use the sugar in your blood.

enzymes

Enzymes are chemicals in your body. They have lots of different functions, including playing a part in helping to digest food and starting other chemical reactions that keep the body working.

insulin

Insulin is a hormone that helps your body use glucose. Glucose is a type of sugar that gives you energy. Insulin keeps the levels of glucose in your body steady. Insulin also helps glucose to be carried in your blood, so that the glucose can get into your cells. People who have diabetes do not have enough insulin or do not react to insulin strongly enough. This means they can get too much glucose in their blood.

liver

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

lymphatic system

The lymphatic system is your body's way of clearing unwanted materials from your blood and tissues. It includes a network of lymph nodes that filter these materials to detect if there is an infection that needs to be dealt with by your immune system.

lymph nodes

Lymph nodes (also called lymph glands) are small, bean-shaped lumps that you can't usually see or feel easily. You have them in various parts of your body, such as your neck, armpits, and groin. Lymph nodes filter lymph and remove unwanted things from your body, such as bacteria and cancer cells.

spleen

Your spleen is an organ that sits on the left side of your body just below your ribs. It helps your body fight infections.

gall bladder

The gall bladder is a small organ below the liver on the right side of the abdomen. Its job is to store bile, a chemical made in the liver that helps to break down food in the intestines. The chemicals in the gall bladder can, under certain circumstances, become solid and form small stones. If a stone gets stuck in the tubes that empty the gall bladder, there can be a backup of fluid, causing the gall bladder to swell and possibly become infected. This condition is called gall bladder disease.

obesity

If your body stores more energy than you need, this can make you overweight. The excess energy is stored in your fat cells. If your weight goes above a certain level, doctors call this obesity. Obesity is considered a medical condition. The excess weight can be a strain on your bones and joints. And if you are obese, you're more likely to get other diseases. Doctors have developed a scale for telling how much excess weight you have. This measure, called the body mass index (BMI), depends on your height.

genes

Your genes are the parts of your cells that contain instructions for how your body works. Genes are found on chromosomes, structures that sit in the nucleus at the middle of each of your cells. You have 23 pairs of chromosomes in your normal cells, each of which has thousands of genes. You get one set of chromosomes, and all of the genes that are on them, from each of your parents.

diabetes

Diabetes is a condition that causes too much sugar (glucose) to circulate in the blood. It happens when the body stops making a hormone called insulin (type 1 diabetes) or when insulin stops working (type 2 diabetes).

hormones

Hormones are chemicals that are made in certain parts of the body. They travel through the bloodstream and have an effect on other parts of the body. For example, the female sex hormone oestrogen is made in a woman's ovaries. Oestrogen has many different effects on a woman's body. It makes the breasts grow at puberty and helps control periods. It is also needed to get pregnant.

counsellor

A counsellor is a professional who is trained to help people, usually with the emotional part of their illness. Counsellors talk to people about their illness. They also suggest ways that people can make changes for the better.

dietitian

A dietitian is a health professional who is trained to give people advice about what they eat.

clinical trials

Clinical trials are studies that are done to see if a treatment works. They generally involve comparisons between groups of patients who do receive the treatment and those who do not receive the treatment, to see if those receiving the treatment do better.

Pancreas cancer

biopsy

Biopsy is when doctors remove some tissue from a part of your body, so that it can be examined under a microscope.

X-ray

X-rays are pictures taken of the inside of your body. They are made by passing small amounts of radiation through your body and then onto film.

CT scan

A CT scan is a type of X-ray. It takes several detailed pictures of the inside of your body from different angles. CT stands for computed tomography. It is also called a CAT scan (computed axial tomography).

local anaesthetic

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

ultrasound

Ultrasound is a tool doctors use to create images of the inside of your body. An ultrasound machine sends out high-frequency sound waves, which are directed at an area of your body. The waves reflect off parts of your body to create a picture. Ultrasound is often used to see a developing baby inside a woman's womb.

ultrasound probe

Ultrasound is a technique doctors use to create images of the organs in your body. An ultrasound probe is a device that lets the ultrasound machine focus on an area of your body. The ultrasound machine can then send out high-frequency sound waves, which reflect off parts of your body to create a picture.

sedation

A feeling of relaxation and calm, or the act of creating a feeling of calm by administering a drug.

inflammation

Inflammation is when your skin or some other part of your body becomes red, swollen, hot, and sore. Inflammation happens because your body is trying to protect you from germs, from something that's in your body and could harm you (like a splinter) or from things that cause allergies (these things are called allergens). Inflammation is one of the ways in which your body heals an infection or an injury.

chemotherapy

The use of chemicals or drugs to treat or prevent disease, usually cancer.

radiotherapy

This is also called radiation therapy. It is a treatment that uses high-energy X-rays to kill cancer cells. It's most often used for tumours that are hard to treat with surgery alone. You won't feel any pain during this treatment, but you may get some side effects afterwards.

general anaesthetic

You may have a type of medicine called a general anaesthetic when you have surgery. It is given to make you unconscious so you don't feel pain when you have surgery.

antibiotics

These medicines are used to help your immune system fight infection. There are a number of different types of antibiotics that work in different ways to get rid of bacteria, parasites, and other infectious agents. Antibiotics do not work against viruses.

diarrhoea

Diarrhoea is when you have loose, watery stools and you need to go to the toilet far more often than usual. Doctors say you have diarrhoea if you need to go to the toilet more than three times a day.

randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

intravenous infusion

When a medicine or a fluid, such as blood, is fed directly into a vein, it's called an intravenous infusion (or IV). To give you an intravenous infusion, a nurse, technician or a doctor places a narrow plastic tube into a vein (usually in your arm) using a needle. The needle is then removed and the fluid is infused (or dripped) through the tube into the vein.

platelets

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Platelets are small disc-shaped particles found in your blood (along with red blood cells and white blood cells). Platelets form the clots that stop the bleeding when you've been cut. People who don't have enough platelets have problems with bleeding too much.

NSAIDs

NSAID stands for nonsteroidal anti-inflammatory drug. NSAIDs help with pain, inflammation and fever. They are called 'nonsteroidal' because they don't contain any steroids. Aspirin and ibuprofen are both NSAIDs.

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