



Whipple procedure

(Pancreaticoduodenectomy surgery)

A guide for patients
Waikato Hospital



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Introduction

Welcome to Waikato Hospital.

Coming into hospital may be a new experience for you. Understanding what happens during your stay will make your experience more pleasant and assist in your recovery.

This booklet is for patients who are having Whipple surgery. It aims to support what has been explained to you about getting ready to come to hospital, your hospital stay, your operation and recovery afterwards. It is important to remember that, because all people are different, this booklet cannot replace the information given to you by your specialist who knows you.

There may be words or phrases in this booklet that you do not clearly understand. Please ask your doctor or nurse to explain anything you are not clear about.

The staff at Waikato Hospital aim to make your stay in hospital safe and comfortable. Please don't hesitate to contact us if you have any queries regarding this information and your surgery, or alternatively your contact person in your region.

Key contacts:

My surgical team is lead by: _____

My key contact / specialist nurse is: _____

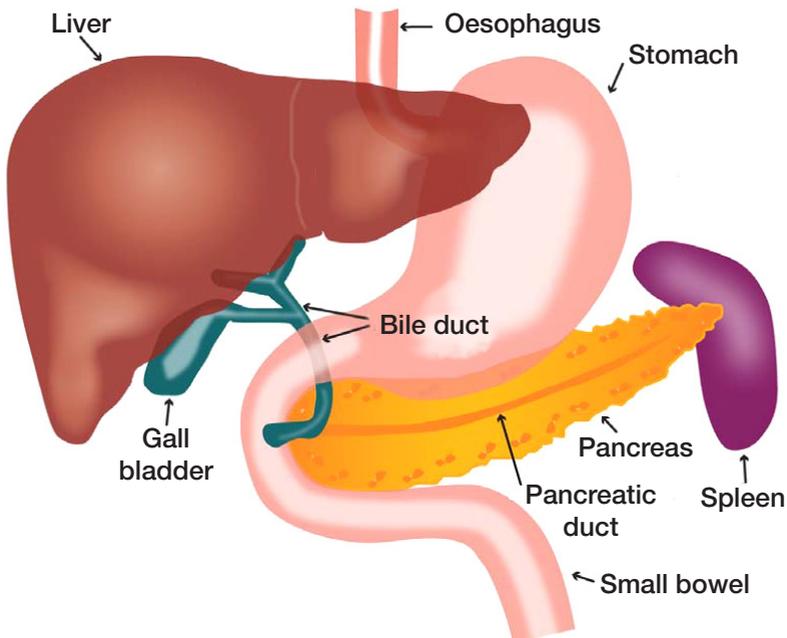
What is Whipple surgery?

Whipple is a term used to describe a *pancreaticoduodenectomy* which means the removal of the pancreas and duodenum. It is named after the American surgeon, Dr Whipple, who pioneered the operation in the 1930s. A Whipple is a major surgical operation and is performed for a variety of conditions of the pancreas, bile ducts or duodenum, including cancer. Sometimes the diagnosis is uncertain and the operation is done because of the possibility of cancer or because there is a benign tumour or inflammatory condition which is causing symptoms. As with all operations, there are risks and possible complications. A Whipple is a major operation, the risks and complications can be serious. It is important that you discuss with your surgeon how these risks relate to you individually.

The first section of this booklet explains the organs involved in the surgery and what the surgery entails.

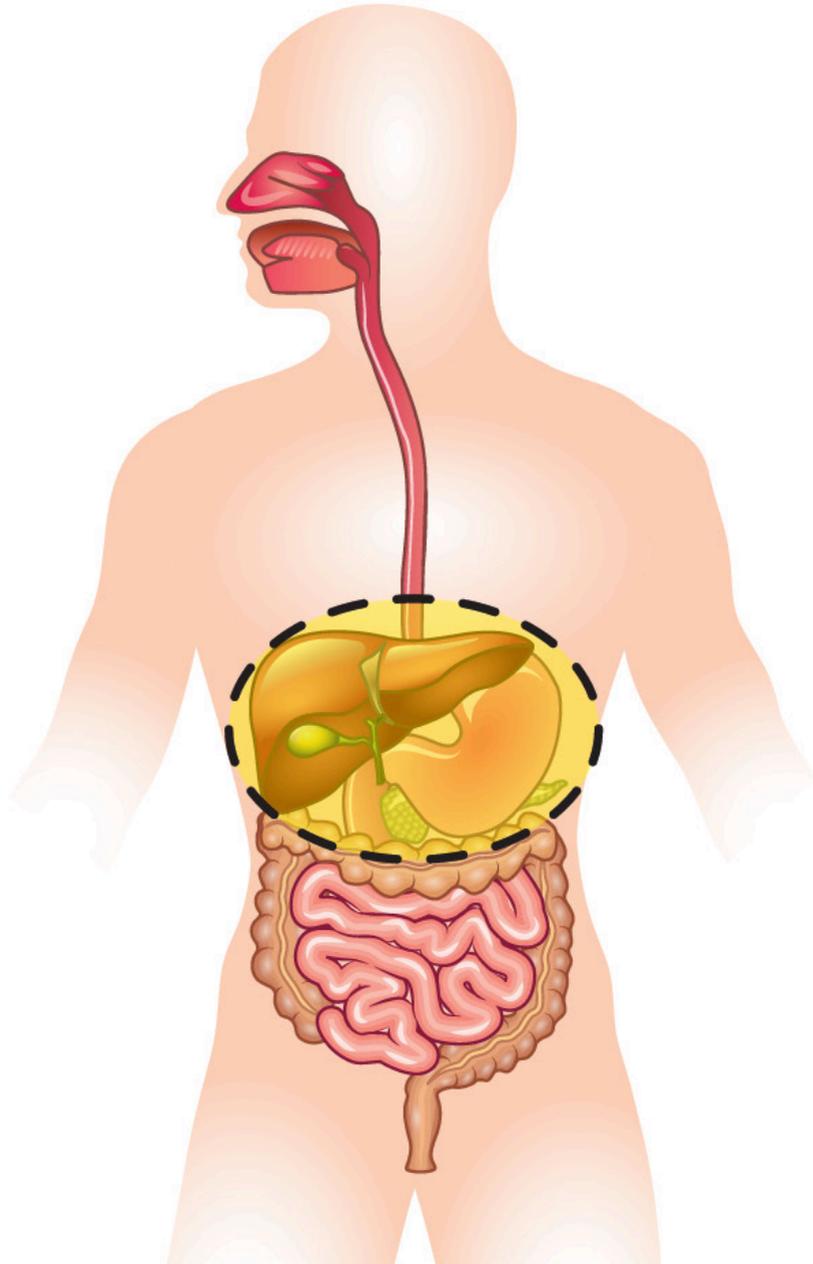
The diagram below shows the organs in the Whipple operation area (*figure 1*).

Figure 1: Before surgery



The diagram below shows where these organs are located in the upper abdomen (*figure 2*).

Figure 2: Location of organs involved



Pancreas

The pancreas is a tadpole shaped organ which lies behind the stomach on the left-hand side of the abdomen. It has a head, body and tail. The pancreas has two functions:

- the pancreas makes enzymes and empties them into the duodenum to help break down food for digestion
- the pancreas also produces insulin and other hormones which help to regulate blood sugar levels.

Gallbladder

The gallbladder concentrates and stores bile that has been produced by the liver. Bile dissolves the fat in your food and allows it to be absorbed.

Common bile duct

The common bile duct is the tube through which bile flows into the duodenum.

Duodenum

The duodenum is the first part of the small intestine after the stomach and is where most food digestion takes place.

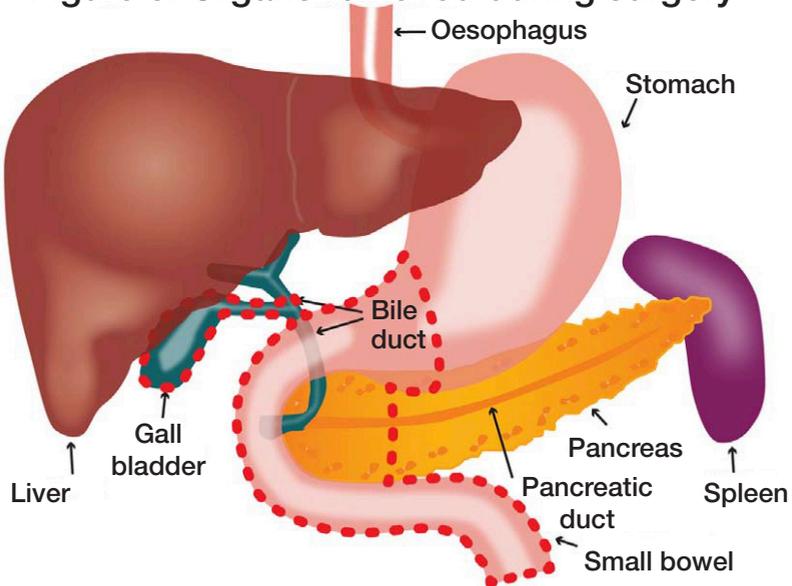
Lymph nodes

Lymph nodes, or lymph glands, are small sacs that are scattered throughout your body. The common place you will be aware of these is in the throat or under the arms when they become enlarged due to a sore throat or viral infection.

Lymph nodes filter the fluid that has left the blood and is moving between the cells. Before this fluid returns to the blood stream the lymph nodes remove impurities and infection. Because they are a filter system they are also a common early place for cancer cells to lodge in and grow.

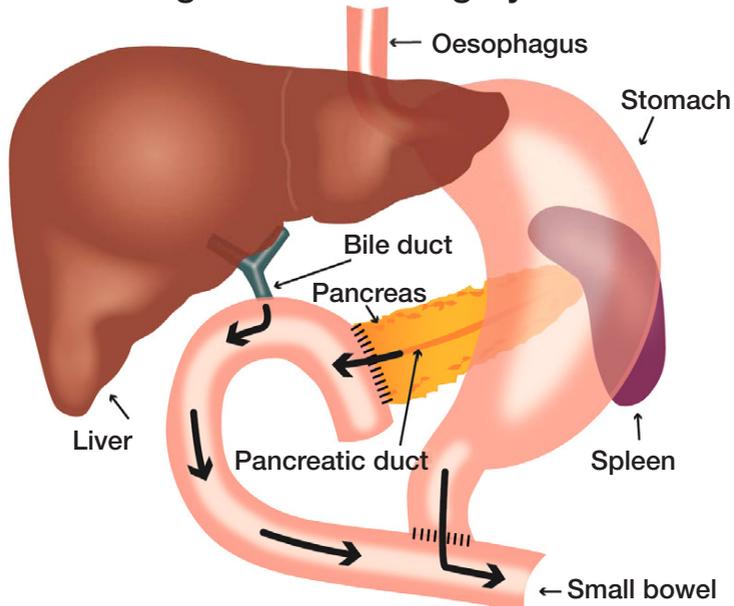
During Whipple surgery the head of the pancreas, the gall bladder and a portion of the stomach, duodenum and common bile duct are removed along with some of the surrounding lymph nodes (*see figure 3 overleaf*).

Figure 3: Organs removed during surgery



The remaining **stomach**, **pancreas** and **bile duct** are then all rejoined to the small intestine which allows food, pancreatic juices and bile to pass into the intestine for digestion (*figure 4*). The entire operation takes from four to eight hours.

Figure 4: After surgery



Preparing for your hospital stay

It is important to consider how you will manage after you are discharged home and to begin planning for this as much as possible before you come to hospital. This is so you can feel supported when you arrive home.

- You may wish to consider arranging for someone to stay with you, or organise to stay with family/whānau or a friend for a time after you are discharged.
- If needed, before your discharge home, you will be referred to the District Nursing team to be assessed as to whether you need any help with personal care at home. If you have a community services card, and after looking at all other options you may qualify for support with household management.
- If you have any social or emotional concerns prior to coming in to hospital you may wish to make a self-referral to the community social work service on 07 839 8899, extension 23934, or any nurse specialist can refer you. Please ask.
- If your procedure is because of known, or high likelihood of a cancer diagnosis - other supportive care services, such as a Cancer Society liaison nurse referral can be made.
- There are other services available to support you.

If you know you will need other support services involved - please advise the nurse at pre-admission clinic.

Please see back of booklet for contact information.

The following list may help you to **prepare for your surgery**:

- arrange for someone to bring you to hospital. Please let your clinic nurse or nurse specialist know if you need assistance with transport to hospital
- consider getting a medical alarm for a short period of time if you are living alone
- if you are on your own, decide if you need to apply for a sickness benefit or other benefit
- if you usually manage your own lawns and gardens, you may want to arrange to have these managed by someone else for a couple of months
- if you usually manage your own housework you should arrange to have this managed by someone else until you feel well enough
- if you have pets you should organise care and/or feeding for them
- check that your house security is in place, cancel paper delivery and organise for your letterbox to be cleared if needed
- you may wish to ask your provider to put some of your household services, such as newspaper delivery, on hold
- make a list of useful contact numbers
- consider your needs for when you return home (e.g. supplies, meals, transport, housework, support). Family and friends may be able to help
*check if you are eligible for 'meals on wheels'
- if you usually manage your own meals you might consider freezing some for when you return home or purchasing some pre-frozen.

Before your surgery

Many people with pancreatic tumours first find out about them because they go yellow with jaundice. This happens because the tumour blocks the bile duct, forcing bile back into the blood stream and staining the skin and eyes yellow. In this case a stent, a small plastic tube, may need to be placed into the bile duct prior to surgery. Most commonly this is done under sedation in a procedure known as an ERCP (endoscopic retrograde cholangiopancreatography).

Activity

It is important to maintain as much normal physical activity as you can prior to your operation. Walking is recommended to keep your heart and lungs healthy.

Healthy eating

Good nutrition is important prior to surgery and you will cope better with the recovery if you are well nourished. Please talk to your doctor or nurse if you feel you are having difficulty. Some patients may need a food supplement to drink if their nutritional state has been affected by illness.

Anaesthetic Assessment Clinic

In this clinic the health questions you answered at your first specialist appointment will be reviewed by a registered nurse. They provide vital information to help us to decide what level of preparation you need before your day of surgery. You may be required to come in for an appointment in the Anaesthetic Clinic or they may contact you by telephone. A letter advising you of your appointment time and type of appointment will be posted to you.

In the letter you may be asked to complete blood tests. Please complete these as soon as they are received so we have time to review the results before your appointment.

When you arrive at your appointment, you will have an ECG taken (an ECG, or electrocardiogram, is a tracing of the electrical activity of your heart rhythm).

You will then meet the anaesthetist who will assess your current health,

discuss your past medical history and assess your fitness to have a major operation. They may arrange blood tests or other investigations, or arrange for you to see other specialist doctors, to make sure you are well enough to proceed with the operation. They will discuss with you the plan for the anaesthetic and introduce the options available to provide pain relief after the operation. They will also tell you which of your usual medications to take, and which of your medications you need to stop prior to your surgery. Please allow two hours for this appointment. The anaesthetist you meet in outpatient clinic may not be the anaesthetist who looks after you during your operation.

If while waiting for surgery, you develop any symptoms of infection e.g. productive cough with phlegm, please see your GP promptly to help prevent the possible delay of surgery.

Following assessment in the Anaesthetic Clinic the majority of patients are cleared to proceed to the surgical waiting list for surgery. However some patients need further investigation/s before they are deemed fit for surgery. If this is required we will arrange these for you.

Occasionally, in order to make sure you are fit for surgery you may be referred back to your GP to manage a health condition such as blood pressure or diabetes. If this occurs the Anaesthetic Assessment Clinic nurses will contact your GP to advise them, Until you have had the required investigations and the reason we referred you to your GP has been resolved you will not be deemed fit for a general anaesthetic. It is only after you have been cleared as fit that you will proceed to the next stage and be placed on the surgical waiting list.

Pre-Hospital preparedness

Once you have been cleared as fit to proceed for your procedure and placed on a surgical waiting list you will receive a 'certainty letter'. This means that from the date of the letter we aim to treat you within four (4) months or sooner if urgent.

A booking clerk will telephone you offering you a date for surgery. If you are able to accept this date it will be followed up by a letter that will outline

admission details and provide a map showing you where to go on arrival. You may be required to attend a Pre-Hospital Preparedness clinic appointment, if so an appointment will be made by the booking clerks during this phone call.

In addition, if you are to have a general anaesthetic then approximately one week before surgery you will receive a phone call from nurse in the Pre-Hospital Preparedness team. You will be asked a series of questions to make sure you are still fit, willing and able to have your procedure. You will also be given any further instructions regarding preparation for your Day of Surgery. Your transport and support arrangements around surgery and discharge will also be discussed.

Smoking

If you are a smoker, it is important for you to stop smoking as soon as you know you are having Whipple surgery. Stopping smoking now will reduce the risks during and after the operation and help you heal faster.

Support to stop smoking is available through '*Kick the habit on 0800 542 584*' or '*Quitline 0800 778 778*'.

Alternatively you can ask your GP or a nurse to refer you to the smoking cessation service.

During your hospital stay

After surgery

After surgery you will be cared for in the High Dependency Unit (HDU) until you are ready to be transferred to the surgical ward. The length of stay in the HDU varies with each person however it is usually one to two nights. The HDU is a dedicated unit with specialist critical care doctors, nurses and physiotherapists. There are a higher proportion of nurses per patient in this area, which enables them to meet the needs of your initial recovery period.

What happens in HDU

The critical care team is constantly in the HDU and will review you each morning in addition to your surgical team. This is an opportunity to discuss any aspect of your care and ask any questions that you may have. Every effort is made to preserve your dignity and privacy during the morning ward round. Please adhere to Waikato Hospital visiting hours. We ask that, unless circumstances dictate, visitors are not present during the ward round. As with other hospital areas, the HDU environment can make rest challenging, but every effort will be made to ensure you sleep well and that you are comfortable enough to do so.

Monitoring your condition

You will be connected to monitors that monitor your heart's activity, blood pressure and oxygen levels. You may have extra oxygen delivered through either a mask or prongs that are positioned comfortably into your nose. A variety of drips and drains will be connected to you and your nurse will explain them to you. The extra intravenous drips inserted while you are under anaesthetic will deliver fluids and medicines into your blood stream.

Family contact

A designated family member or friend is welcome to phone the HDU for an update on your condition. Please note that limited information can be given over the phone but please be assured that the team will communicate any important information promptly to you in person, and to your family members.

Transferring to the ward

Prior to leaving HDU for the ward, some of the monitoring will be discontinued. This is an indication that your condition is improving and you can be cared for safely in a ward environment. The HDU team will communicate all aspects of your admission to the ward with you and your family and every effort will be made to ensure this process runs smoothly.

Pain relief

A combination of pain relief will be used to keep you as comfortable as possible. Your anaesthetist will discuss the risks and benefits of these options with you, and make a recommendation based on your requirements.

The regular checks that the nurses need to make on your comfort levels can lead to a disruption to your rest periods. However, it is very important that your pain is controlled.

If you are unable to deep breathe and cough after surgery without it hurting, you can be susceptible to developing a chest infection/pneumonia. Please be open and honest with how you are feeling so the staff are able to help you.

- **Epidural:** An epidural is a thin tube inserted in your back by the anaesthetist before surgery. Local anaesthetic is infused through it to block the nerves that supply the surgical site. This will remain in place for up to six days after your surgery. You are still able to sit and walk around normally with an epidural in place.

You may be given a button to push so you can control the amount of pain relief you are given. This is called a PCEA (patient-controlled epidural analgesia). The pump is programmed to deliver the correct amount. For a set time after each dose it will not deliver another dose so it is not possible to overdose.

- **Intravenous (IV) pain relief:** If needed, pain relief medicines can be given through your IV drip. You may be given a button to push so you can control the amount of pain relief you are given. This is called a PCA (patient-controlled analgesia). Like the epidural, the pump is programmed to deliver the correct amount. For a set time after each dose it will not deliver another dose so it is not possible to overdose.
- **Oral pain relief:** When you are able to drink, you may be given pain relief orally.

Drains

After surgery it is normal for some blood and fluid to be produced from the surgical site. During surgery the surgeon will have placed a drain at each of the connection sites to collect this fluid.

Should there be a leak from any of the connections, the drains will remove that fluid until the join is healed. The drains will be removed when the fluid coming through them has almost stopped.

Naso-gastric (NG) tube

You will have a NG tube in your nose, which goes into your stomach. This tube keeps your stomach empty by allowing the stomach juices to drain out. It will be removed once the drainage is minimal.

Jejunal feeding tube

A soft feeding tube will be placed through your abdominal wall into the gut 'downstream' from the surgical site. You will initially be fed liquid nutrition through this tube until you are managing to eat and drink adequately. There is a small possibility some patients may go home with this tube still in place.

Urinary catheter

You will have a tube to drain the urine from your bladder. This will be removed when close monitoring of your urine output is no longer needed, your epidural has been removed and you are able to get up to the toilet.

Emotions

It is common to have up-days and down-days during your recovery period. When you are feeling down it can help to talk to someone about it. It can also help if your family and close friends understand that it is not unusual for patients to feel down for a while after Whipple surgery. If you feel overwhelmed, please talk to your doctor or nurse so that they can help you.

Mobility

Together, the physiotherapist and nurse will aim to get you up into a lazy-boy chair within a day or two of your surgery. You will then be assisted to walk a short distance with your level of activity increasing as you recover. Walking around the ward regularly is important for your recovery and to prevent complications.

Wound care

We will arrange for a district nurse to visit you at home to help care for your wound and feeding tube.

Eating and drinking

After surgery you will not have anything to drink as your gut/bowel needs to rest and heal. Once your surgeon is happy that you are healing well, you will be allowed to slowly start drinking before gradually increasing to include foods. A dietitian will be involved in your care and provide you with guidance for returning to normal eating again. It may take some time for your appetite to return to normal. In the meantime, you will be advised to take in extra calories and protein to maintain your weight and promote healing. As part of your stomach will have been removed, you will not have the capacity for food that you previously had. At first you will need to eat smaller amounts frequently to minimise discomfort. Before you go home your dietician will give you detailed advice about your diet.

Activity

You will feel tired and weak for a few months following surgery however it is expected that you will continue to feel stronger over time. It is recommended that you gradually increase your activity and take the time to rest often.

Please avoid lifting anything heavy for at least six weeks after your surgery. You may recommence driving once you are confident that you can brake quickly in an emergency without discomfort. Some pain medicines cause drowsiness and may alter your driving responses. Some insurance companies may not cover you in an accident for up to six weeks following surgery. Please check this with your insurance company. Sexual activity may be resumed when you feel comfortable to do so.

The people who may be involved in your care

Physiotherapist

A physiotherapist will assist you with your mobility and breathing exercises to reduce the risk of post-operative complications.

Dietitian

A dietitian will educate and guide you as you return to normal eating.

Social worker

Social workers provide supportive counselling, assistance with discharge planning, provision of information about, and referral to, services in the community. A social worker can assist with any personal concerns you may wish to discuss.

Ward nurse or nurse specialist can help with:

- coordinating short/long term support in the community
- facilitating options for support including:
 - personal care assistance e.g. showering, dressing, meal preparation
 - household management e.g. shopping, cleaning, laundry (requires a Community Services Card)
- provision of community support services information: e.g. Salvation Army Volunteer Services and Age Concern.

District nurse

The district nurse visits you at home to help care for your wound (and feeding tube if still in place). The ward will arrange for the district nurse to contact you and provide you with a number to call in case you need to contact the district nursing service once you are home.

Possible complications of Whipple surgery

All surgery has potential complications. Whipple surgery is complex and certain complications can occur. Your surgeon will discuss the main possible complications with you, including the following:

Leaking from a connection site

The surgery has joined the pancreas, bile duct and stomach onto the duodenum. It is possible that any of these connections may leak which means that pancreatic juice or bile can seep internally into the abdomen. The drains that are placed into the abdomen during surgery will remove any leakage until the join heals on its own. In a very small number of patients another operation may be necessary to repair a leak.

Stomach emptying

After surgery it will take time for your stomach and bowel function to return to normal. Sometimes the stomach can take longer to empty its contents into the intestine after Whipple surgery. You will be given fluids through a drip in your arm and liquid food by a feeding tube into your intestine until your stomach tolerates food. Some patients need the tube feeds for several weeks until their stomach function returns.

Wound infection

Any surgical wounds have a chance of becoming infected and great care is taken to minimise this risk. Stopping smoking at least two weeks prior to surgery has been shown to reduce wound infection rates.

Chest infection

Please take the time to familiarise yourself with the breathing exercises given to you to reduce the chance of a chest infection after your operation. If you smoke, stopping now will help reduce the chance of a chest infection after surgery.

Blood clots in the leg

Please take the time to familiarise yourself with the leg exercises given to you to reduce the chance of a blood clot after surgery. TED (anti-embolism) stockings are worn post surgery until you are back mobilising to your pre-hospital state. Clexane sub-cutaneous injections are given post surgery (in hospital) to prevent blood clots.

Possible long-term consequences of Whipple surgery

There are some potential longer term consequences of Whipple surgery. You may or may not experience any of these.

Malabsorption

Removing a portion of the pancreas decreases the production of enzymes that are needed for the proper digestion of fat, carbohydrates and protein. In some people this can lead to pale, loose bowel motions that are greasy and tend to float. Your surgeon may prescribe a long term pancreatic enzyme supplementation (Creon) to take with meals.

Your doctor will tell you how much Creon to start with and, once you have been taking it for a while, you will get used to how to adjust the amount that you need depending on what type of food you have eaten. You will know that

You are taking the right amount of Creon if you:

- have no pain on eating
- have less wind
- are gaining weight
- your bowel motions return to normal and flush away easily.

Weight loss

It is common for patients to lose up to 5 to 10% of their pre-surgery body weight following Whipple surgery. After an initial weight loss, the weight usually stabilises in a few weeks. Most patients are then able to increase and maintain their weight. Although individuals vary considerably, it typically takes a few months to regain lost weight.

Diabetes

After Whipple surgery, the remaining pancreas may not produce enough insulin to regulate blood sugar levels (Type 1 diabetes). This is more commonly seen in people who were likely to develop diabetes in the future even without Whipple surgery.

Alteration in diet

After Whipple surgery we recommend that patients eat smaller meals and snack between meals. This is to allow better absorption of the food and to minimise symptoms of feeling bloated or getting too full.

It is recommended that you:

- take the prescribed amount of Creon, with all meals and snacks
- consider taking a multi-vitamin or individual vitamin supplements
- ask your doctor if iron supplements or injections of vitamin B12 may be helpful (if you are deficient)
- take small sips of liquids with meals: avoid excess fluids at mealtime.

The dietitian will give you advice and information on healthy eating and building yourself up after surgery. If needed, the dietitian can provide continued support after your discharge.

Your GP remains an important part of your recovery, and will be informed of your progress and discharge from hospital.

Contacts

Waikato Hospital patient enquiries

07 839 8899

Dietetics and nutrition service

07 839 8899

Jessica Steenson - 021 549 726

Pamela Driscoll - 021 549 736

High Dependency Unit (HDU)

07 839 8899 - Extension 96513

National Travel Assistance (Ministry of Health)

0800 281 222 (Press 2)

Kaitiaki Services (Māori Health Services)

07 839 8899 or 021 806 171

Pacific Support Services

K'aute Pasifica - 07 834 1482

Social Workers

07 839 8899 - Extension 23934

Chaplain

07 839 8899 - and ask to speak to the Duty Chaplain

Health Consumer service

0800 801 482

Quitline

0800 778 778

Cancer Society

0800 22 77 44 or 07 838 2027

Email: admin@cancersociety.org.nz

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