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Pancreatic Cancer

Pancreatic cancer (cancer of the pancreas) mainly occurs in people aged over 60. If it is diagnosed at an early stage then an operation to remove the cancer gives some chance of a cure. In general, the more the cancer has grown and spread (the more advanced the cancer), the less chance that treatment will be curative. However, treatment can often slow the progress of the cancer.

What is pancreatic cancer?

Pancreatic cancer is a [cancerous growth](#) in the pancreas. The pancreas is a gland located behind the stomach and in the upper part of your tummy (abdomen).

For more information about the pancreas, including pancreas location, see [What does the pancreas do?](#)

How common is pancreatic cancer?

Pancreatic cancer is the 11th most common cancer in the UK. It accounts for 3 in 100 of all new cancer cases. There are about 10,000 new pancreatic cancer cases every year, which is 27 new cases per day.

Types of pancreatic cancer

There are several types of pancreatic cancer but more than 9 in 10 of all cases are caused by a pancreatic adenocarcinoma.

Ductal adenocarcinoma of the pancreas

This type of cancer develops from a cell which becomes cancerous in the pancreatic duct. This multiplies and a tumour then develops in and around the duct. As the tumour enlarges:

- It can block the bile duct or the main pancreatic duct. This stops the drainage of bile and/or pancreatic fluid into the first part of the gut, known as the duodenum.
- It invades deeper into the pancreas. In time it may pass through the wall of the pancreas and invade nearby organs such as the duodenum, stomach or liver.
- Some cells may break off into the lymph channels or bloodstream. The cancer may then spread to nearby lymph nodes or spread to other areas of the body (metastasis).

Other types of pancreatic cancer

There are some rare types of cancer which arise from other types of cells within the pancreas. For example, cells in the pancreas that make insulin or glucagon can become cancerous (insulinomas and glucagonomas). These behave differently to ductal adenocarcinoma. For example, they may produce too much insulin or glucagon.

[See the separate leaflet called Cancer for more general information about cancer.](#)

The rest of this leaflet only discusses pancreatic adenocarcinoma.

Pancreatic cancer causes

A cancerous tumour starts from one abnormal cell. The exact reason why a cell becomes cancerous is unclear. It is thought that something damages or alters certain genes in the cell. This makes the cell abnormal and multiply out of control. [See the separate leaflet called Causes of Cancer for more details.](#)

Many people develop cancer of the pancreas for no apparent reason. However, certain risk factors increase the chance that pancreatic cancer may develop. These include:

- Ageing. It is more common in older people. Most cases are in people aged over 60.
- [Smoking](#).
- Diet. Eating a diet high in fat and meat seems to increase the risk.
- [Obesity](#).
- [Persistent inflammation of the pancreas \(chronic pancreatitis\)](#). Most cases of chronic pancreatitis are due to drinking a lot of alcohol. There are other less common causes.
- [Diabetes](#). **Note:** diabetes is common and the vast majority of people with diabetes do **not** develop pancreatic cancer.
- Chemicals. Heavy exposure at work to certain pesticides, dyes and chemicals used in metal refining may increase the risk.

- Genetic and hereditary factors. Most cases of pancreatic cancer do **not** run in families. However, some families have a higher incidence of pancreatic cancer than average. It is thought that about 1 in 10 pancreatic cancers are due to inheriting an abnormal gene. See below for information about screening for people who are at higher risk of pancreatic cancer.

Pancreatic cancer symptoms

Symptoms of a blocked bile duct

In about 7 in 10 cases the tumour first develops in the head of the pancreas. A small tumour often causes no symptoms at first. As the tumour grows it tends to block the bile duct. This stops the flow of bile into the first part of the gut, known as the duodenum, which leads to:

- [Yellow skin \(jaundice\)](#) - caused by bile seeping into the bloodstream due to the blockage.
- Dark urine - caused by the jaundiced blood being filtered by the kidneys.
- Pale stools (faeces) - as the faeces contain no bile which causes their normal brown colour.
- Generalised [itch](#) - caused by the bile in the bloodstream.

Pain is often not a feature at first. Therefore, a painless jaundice that becomes worse is often the first sign of pancreatic cancer. Feeling sick (nausea) and being sick (vomiting) are also fairly common symptoms.

Other symptoms

As the cancer grows in the pancreas, further symptoms that may develop include:

- [Pain in the upper tummy \(abdomen\)](#). Pain can also pass through to the back.
- You may feel generally unwell and lose weight. These symptoms are often the first to develop if the cancer develops in the body or tail of the pancreas (when the bile duct is not blocked).
- You may not digest food very well, as the amount of pancreatic fluid will be reduced. This can cause smelly pale faeces and weight loss.
- Rarely, [diabetes](#) develops if nearly all the pancreas is damaged by the tumour.
- Rarely, a tumour can trigger inflammation of the pancreas ([acute pancreatitis](#)). This can cause severe abdominal pain.

If the cancer spreads to other parts of the body, various other symptoms can develop, depending on where the cancer spreads to - eg, liver, lungs, bone or brain.

How is pancreatic cancer diagnosed?

Initial assessment

There are many causes of yellow skin (jaundice) and of the other symptoms listed above - for example, a blockage caused by a gallstone or liver inflammation (hepatitis). Therefore, some initial tests are usually arranged if you develop jaundice or the other symptoms listed above. Typically, these include [an ultrasound scan of the tummy \(abdomen\)](#) and various blood tests. These initial tests can usually give a good idea if the cause of jaundice is a blockage from the head of the pancreas.

Pancreatic cancer stages

If you are confirmed to have pancreatic cancer, or it is strongly suspected from the initial tests, further tests may be done to assess if it has spread. For example:

- [A computerised tomography \(CT\) scan](#) is a commonly used test to assess pancreatic cancer. It is a specialised X-ray test that can give quite clear pictures of the inside of your body.
- [A magnetic resonance imaging \(MRI\) scan](#) is sometimes done. An MRI scan uses a strong magnetic field and radio waves to create computer pictures of tissues, organs and other structures inside your body.
- [An endoscopic ultrasound scan \(EUS\)](#). An endoscope (gastroscope) is a thin, flexible, telescope. It is passed through the mouth, into the gullet (oesophagus) and stomach and on into the first part of the gut, known as the duodenum. The endoscope contains fibre-optic channels which allow light to shine down so the doctor or nurse can see inside. Some endoscopes are fitted with a tiny ultrasound scanner at their tip, which can obtain pictures of structures behind the gut, such as the pancreas.
- [A chest X-ray](#).
- [A laparoscopy](#). This is a procedure to look inside your abdomen by using a laparoscope. A laparoscope is like a thin telescope with a light source. It is used to light up and magnify the structures inside the abdomen. A laparoscope is passed into the abdomen through a small cut (incision) in the skin.
- [PET-CT](#). The National Institute for Health and Care Excellence (NICE) guideline on the diagnosis and management of pancreatic cancer recommends the use of a different type of CT scan, called PET-CT. The scan will speed up diagnosis and more accurately determine the stage of pancreatic cancer. Using these scans will mean that more people whose cancer has spread and is inoperable will not have unnecessary surgery that cannot cure their disease. Increasing the use of this scan will limit the damaging side-effects of surgery for patients and ensure those with inoperable cancer can get earlier access to other treatments such as chemotherapy.

This assessment is called staging of the cancer. The aim of staging is to find out:

- How much the tumour in the pancreas has grown and whether it has grown partially or fully through the wall of the pancreas.
- Whether the cancer has spread to local lymph nodes.

- Whether the cancer has spread to other areas of the body (metastasised).

By finding out the stage of the cancer, it helps doctors to advise on the best treatment options. It also gives a reasonable indication of outlook (prognosis). [See the separate leaflet called Stages of Cancer for more details.](#)

Biopsy

A [biopsy](#) is a procedure in which a small sample of tissue is removed from a part of the body. The sample is then examined under the microscope to look for abnormal cells. If a biopsy is thought to be needed then one way to obtain a sample from the pancreas is to take the biopsy sample when you have an endoscopy. This is done by passing a thin grabbing instrument down a side channel of the endoscope (gastroscope). Alternatively, sometimes a biopsy is done at the same time as having a scan. It can take two weeks for the result of a biopsy.

Screening for pancreatic cancer

Screening can help to diagnose pancreatic cancer early when it's more likely to be curable. In the UK, there is no screening programme for pancreatic cancer that is available for everyone. However screening is available for people who are at higher-than-average risk of pancreatic cancer.

The European Registry of Hereditary Pancreatitis and Familial Pancreatic Cancer (EUROPAC) is an organisation based in Liverpool that is involved in researching pancreatic cancer. It runs a screening programme for people who may be at high risk. However this is a study and the recruitment end date is 30 September 2022.

The screening is available for people over 40 years old who have:

- Hereditary pancreatitis (a rare inherited condition causing inflammation of the pancreas).
- A high incidence of pancreatic cancer in their family (familial pancreatic cancer).
- A family history of at least one person with pancreatic cancer, and have a linked cancer syndrome - eg, BRCA2 gene fault (mutation).

People as young as 30 are also occasionally considered for screening, depending on their family history.

The exact method and frequency of screening is considered individually, but screening includes a CT scan, an endoscopic ultrasound scan, a blood test to check for the CA19-9 tumour marker, and a blood test to check the level of sugar in your blood. The screening tests are repeated every 1-3 years, depending on your risk.

Talk to your doctor if you think you are at higher-than-average risk of pancreatic cancer.

Editor's Note

January 2019 - **Dr Sarah Jarvis**

NICE has issued new quality standards for people with suspected or diagnosed pancreatic cancer. They recommend that:

- If you have suspected pancreatic cancer, your diagnosis and care should be agreed by a specialist pancreatic cancer multidisciplinary team (MDT). This includes surgeons, cancer specialist doctors, nurses and other healthcare professionals.
- If you are diagnosed with pancreatic cancer which has not spread, you should be offered a fluorodeoxyglucose positron-emission tomography/CT (FDG-PET/CT) scan to check the stage of your condition before treatment.
- If you have cancer which is not suitable for surgery, you should be offered a medicine called enteric-coated pancreatin to replace the enzymes your pancreas usually produces.
- Your medical team should make sure you are offered the right help for your psychological needs.

Pancreatic cancer treatment

Treatment options that may be considered include surgery, chemotherapy and radiotherapy. The treatment advised for each case depends on various factors, such as how large the cancer is and whether it has spread (the stage of the cancer) and your general health.

You should have a full discussion with a specialist who knows your case. He or she will be able to give the pros and cons, likely success rate, possible side-effects and other details about the various possible treatment options for your type of cancer.

You should also discuss with your specialist the aims of treatment. For example:

- Treatment may aim to cure the cancer. Some pancreatic cancers can be cured if they are treated in the early stages of the disease. (Doctors tend to use the word remission rather than the word cured. Remission means there is no evidence of cancer following treatment. If you are in remission, you may be cured. However, in some cases a cancer returns months or years later. This is why doctors are sometimes reluctant to use the word cured.)
- Treatment may aim to control the cancer. If a cure is not realistic, with treatment it is often possible to limit the growth or spread of the cancer so that it progresses less rapidly. This may keep you free of symptoms for some time.

- Treatment may aim to ease symptoms. If a cure is not possible, treatments may be used to reduce the size of a cancer, which may ease symptoms such as pain. If a cancer is advanced then you may require treatments such as nutritional supplements, painkillers, or other techniques to help keep you free of pain or other symptoms.

Surgery

If the cancer is at an early stage then there is a modest chance that surgery can be curative. (An early stage means a small tumour which is confined within the pancreas and has not spread to the lymph nodes or other areas of the body).

- If the tumour is in the head of the pancreas then an operation to remove the head of the pancreas may be an option. This is a long and involved operation, as the surrounding structures, such as the first part of the gut, known as the duodenum, the stomach, the bile duct, etc, need to be rearranged once the head of the pancreas is removed.
- If the tumour is in the body or tail of the pancreas then removal of the affected section of the pancreas is sometimes an option.

The reason why the chance of cure is only modest is because in a number of cases thought to be in an early stage, some cells have already spread to other parts of the body but are not yet detectable by scans or other staging tests. In time they grow into secondary tumours.

If the cancer is at a later stage then surgery is not an option to cure the disease. Some surgical techniques may still have a place to ease symptoms. For example, it may be possible to ease the yellow skin (jaundice) caused by a blocked bile duct. A bypass procedure may be used, or a stent may be inserted into the bile duct. (A stent is a small rigid tube made of plastic or metal which aims to keep a duct or channel open. It is usually inserted by instruments attached to an endoscope.)

Chemotherapy

Chemotherapy is a treatment of cancer by using anti-cancer medicines which kill cancer cells or stop them from multiplying. [See the separate leaflet called Chemotherapy for more details](#). When chemotherapy is used in addition to surgery it is known as adjuvant chemotherapy. For example, following surgery you may be given a course of chemotherapy. This aims to kill any cancer cells which may have spread away from the primary tumour.

Radiotherapy

Radiotherapy is a treatment which uses high-energy beams of radiation which are focused on cancerous tissue. This kills cancer cells, or stops cancer cells from multiplying. [See the separate leaflet called Radiotherapy for more details](#). Radiotherapy is not commonly used to treat pancreatic cancer.

Pancreatic cancer prognosis

If a pancreatic cancer is diagnosed and treated at an early stage then there is a modest chance of a cure with surgery. As a rule, the smaller the tumour, and the earlier the tumour is diagnosed, the better the outlook. Some tumours which develop in the head of the pancreas are diagnosed very early, as they block the bile duct and cause yellow skin (jaundice) fairly early on. This obvious symptom is then investigated and surgery to remove a small tumour may be curative

However, most pancreatic cancers are advanced before they cause symptoms and are diagnosed. A cure is unlikely in most cases. However, treatment may slow down the progression of the cancer.

What is the survival rate of pancreatic cancer?

Only 1 in 100 people diagnosed with pancreatic cancer in England and Wales survive their disease for ten years or more. 3 in 100 survive their disease for five years or more. About 1 in 5 survive their disease for one year or more. Pancreatic cancer survival in England is higher for people diagnosed aged under 50 years.

Pancreatic cancer research

The treatment of cancer is a developing area of medicine. New treatments continue to be developed and the information on outlook above is very general. The specialist who knows your case can give more accurate information about your particular outlook and how well your type and stage of cancer are likely to respond to treatment.

Further reading & references

- [Pancreatic cancer in adults: diagnosis and management](#); NICE Guideline (Feb 2018)
- [Cancer of the pancreas: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up](#); European Society for Medical Oncology (2015)
- [Cancer Types](#); Cancer Research UK
- [Pancreatic Cancer Treatment \(Patient Version\)](#). PDQ Cancer Information Summaries. National Cancer Institute (US). 2018.
- [Gurusamy KS, Kumar S, Davidson BR, et al; Resection versus other treatments for locally advanced pancreatic cancer. Cochrane Database Syst Rev. 2014 Feb 27;2:CD010244. doi: 10.1002/14651858.CD010244.pub2.](#)
- [Matsubayashi H, Takaori K, Morizane C, et al; Familial pancreatic cancer: Concept, management and issues. World J Gastroenterol. 2017 Feb 14;23\(6\):935-948. doi: 10.3748/wjg.v23.i6.935.](#)
- [European Registry of Hereditary Pancreatitis and Familial Pancreatic Cancer \(EUROPAC\)](#); Familial pancreatic cancer.
- [NICE Pancreatic cancer - quality standards](#)

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