



# Pancreatitis Supporters Network

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## CANCER OF THE PANCREATITIS

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Finally, we would like to acknowledge the work of the Europac site for those of us with Pancreatitis: **EUROPAC** - European Register for Familial Pancreas Cancer and Hereditary Pancreatitis. The principal register in Europe providing advice and research in inherited pancreatic disorders.

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# CANCER OF THE PANCREAS

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## INTRODUCTION

This booklet is one of a series on pancreatic disorders written by Professor Neoptolemos. Its aim is to provide you, the patient, with useful information on the particular pancreatic problem you are suffering from, the procedures and tests you may need to undergo, and helpful advice on coping successfully with the problem. If you require any further information or advice or are unsure about anything, your doctor will be able to help.

## WHAT IS THE PANCREAS?

The pancreas is a solid gland measuring 20-25cm in length, 4-6cm in width and 3-4cm in depth. It is firmly attached in the back of the abdominal cavity behind the stomach. The pancreas is divided into 5 parts – the head, the uncinate process, the neck, the body and the tail. The head of the gland is closely attached to the duodenum which is the first part of the small intestine into which the stomach empties liquids and partially digested food. The head of the gland is situated just to the right of the midline of the abdomen and below the right rib-cage.

The uncinate process is an extension of the lower part of the head of the gland which surrounds important blood vessels. The body and tail of the pancreas lie at an angle so that the tail of the pancreas is situated beneath the extreme edge of the left rib cage. The tail of the gland is closely attached to the central part of the spleen with which it shares a common blood supply. Running behind the neck and uncinate process are many important blood vessels which supply the liver, the rest of the gut organs and the kidneys, including the aorta (an artery) which takes all the blood to the lower abdomen and legs, and the inferior vena cava (a vein) which returns blood from these areas.

## WHAT DOES THE PANCREAS DO?

The pancreas does two important things:

- It makes enzymes which are necessary to digest food in the intestines
- It produces insulin to enable every part of the body to use glucose (sugar).

### 1. DIGESTION

Food is partly broken down by the acid and churning action of the stomach. After 1-2 hours food is slowly released into the duodenum through a valve called the pylorus. Here, and as it moves along the rest of the small bowel, the food is broken down into tiny particles. Nutrients are absorbed by the small intestine and used for energy and maintaining strong muscles and bones. Unwanted material passes into the large bowel (colon) and after 24 hours or so is excreted as stool via the rectum and anus.

Digestion of food which consists of carbohydrates (e.g. glucose), proteins (e.g. meat) and fat (e.g. butter) is not possible without the pancreas. Groups of glands in the pancreas (called acini) make 30 or so different enzymes each of which is responsible for breaking down clumps of different types of food into small particles for absorption. These enzymes are collected from the small glands in the pancreas into small ducts and finally into the main pancreatic duct to be released into the duodenum.

The enzymes when they are first made in the acini are not active (otherwise they would digest the pancreas as well!). When they pass into the duodenum however, they are made active by the juice of the duodenum. The main enzymes are called amylase for digesting carbohydrates, trypsin for digesting proteins and lipase for digesting fats.

Digestion is also assisted by enzymes made and released by the salivary glands (amylase), tongue (lipase), stomach (pepsin and lipase) and small intestine (peptidases).

**The digestion of fat is very special.** Fat needs to be dispersed before the pancreatic enzymes can properly break it down. This dispersion of fats is made by bile acids which are present in bile produced by the gall bladder. Bile acids act in exactly the same way as detergents which are used to wash up greasy dishes. Therefore, both bile acids and pancreatic enzymes are needed for fat digestion. If there are not enough pancreatic enzymes, fat is not digested and the stools (bowel motions) become pale and greasy. These greasy stools may become difficult to flush away from the toilet and may give off a strong offensive smell. Doctors call this **steatorrhoea**, which is a way of saying fatty stool.

## 2. INSULIN AND GLUCOSE METABOLISM

All the cells of the body use glucose as a source of energy in order to maintain their different functions (e.g. electrical activity of the brain and contraction of the heart and muscles). Sugar comes directly from digestion or is made in the liver from concentrated forms of sugar (glycogen). The level of sugar in the blood is kept constant by special control mechanisms involving hormones. There are many different types of hormones each with a specific task. Hormones act as messengers and work like a key opening the lock of a door.

Hormones are made in different places, are then secreted into the blood and will work on cells at many different sites. Insulin is a hormone which unlocks a special 'door' in the cells of the body to allow glucose to pass in to the cells. If insulin is lacking, then sugar diabetes develops. Instead of entering the cells of the body, the sugar stays in the blood which is very harmful at high concentrations. Insulin is made in special groups of cells called islets of Langerhans which are dispersed throughout the pancreas gland. Most of the islets (pronounced 'eye-lets') are in the tail of the gland. Most of the pancreas can be removed but there are usually enough islets remaining to make insulin sufficient to prevent sugar diabetes (also called diabetes mellitus) from occurring. As you are probably aware, diabetes can be treated by taking regular injections of insulin, which can be taken from the pancreas of animals (e.g. pork insulin) or made by genetic engineering (so called 'human' insulin).

**Enzyme production and insulin production are independent.** Because digestive enzymes and insulin are made by different parts of the pancreas, a problem with enzyme production does not mean necessarily that there will be a problem with insulin production. Similarly, if there is a problem with insulin production, this does not mean necessarily that there will be a problem with enzyme production.

Assuming that the pancreas was normal to begin with, increasing loss of the pancreas gland (by disease or surgery) usually results in more loss of enzyme production before there is obvious loss of insulin production. Another way of saying this, is that the insulin 'reserve' is much more than the enzyme 'reserve' of the pancreas.

## SPECIAL INVESTIGATIONS FOR PROBLEMS WITH THE PANCREAS

Your doctor may need to do some tests to find out more about your particular problem. Perhaps you've already undergone one or more of them. The next section describes what these tests are, how and why they are done, and how they can help your doctor to treat your problem.

### I. ULTRASONOGRAPHY OR ULTRASOUND (US) SCAN:

This is a simple, painless and relatively quick investigation which can be used to obtain a 'picture' of the inside of the abdomen. The only preparation needed is for you to avoid eating for 6-8 hours prior to the test, as any fluid or food which is taken by mouth can obscure the pictures produced. Pictures are made using harmless sound waves. These waves bounce off interfaces between dense and less dense structures. The sound waves will not cross solid areas (such as bone) or areas containing air or other gas. Usually only a fairly simple picture of the pancreas, liver, bile ducts and gallbladder can be obtained.

The test is performed while you lie fully awake on a simple couch. A special jelly, a bit like Vaseline is used to enable the 'probe', which produces and collects the sound waves, to be moved over the skin of the abdomen. The radiologist (or his assistant called a radiographer) moves the probe around and looks at a TV screen while this is done to see what pictures are being made. Although sound waves are generated during the procedure these cannot be heard.

### II. COMPUTERISED TOMOGRAPHY (CT SCAN)

This is more complex and time consuming than an ultrasound scan but produces excellent pictures of the pancreas and other abdominal structures. As with ultrasound you need to avoid eating for 6-8 hours beforehand and is performed while you are fully awake.

You lie on a special couch attached to the CT scanner which looks like a large 'doughnut'. A CT scan uses X-rays which are emitted and collected through 360°. The couch is made to move through the doughnut as the X-rays are then put together by a computer to produce the pictures at different levels of the abdomen.

In order to make it easier to interpret the structures in the abdomen, you will be asked to swallow a liquid (or 'contrast'). This fills the stomach and the intestines. Another injection of a different contrast ('dye') is given into a vein (usually in the arm) during the second half of the procedure. This helps to show up the blood vessels.

An **MRI scan** is similar to a CT scan but uses magnetic resonance to image the pancreas instead of X-rays.

### III. ERCP

This is a special investigation for taking pictures of the bile ducts and pancreatic duct. It provides complementary and usually essential information to that given by ultrasound or CT. The full name of ERCP is rather a mouthful: endoscopic retrograde cholangiopancreatography! It involves inserting a special flexible telescope (the duodenoscope) into the mouth, down the gullet and into the stomach and then into the duodenum opposite the opening of the bile duct and pancreatic duct. A small tube (cannula) is then pushed into the opening (ampulla of Vater) and contrast ('dye') is injected into the ducts. You lie on an X-ray table to enable pictures of the ducts to be taken while the contrast is injected. Sometimes it is necessary to cut a small part of the opening using an electric current passed down a

needle which has been inserted into the telescope to permit the cannula to go into the ducts properly. If your doctor decides you should have an ERCP it is essential that you don't eat or drink anything for at least 8 hours before the test.

Usually a plastic tube is put into a vein of the right forearm or the back of the hand before you go to the X-ray department. You may need a drip of intravenous fluids and be given one or more antibiotics in the drip.

You will be asked to sign a consent form agreeing to this procedure because it is complicated. Normally you are taken on a trolley to the X-ray department and, after being checked by a nurse, asked to move onto the X-ray table. You will be asked to lie on your left side with your left arm behind your back and be given a throat spray of local anaesthetic. This taste awful but the feeling quickly goes, and it will stop any coughing during the procedure. A second spray may then be given under the tongue, which contains a substance to help the ampulla of Vater open up during the procedure. At this stage you are given a strong sedative by injection.

This is enough to make most patients very sleepy but not fully unconscious. It is very important that you are as relaxed as possible before and during the procedure. The telescope is easily passed into the mouth and stomach. There is then a strange sensation as air is introduced into the stomach. Belching should be avoided as the air helps the endoscopist to pass the tip of the telescope into the duodenum. Most patients usually do not remember anything of the procedure. The results may be explained to you or a relative on the ward but the best time to discuss the findings is at the next out-patient visit or the next day on the ward. If you are an out-patient, full details will also be sent to your GP. The results are not always easy to interpret and are usually combined with other tests to provide an overall diagnosis. It is always necessary for a friend or relative to drive you home if you have had an ERCP as an out-patient because it takes several hours of the effects of the drugs to wear off.

**Is ERCP safe?** ERCP is safe with no complications in about 95% of cases. There are occasionally complications from ERCP however, the most common of which are abdominal pain, acute pancreatitis, biliary infection and bleeding. It will be necessary to keep you in hospital overnight if there has been a complication. In most cases, the complications improve, and patients are soon discharged. Very occasionally the complication is serious, and death may result in a very small proportion of cases. For these reasons, an ERCP must be:

Performed by a specialist  
Performed for a good reason

#### IV. ENDOLUMINAL ULTRASOUND (EUS)

This is an endoscopic procedure rather like ERCP. Instead of x-ray pictures of the pancreas and bile ducts, EUS takes pictures by ultrasound. There are no complications with this procedure.

#### V. NEEDLE BIOPSY

Occasionally a small piece of tissue from the pancreas needs to be taken to help make a diagnosis. This can be done during ERCP, an ultrasound scan or a CT scan. During the latter procedures, local anaesthetic is injected into the skin. A fine needle is then introduced and its tip positioned using pictures from the scan before any tissue is taken.

Is needle biopsy safe? This is perhaps surprisingly safe but complications such as bleeding or acute pancreatitis can occur, but only very occasionally.

## TESTS FOR SUGAR DIABETES

The urine can be tested for sugar using a simple technique of dipping a special strip of paper into a sample. Depending on the amount of sugar, it changes colour (normally there is no sugar in the urine). Urine testing is often used as a screening test.

More precise tests involve measuring the actual glucose level in the blood by taking a blood sample from an arm vein. The blood glucose level can also be measured using another special paper strip dipped into a drop of blood obtained by pricking the pulp end of a finger tip. This latter method (and sometimes urine testing) is used by patients who are known diabetics to adjust their own insulin requirements.

A patient who is thought to be developing diabetes can be tested by a glucose intolerance test. This involves taking a glucose drink following an overnight fast and then measuring the blood glucose level from blood samples taken over the next 2-3 hours.

## TESTS FOR PANCREATIC ENZYME PRODUCTION

These tests are not as accurate as determining blood glucose levels because many factors are involved in the digestion of food by pancreatic enzymes. Few patients actually require such a test since the clinical outcome is the most important factor. This means that if a patient has greasy stools and is losing weight, then pancreatic enzyme supplements (tablets or capsules) are required. The number of tablets or capsules will be increased by the doctor, or the patient will be instructed by the doctor to do so until the symptoms disappear.

Nevertheless, confirmatory tests are usually required. None of these tests is ideal and different institutions use different tests. The precise details of these are not required but may include the following:

**Faecal Elastase Test:** Elastase is one of the enzymes produced by the pancreas to digest protein. There is always a small extra amount produced which means that it can be measured in the stool. The extra amount of elastase produced is related to the amount of normal pancreatic function. The faecal elastase test is used for screening and monitoring. More complicated tests may also need to be used.

**PLT or Pancreato-Lauryl Test:** A standard meal is taken following an overnight fast along with a test 'food' (with PLT). One or more blood tests or a urine test is then made to see if the test 'food' has been digested (by the pancreatic enzymes) and then absorbed.

**Triolein breath test:** This is a more specific test for fat digestion and absorption and is fairly simple to perform. Triolein is a fat which contains a minute trace of radioactive carbon. The amount of fat metabolised is determined by taking a simple breath test at a fixed time following ingestion of a small amount of triolein.

**Faecal fat test:** This is an excellent way of determining fat digestion but involves collecting stools for 1-3 days. As you can imagine this is not popular with either patients or the laboratory staff who have to make the measurement. (At the same time pancreatic enzymes present in the stool can also be measured).

**Secretin test:** This is performed in specialist units and is very accurate (like the faecal fat test). After an overnight fast a special tube is passed through the nose into the stomach and the farthest part of the duodenum. The tube has two separate 'pipes' which drain fluid from the stomach and duodenum. The

fluid from the duodenum contains the pancreatic enzymes and bicarbonate. Following the first 30-40 minutes an injection into a vein is given to stimulate the pancreas to produce enzymes and bicarbonate. The injection contains the hormones CCK-PZ (cholecystokinin-pancreozymin) and secretin. Further collections of fluid are then made to see how well the pancreas has been stimulated. The whole test lasts 3-4 hours and is carried out as an out-patient procedure.

# CANCER OF THE PANCREAS

## WHAT IS CANCER?

Cancer can arise in any part of the body when particular cells begin to multiply more than normally and spread into other tissues. Cancer arises because of defects within the genes of cancer cells, although the reason for these defects arising in the first place is not known in most cases.

If left untreated, cancers cause harmful effects by invading vital tissues. Cancers sometimes produce harmful substances which can lead to poor appetite and weight loss.

## HOW IS CANCER TREATED?

Many cancers can be cured by surgery which is called 'curative surgery'. In some cases, even though the cancer cannot be removed or can be removed only partly, surgery is still very helpful in relieving symptoms, in which case it is called 'palliative surgery'.

Even if a patient has had 'curative surgery' the cancer cells may have already spread in blood vessels to other organs but cannot be seen or felt or diagnosed by investigations. Because of this it is often necessary to recommend additional treatment in the form of chemotherapy (giving drugs which kill cancer cells). This type of additional treatment is called 'adjuvant therapy' and helps to increase the chances of being cured properly.

If the cancer cannot be removed by surgery it is often useful to give chemotherapy, radiotherapy or a combination of these to slow down the growth of the cancer. This type of treatment is known as 'palliative therapy'.

There have been big advances in the use of chemotherapy and radiotherapy so that many of the serious side-effects that used to be seen with these treatments (such as loss of hair) do not occur frequently.

The use of chemotherapy and radiotherapy for many cancers is being improved all the time by asking patients to participate in clinical trials. This means that the doctor treating the patient is not sure which type of treatment is best and so will allocate one or other treatment with the patient's permission.

Inevitably some patients will die from cancer. It is important from the outset that the patient and relatives are both aware of what the situation is and are encouraged to talk freely about this between themselves and with friends. Most patients will be able to lead a normal life right up to the last few days or weeks. Pain and vomiting are a feature of some cancers but there are now very effective drugs to deal with both. No patient should suffer from unbearable pain.

There are now very good cancer services around the country. Macmillan Nurses are specially trained to deal with patients with cancer, who can visit the patient at home on a regular basis. Hospices are specialised hospitals dealing with the needs of patients with advanced cancer. Patients may be

attached to a hospice as an outpatient as well as being an in-patient. The most important doctor co-ordinating cancer care will be the General Practitioner. Many patients choose to spend their last days at home and health support services usually will be provided to make this possible. In some cases, depending on the home circumstances and the patient's particular problem, this is not possible so the hospice or even the hospital may be the best place.

It is always important to be open about the problem. Doctors involved with patients and their relatives will always be keen to discuss the issues and answer all their questions.

Remember that even if it is not possible to guarantee a cure, treatment can prolong life and give patients an excellent quality of life. Also, remember that cancer can be cured!

## WHAT IS CANCER OF THE PANCREAS?

The cause of pancreatic cancer is not known, although in the case of ductal-type cancer (see below) there is an association with smoking tobacco. Most commonly cancers of the pancreas arise in the head of the gland. This has two effects. First, the cancer blocks the bile duct leading to jaundice, dark urine and pale stools. There is sometimes itching of the skin due to jaundice which rapidly disappears once the blockage is cleared or bypassed. Second, the cancer blocks the pancreatic duct leading to poor digestion, loose motions and weight loss. This can be relieved by clearing the blockage or by giving pancreatic enzyme tablets. Diabetes may already be present in a number of patients prior to developing the cancer or become apparent soon after it is diagnosed or following surgery.

There are three principle types of cancer of the pancreas:

The commonest type is that arising from the small ducts of the pancreas (ductal-type adenocarcinoma). Most often it arises in the head of the gland and a principle feature is the development of jaundice. This type of cancer often occurs in individuals aged 60 years or older but it can affect younger people as well.

Less commonly, tumours may arise from the islets of Langerhans – so called islet or endocrine tumours. These tumours can be difficult to diagnose. Often these tumours are not malignant. Endocrine tumours can affect individuals at any age and it can even arise in small babies.

Tumours of the ampulla of Vater are also uncommon. They also cause jaundice and they tend to affect older patients.

## TREATMENT OF PANCREATIC CANCER

Partly depending upon the age of the patients, treatment may be by surgery to remove the tumour or to relieve the jaundice. Older patients who are not suitable for surgery may have their jaundice relieved by inserting a tube (stent) through the tumour during ERCP. The symptoms of some patients with certain types of endocrine tumour can be greatly relieved by special drugs.

It is possible to cure many patients with endocrine tumours or tumours of the ampulla of Vater by surgical removal. Cancer of the pancreatic ductal type is a much more difficult disease to treat by surgery and only about 15% of patients are suitable for resection. After surgery, it may be necessary to use chemotherapy. For patients with ductal-type cancer in whom resection is not possible, there are experimental treatments being tried, usually involving chemotherapy but the results are still somewhat unsatisfactory.



## OPERATIONS FOR CANCER

Removal of a pancreatic cancer by resection is a major procedure and will only be done by a specialist. Even so the complication rate is 40%. Although these complications can be dealt with about 5% of patients will not be able to leave hospital. Thus the success rate is about 95% but is better in younger, fitter patients. Thus selecting patients for resection is very important and requires several steps.

In all patients it is important to determine whether an operation is feasible ('staging'). This requires the use of a special CT scan. The specialist may request this investigation even if this has already been performed by the referring hospital. Another 'staging' procedure is to perform laparoscopy and/or laparoscopic ultrasound. This is a short operation under general anaesthetic. Using 'key hole' surgery a telescope is inserted into the abdomen to examine the organs. A special ultrasound 'probe' may be used to look at deeper tissues.

It is also necessary to ensure that all patients will be fit enough to survive the major surgery. Extra investigations may include recording heart activity (by an ECG), heart function (by a MUGA scan) and lung function (by PFTs). In addition you may be assessed by a heart specialist and will always be examined by a specialist anaesthetist.

The Kausch-Whipple operation (or just 'Whipple's') involves removing part of the stomach, the gallbladder and the bile duct, the duodenum and the head of the pancreas. In the pylorus-preserving Whipple's procedure, the stomach and pylorus are preserved. If the tumour is in the body or tail of the pancreas a left pancreatectomy is performed. In some cases, especially if there is a large cystic tumour or an endocrine tumour the whole pancreas (total pancreatectomy) is removed and combines the Whipple and left pancreatectomy procedures. In a left or total pancreatectomy the spleen will be removed (splenectomy). If the cancer cannot be removed, jaundice may be resolved by a biliary bypass procedure. In some cases of vomiting due to obstruction by tumour of the duodenum, a gastric bypass procedure will be undertaken.

Your specialist will give more details of which procedure is intended before you sign the consent form for operation.

## SURGERY FOR PAIN

If there is excessive pain because the cancer cannot be removed a special operation can be performed. The operation is called bilateral thoracoscopic sympathectomy (or 'BITS'). This cuts the nerves to the pancreas as they travel through the chest. The operation is done using 'keyhole' surgery under general anaesthesia. The operation lasts about 30 minutes and may be done as an outpatient procedure.

## DOES PANCREATIC CANCER RUN IN FAMILIES?

In general, the answer is NO. There are rare reports which suggest that pancreatic cancer might occur more frequently in one or two families. Knowing about such families would greatly assist in pancreatic cancer research and they would be advised to inform an active researcher (eg Prof J P Neoptolemos) through their hospital specialist or GP.

## LIVING WITHOUT A PANCREAS

There are some patients who have had either their pancreas removed or who still have pancreatic tissue but which is not functioning at all. Both types of patient are perfectly able to lead a normal life provided they take regular enzyme supplements and insulin injections.

## PANCREATIC ENZYME SUPPLEMENTS

There are many preparations available. These preparations differ considerably in their effectiveness of action. Modern preparations consist of capsules containing scores of small acid-resistant granules. The enzyme preparations can also be divided into two types depending upon their strength of action: regular and high strength. The capsules need to be taken during each meal and with any snack. Requirements vary enormously from patient to patient partly because of the different level of secretion by any functioning pancreas and partly because there are still some enzymes secreted by the salivary glands, tongue, stomach and small intestine but which also vary greatly from person-to-person.

In a few cases of children and adults with cystic fibrosis, a serious problem with the large bowel (colon) has been reported. This condition is called fibrosing colonopathy and causes narrowing of the bowel. It seems to be related to the use of a particular acid-resistant coating (called methacrylic acid copolymer) in some enzyme preparations. The problem does not arise with preparations without this coating. The ingredients are always listed on the pack leaflet or label. Once patients are accustomed to taking enzyme supplements, they are usually allowed to adjust the number they take themselves to suit their own individual needs.

## INSULIN

There are many types of insulin available including human insulin obtained by genetic engineering. Precise dosing and frequency of injections is an individual matter. Being under the care of a diabetic specialist is obviously important in the first instance.

## GASTRIC ACID SUPPRESSING TABLETS

Medication of this sort is often prescribed to be taken once or twice a day. Pancreatic juice normally counters the acid of the stomach. In the absence of the pancreas, there may be excess acid which can cause dyspepsia. There is also some evidence that taking this type of medication helps the action of pancreatic enzyme supplements which means that fewer capsules are required each day.

## LIVING WITHOUT A SPLEEN

Pancreatic surgery sometimes necessitates removal of the spleen. This is much more of a problem in children than adults. Without the spleen there is a small but real risk of developing a serious infection caused by certain bacteria especially pneumococcus. All children and adults without a spleen therefore require regular pneumococcal vaccination. All patients should also receive vaccination for meningococcus groups A and B, and children less than 4 years old require Haemophilus influenzae type b vaccination. Children may also need to take a daily antibiotic. Since the risk is much less in adults, daily antibiotics are not prescribed usually. Nevertheless if any infection develops, then appropriate antibiotics (such as penicillin or erythromycin) must be taken over-and-above any other types of antibiotic that are required.

Removal of the spleen sometimes causes the number of platelets in the blood to increase. This increases the risk of developing unwanted blood clots. Regular blood tests are therefore needed. If the number of platelets in the blood rises excessively, it is common practice to prescribe low-dose aspirin which reduces the risk of undesirable clotting.

## DOCTORS DEALING WITH PANCREATIC DISEASE THAT YOU MAY MEET

All surgeons are called 'Mr' and other medically qualified doctors are called 'Dr'. Either may be called 'Professor' if they work for a University. Senior doctors are called 'consultants' and the junior doctors are called house officers, senior house officer, registrar and senior registrar. In University departments, they are also called 'lecturer' (registrar or senior registrar) and 'senior lecturer' or 'reader' (consultants).

- **General physician:**  
A consultant medical doctor who works in a hospital and who is broadly specialised including 'gut' problems.
- **General surgeon:**  
A consultant surgeon who works in a hospital and who is broadly specialised including 'gut' problems.
- **Gastroenterologist:**  
A physician who is highly specialised in 'gut' problems and is usually an 'endoscopist'.
- **Endocrinologist:**  
A physician who is highly specialised in glandular problems including glandular problems including sugar diabetes.
- **Specialist surgeon:**  
A general surgeon who is highly specialised – a so called PB-specialist is a pancreato-biliary surgeon.
- **Endoscopist:**  
This may be a gastroenterologist or a surgeon who is able to undertake endoscopy (examination of the stomach or bowel using a flexible telescope). A few endoscopists can also perform ERCP, a specialist form of endoscopy that examines the bile ducts and pancreatic ducts.
- **Radiologist:**  
A consultant who only specialises in taking X-rays and scans of various sorts at the request of other specialists. A few radiologists are also expert endoscopists.
- **Paediatrician:**  
A consultant who specialises in the care of children and who may be called to investigate a pancreatic problem in young children or teenagers.
- **Geneticist:**  
A consultant who specialises in diseases which may be inherited. This is the only type of consultant who is properly qualified to provide counselling in cases where pancreatitis may run in families.
- **Dietician:**

This is a specialist who is not a doctor but is an expert in advising on various types of diet

## USEFUL ORGANISATIONS

### **Pancreatitis Supporters Network**

This is a support group which has members throughout the UK. The Network provides information and support to patients with pancreatitis and their relatives. This is a registered charity. For further information, write to

Mr Jim Armour  
Chairman, Pancreatitis Supporters Network  
PO Box 8938  
Birmingham  
B13 9FW  
Tel. 0121 449 0667

### **Pancreatic Society of Great Britain and Ireland**

This is a professional organisation of specialist doctors involved in the care of patients with pancreatic disease. The Society is allied to the European Pancreatic Club and the International Association of Pancreatology. For further information, write to: Mr R Charnley, Secretary, Pancreatic Society of Great Britain and Ireland, Department of Surgery, Freeman Hospital, Newcastle-upon-Tyne, NE7 7DN.

### **Pancreas Research Fund**

Specifically supports clinical and basic research of diseases of the pancreas. Write to: Pancreas Research Fund, Department of Surgery, Royal Liverpool University Hospital, Daulby Street, Liverpool, L69 3QA.

### **Digestive Disorders Foundation**

3 St Andrew's Place  
London  
NW1 4LB  
Tel : 0171 486 0341

### **EUROPAC**

European Register for Familial Pancreas Cancer and Hereditary Pancreatitis. The principal register in Europe providing advice and research in inherited pancreatic disorders. Write to: EUROPAC Co-ordinator, Department of Clinical Services, Alder Hey Children's Hospital, Eaton Road, Liverpool, L12 2AP.

[europac@liv.ac.uk](mailto:europac@liv.ac.uk)

<http://www.liv.ac.uk/surgery/europac.html>