What is pancreatic cancer?

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The pancreas

The pancreas is an organ in the digestive system that produces enzymes, which break down food so it can be absorbed and used by the body. It is a long, irregular shaped gland about 13–15cm long that lies between your stomach and spine.

The pancreas is divided into:

- a large rounded section called the head of the pancreas
- the middle part known as the body
- the narrow end called the tail.

A tube called the pancreatic duct connects the pancreas to the first part of the small bowel (duodenum). Another tube called the common bile duct joins with the pancreatic duct and connects the liver and gall bladder to the small bowel. The common bile duct carries bile, a substance that helps to digest fats.

The pancreas contains two types of glands: the exocrine glands and the endocrine glands. These release substances that help with digestion.

- **Exocrine glands** - These produce juices called enzymes that help break down food. The juices flow through the pancreatic duct from the pancreas into the duodenum. Most of the pancreas is made up of exocrine glands.
- **Endocrine glands** - These are scattered amongst the exocrine glands in small clusters called pancreatic islets (or islets of Langerhans). They release hormones that control the amount of sugar in the blood. The hormone insulin decreases blood sugar levels, while the hormone glucagon increases blood sugar levels.
What is pancreatic cancer?

Pancreatic cancer occurs when malignant cells develop in part of the pancreas. This may affect how the pancreas works, including the functioning of the exocrine or endocrine glands.

Pancreatic cancer can occur in any part of the pancreas, but about 70% of pancreatic cancers are located in the head of the pancreas.

Pancreatic cancer can also spread to nearby lymph nodes (part of the immune system), blood vessels or nerves. Cancer cells may travel through the bloodstream to other parts of the body, such as the liver.

Types of pancreatic tumours

There are two main types of tumours that occur in the pancreas:

Exocrine tumours

Make up the majority of pancreatic tumours. The most common exocrine tumour, called an adenocarcinoma, begins in the lining of the pancreatic duct. Other types of exocrine tumours include adenosquamous carcinomas and undifferentiated carcinomas. The name of the cancer is taken from the type of cells involved.
Pancreatic NETs (neuroendocrine tumours)

Pancreatic NETs begin in the endocrine cells. These cells produce hormones that control the growth of cells in the body. Pancreatic NETs are categorised as either hormone secreting (functioning) or non-hormone secreting (non-functioning). Functioning tumours are usually named after the type of hormone they produce.

Types of functioning pancreatic NETs include:

- gastrinomas – produce too much gastrin
- insulinomas – produce too much insulin
- glucagonomas – produce too much glucagon
- somatostatinomas – produce too much somatostatin
- VIPomas – create a hormone-like substance called vasoactive intestinal polypeptide (VIP).

How common is it?

About 2600 Australians are diagnosed with pancreatic cancer each year. The average age at diagnosis is 72. Pancreatic cancer was estimated to be the tenth most common cancer in both males and females in Australia during 2014. The majority (more than 90%) of pancreatic cancers are exocrine tumours.

Symptoms of pancreatic cancer

Early stages of pancreatic cancer rarely cause symptoms. Symptoms often only appear once the cancer is large enough to affect nearby organs, or has spread.

Symptoms of pancreatic cancer may include:

- jaundice – yellowish skin and eyes, dark urine, pale bowel motions and itchiness of the skin
- indigestion (heartburn)
- appetite loss
- nausea and/or vomiting
- unexplained weight loss
- pain in the upper abdomen, side or back, which may cause you to wake up at night
- changed bowel motions – including diarrhoea, severe constipation, or pale, foul-smelling stools that are difficult to flush away.

Additional symptoms of pancreatic NETs include:

- too much sugar in the blood (hyperglycaemia)
- a drop in blood sugar (hypoglycaemia)
- blurred vision
- excessive thirst
- increased urination.

These symptoms do not necessarily mean that you have cancer; they can indicate other conditions. However you should see your doctor if you have any of these symptoms.

Risk factors

Research has shown that people with certain risk factors are more likely than others to develop pancreatic cancer.

Risk factors include:

- ageing – pancreatic cancer is most common in people over 65
• **smoking** – cigarette smokers are two to three times more likely to develop pancreatic cancer
• **new onset type 2 diabetes** – about 15 to 20 per cent of people with pancreatic cancer have newly diagnosed diabetes
• **pancreatitis** - chronic inflammation of the pancreas.

### Family history and inherited conditions

Most people with pancreatic cancer do not have a family history of the disease. However, about one in 10 people who develops pancreatic cancer has a faulty gene that can run in families.

You may have an inherited family risk if you have two or more first-degree relatives affected by pancreatic cancer, or a history of an inherited syndrome.

Some inherited syndromes that may increase the risk of pancreatic cancer include Peutz-Jeghers syndrome, the familial breast cancer gene (BRCA1 and BRCA2), familial atypical multiple mole melanoma syndrome, Lynch syndrome and hereditary pancreatitis.

Some pancreatic NETs are caused by a rare inherited syndrome, such as multiple endocrine neoplasia type 1 (MEN-1) or neurofibromatosis.

If you are concerned about your family history or want to know more about genetic testing, talk to your doctor or visit the [Australian Familial Pancreatic Cancer Cohort (AFPaCC)](https://www.cancersa.org.au/information/a-z-index/what-is-pancreatic-cancer) website.

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