Te Whatu Ora
Health New Zealand
Waitematā

The Whipple

(pancreatic and duodenal surgery)

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Introduction

Welcome to North Shore 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 North Shore 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.

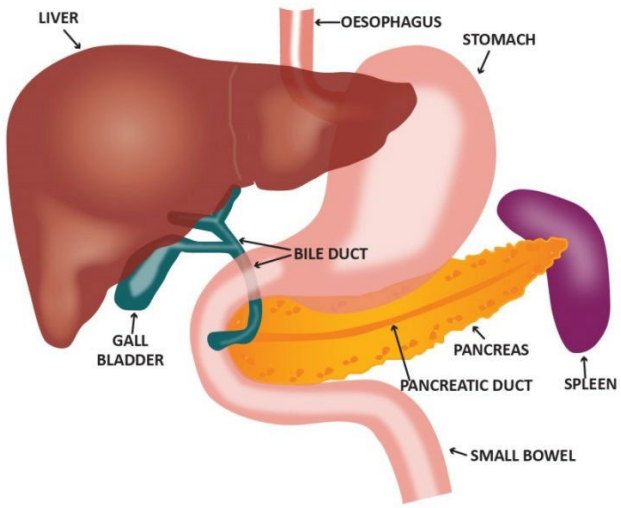
What is Whipple surgery?

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. Because 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.

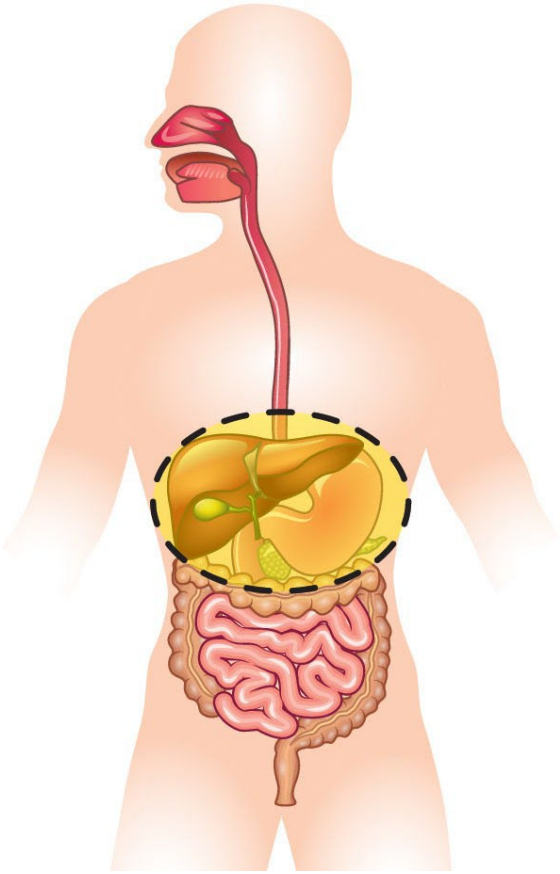
The diagram below shows the organs in the Whipple operation area *(figure 1).*

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.

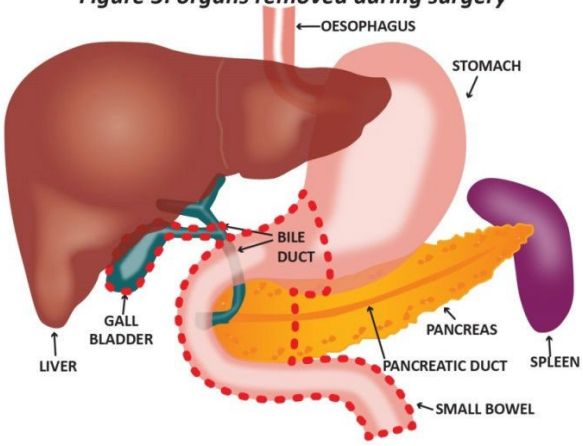
Lymph nodes

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 and grow.

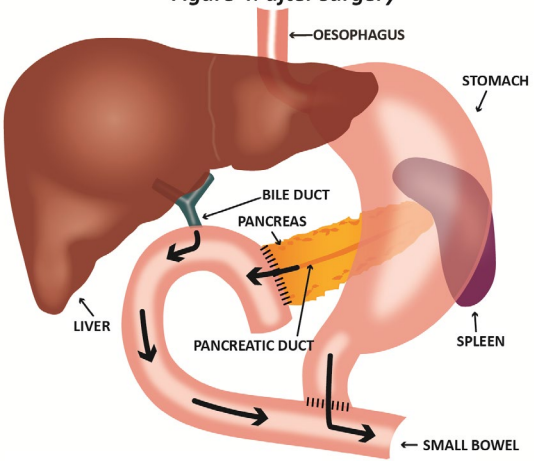
During Whipple surgery, the head of the pancreas, the gall bladder and a portion of the stomach, duodenum and common bile duct are removed along with some of the surrounding lymph nodes *(figure3)*.

Figure 3: organs removed during surgery



The remaining **stomach, pancreas** and **bile duct** are then all re-joined 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 may be referred to the Needs Assessment Team to be assessed as to whether you require 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 do qualify, a needs assessor will arrange home help.
- 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 (09) 489 8945 ext. 43222.

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, transport, housework, support). Family and friends may be able to help
- 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 before an operation as it can help with recovery. You will have the option to be seen by a dietician who can assess your nutrition status, provide you with dietary advice and discuss how eating will change after surgery.

If you are at risk of malnutrition (e.g. if you have had a lot of recent weight loss) you may be given a prescription for a nutritional supplement drink to have before your surgery. This will provide extra energy and to have as an addition to the food you are eating.

Anaesthetic clinic

The booking clerk will contact you with an appointment to see an anaesthetist in the outpatients' clinic. The anaesthetists are the doctors look after you during and immediately after your operation. Throughout the operation, the anaesthetist will keep you asleep, monitor your heart, blood pressure, oxygen and breathing during the operation to make sure you are as safe as possible.

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.

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 the hospital by calling the smoking cessation support team on (09) 486 8920 ext. 42117 or 021 509 251.

Alternatively, you can ask a nurse to refer you or send an email directly to elect@waitematadhb.govt.nz

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 two-to-three 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. Therefore, while visitors are welcome at any time, we ask that they are not present during the ward round unless circumstances dictate.

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 will 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.

Limited information can be given over the phone but please be assured that we will communicate any important information promptly to you and to your family members.

Transferring to the ward

Prior to leaving HDU for the ward, most of your drips and drains will be removed and some monitoring 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 and may include the following. Your anaesthetist will discuss the risks and benefits of these options with you and make a recommendation based on your requirements.

- **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 will 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 at set times so it is not possible to overdose.
- **Spinal morphine:** Just before your operation starts, the anaesthetist places a small amount of local anaesthetic and morphine into your lower back, through a procedure called a 'spinal' or lumbar puncture. The morphine injected here can provide pain relief for up to 24-hours and can reduce the requirements of other pain relievers**.**

  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. Please be open and honest with how you are feeling so the staff are able to help you.
- **Rectus sheath catheters:** A very fine catheter is placed either side of the wound during surgery. Local anesthetic is injected into the catheters which provide pain relief to the abdominal muscles and skin.

- **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 at set times so it is not possible to overdose
- **Oral pain relief:** When you are able to drink, you may be given pain relief by mouth.

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 and going 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.

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.

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. Patients typically go home with this tube in place. Once you are maintaining your weight, it is easily removed in the outpatients' clinic.

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 recliner 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 the operation, you will not have anything to eat or drink until your surgeon is happy you are healing well. At this time, you will be allowed to start drinking fluids and then progress to including food as well.

Since part of your stomach will be removed, you will not have the same capacity for food and it may take some time for your appetite to return to normal. When reintroducing food, it will be important to eat “little and often” throughout the day to prevent discomfort. It will be important to make sure you get enough nutrition in to maintain your weight and promote wound healing. A dietician will help guide you on what to eat throughout this time and will give you detailed advice about food to eat when you get home.

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 help you with your mobility and breathing exercises to reduce the risk of post-operative complications.

Dietitian

A dietitian will educate and guide your return to normal eating.

Critical care outreach

The critical care outreach nurses will follow you up and help to ease the transfer from the High Dependency Unit (HDU) to the ward.

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.

The Needs Assessment Service (NASC)

NASC services include:

- 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. 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 may take time for your stomach and bowel function to return to normal. For example, the stomach may take longer to empty its contents into the intestine. If you have problems tolerating food or progressing your diet, a dietician will work with you to make sure you are still able to get enough nutrition in.

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.

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 part of the pancreas will decrease the production of enzymes that are needed for proper digestion of fat, carbohydrates and protein. Malabsorption of fat can lead to pale, loose bowel motions that are greasy and tend to float.

Your dietician or doctor will prescribe a long term pancreatic enzyme supplement (Creon) to take with food. You will be advised on how many to take to begin and will get used to adjusting the amount you need based on what food you eat. For example, a large portion of a high-fat meal may require a higher dose of Creon. You will know you are taking the right amount of Creon if your bowel motions return to normal and are easier to flush, as well as having less wind and no pain on eating.

Weight loss

It is common to lose weight in the recovery phase after surgery, with some people losing between 5-10% of their initial body weight. After a few weeks, weight usually stabilizes. While everyone is different, most people will maintain their weight or gain some weight back in the months following surgery. The dietician can give you advice if you are concerned about weight loss and may recommend high calorie foods or nutritional supplements.

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 are likely to develop diabetes in the future even without Whipple surgery.

Alteration in diet

After Whipple surgery, we recommend patients eat small, frequent meals throughout the day. This will allow you to get enough nutrition in and reduce symptoms of bloating or feeling too full.

It is recommended that you:

- eat slowly and chew your food well
- keep food and fluid separate, having drinks 30 minutes either side of meals
- take Creon as prescribed
- consider taking a multi-vitamin
- ask your doctor if iron supplements or vitamin B12 injections may be helpful if you are deficient.

The dietician can support you with advice on healthy eating and building yourself up after surgery after discharge if required.

Questions

Please use the space below to write down any questions you wish to have answered and bring this booklet with you to your appointments.

Contacts

North Shore Hospital
(09) 486 8900 or freephone 0800 80 93 42
Ward 4 ext. 42684
Ward 8 ext. 42673

Dietetics and nutrition service
(09) 486 8920 ext. 43556 or 43609

High Dependency Unit (HDU)
(09) 486 8920 ext. 43723

Patient enquiries
(09) 486 8920 ext. 42430

He Kamaka Waiora (Māori Health Services - provider arm)
(09) 486 8900 ext. 42324

Pacific Support Services
(09) 837 8836 ext. 46836

Asian Health Support Services
(09) 486 8314
or (09) 486 8920 ext. 42314 / 43863

Social workers
(09) 486 8920 ext. 43271

Chaplain
(09) 486 8900 and ask to speak to the chaplain on call

Patient advocate
Freephone: 0800 555 050
Free fax: 0800 2 SUPPORT / 0800 2787 7678

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