

The background of the page features a repeating geometric pattern of interlocking diamonds and zig-zags in shades of teal and light grey. At the top and bottom, there are solid teal horizontal bands with a white geometric pattern.

**Te Whatu Ora**

Health New Zealand

Waitematā

# Hepatectomy Operation

## A Guide for Patients



# Contents

- Hepatectomy operation ..... 5**
- The liver ..... 5**
- The operation for liver cancer ..... 7**
- Types of liver resections ..... 8**
- Two-stage liver resection ..... 9**
- Preparing for your hospital stay .....10**
- Before your operation.....12**
  - Nutrition ..... 12
  - Activity ..... 12
  - Smoking ..... 12
  - Alcohol.....13
  - Anxiety or Mood..... 13
- Upper Gastrointestinal (Upper GI) clinic .....14**
  - Surgeon.....14
  - Anesthetist..... 14
  - Intensive Care Medicine Specialist .....15
  - Clinical Nurse Specialist (CNS) ..... 15
  - Dietitian ..... 16
  - Psychologist.....16
  - Physiotherapist..... 16
  - Social Worker ..... 16
  - The Needs Assessment Service (NASC)..... 17
- During your hospital stay .....18**
  - Pain relief .....19
  - PCEA (patient-controlled epidural analgesia).....19
  - Intravenous (IV) pain relief.....19
  - Oral pain relief ..... 19
  - Urinary catheter .....20
  - Eating and drinking .....20
  - Mobility .....20

Emotions .....20

**Possible complications of an Hepatectomy operation.....21**

    Bile Leak.....21

    Liver Failure.....21

    Haemorrhage.....21

    Chest infection / Pneumonia .....22

    Wound infection.....22

    Blood clots in the leg.....22

**Long term considerations after a hepatectomy operation .....23**

    Alcohol.....23

    Medications .....23

**After you go home .....24**

**Support Groups.....26**

**Questions .....27**



## 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 journey to recovery as comfortable as possible.

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

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. You will have many questions, please don't hesitate to contact us if you have any queries regarding this information and your operation.

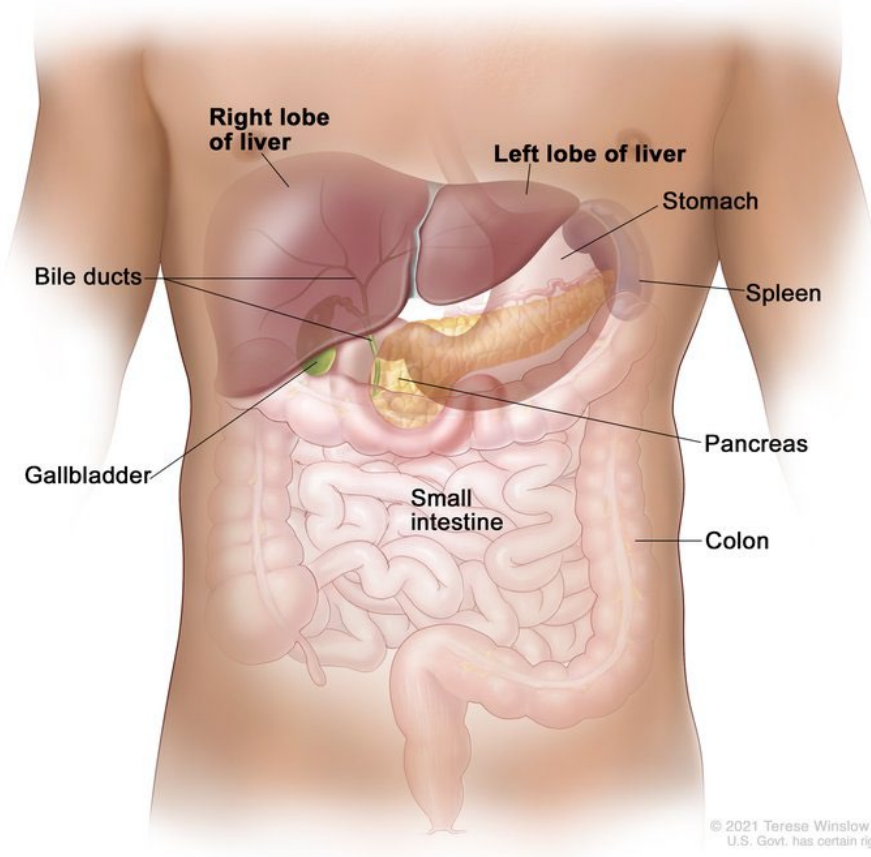
## Hepatectomy operation

A hepatectomy is a surgical operation to remove part of the liver.

As with all operations, there are risks and possible complications. It is important that you discuss with your surgeon how these risks relate to you individually.

## The liver

The liver is the largest solid organ in the body. It is located in the upper right-hand portion of the abdomen beneath the rib cage.

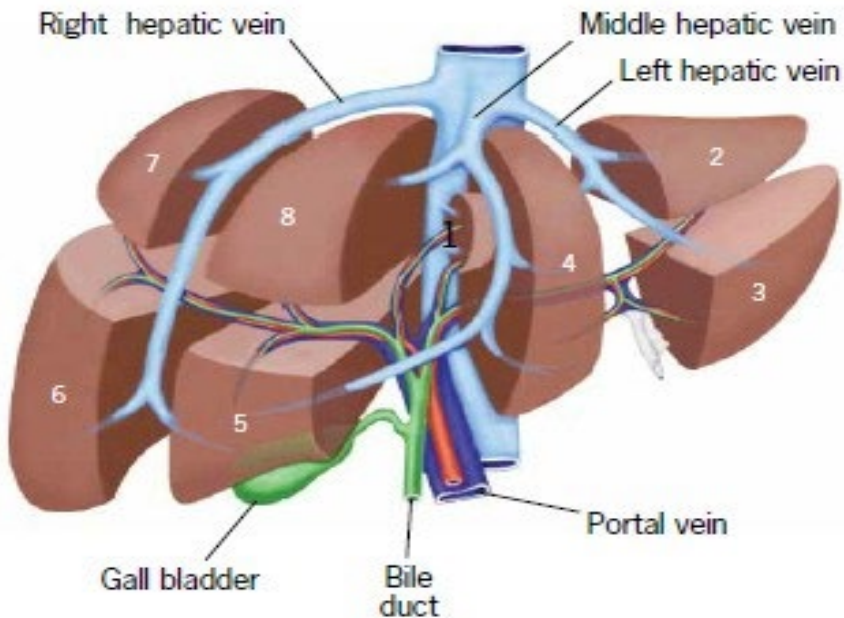


The liver is made up of two lobes, right and left, which are divided into 8 independent segments (see figure 1). Each segment has its own vascular flow and bile distribution. The liver has many functions which include but limited to:

1. process the food that we eat so that nutrients can be absorbed from the digestive tract
2. remove drugs, toxins and alcohol
3. produce proteins that fight infections and help blood to clot
4. produce bile to aid in digestion and absorption of fat

The liver is the only organ that can re-grow (regenerate) if it is healthy. This means that if a part of the liver is taken out, the part that is left can grow to almost the size and shape it was before.

**Figure 1**





## The operation for liver cancer

The operation for liver cancer is called a Hepatectomy. There are many different liver procedures that can be performed by your surgeon. The type of liver resection chosen depends on the size of the tumor and the location of tumor in the liver. The gallbladder may also be taken out.

Your Surgery can be done in one of two ways:

1. In **open surgery**, the surgeon makes a curve incision across the right, and possibly left side of your upper abdomen, just below your ribs.
2. In **laparoscopic/robotic surgery**, several small cuts or incision are made on your upper abdomen through which instruments and a camera are inserted.

Your Surgeon discusses with you about which way will be best for you.

The entire operation time varies depending on the type of surgery and the hospital stay afterwards is around 3-7 days.

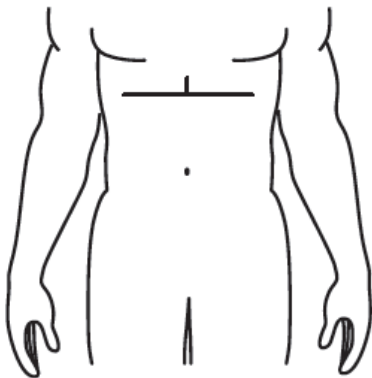


Figure 3: Open incision

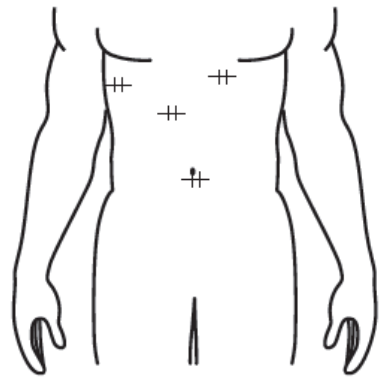


Figure 4: Laparoscopic Port Sites

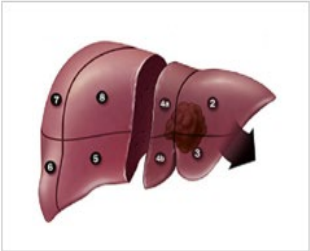
Exact location and number of port sites may vary according to the procedure and surgeon.



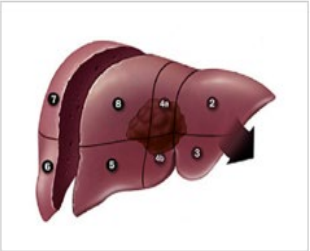
# Types of liver resections



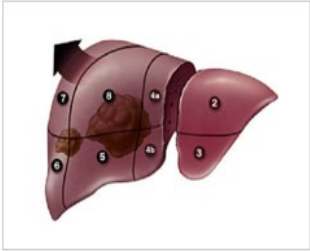
Right hepatic lobectomy



Left hepatic lobectomy



Extended left hepatic lobectomy



Extended right hepatic lobectomy



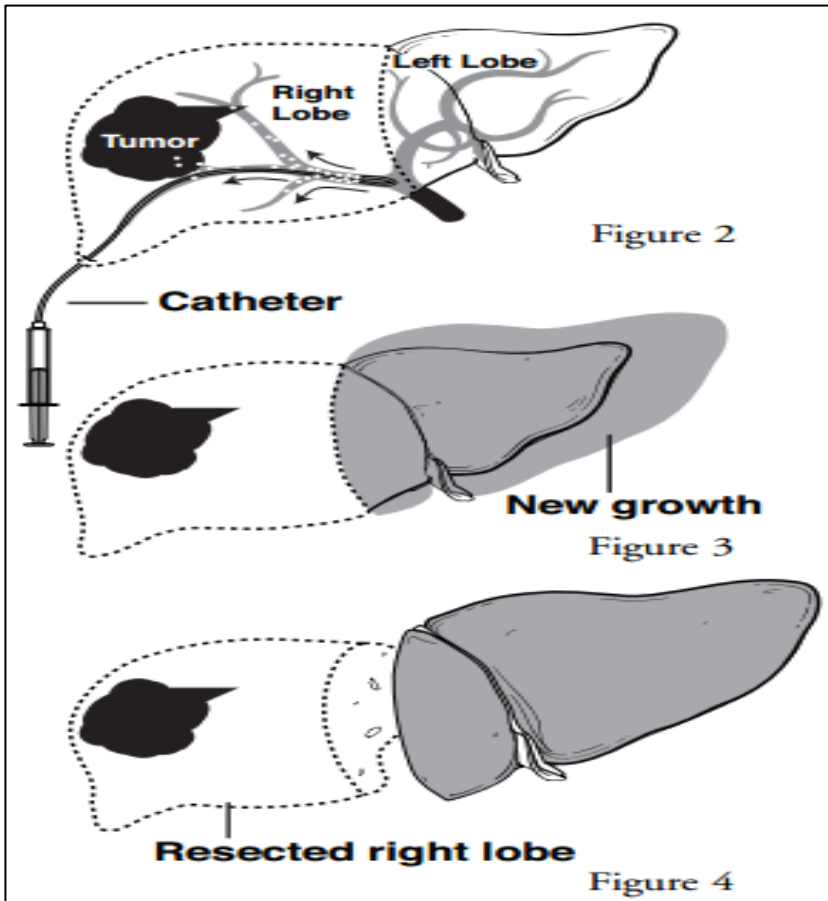
Hepatic segmentectomy



Non-anatomical wedge resection

## Two-stage liver resection

You may require a two-stage hepatectomy procedure when it is not possible to remove your liver lesion or lesions while preserving an adequate amount of the functional liver volume. Therefore, a portal vein embolization is done to avoid postoperative liver failure. A Portal vein embolization blocks the portal venous flow to the diseased segment of the liver which redirects blood flow to the remaining (remnant) liver which stimulates growth (hypertrophy) as shown in the figure below. After your portal vein embolization is completed, a CT scan will be done 2-4weeks after your procedure to check your remnant liver.



## Preparing for your hospital stay

It is important to begin planning how you will manage after you are discharged home.

- You will need to have someone stay with you or organize to stay with family/whānau or a friend for a time after you are discharged. You will tire more easily for a while after you go home and won't be able to do things with the same energy as before.
- If you do need help after discharge, you will be seen by the Needs Assessment Team in hospital about help with personal cares at home.
- With a community services card, you may also qualify for home help.
- If you have any social or emotional concerns, you may wish to contact the community social work service on (09) 489-8945 ext 43222

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

- 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 do 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 organize care and /or feeding for them.
- Check that your house security is in place, cancel paper delivery and organize 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/whānau 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- made frozen meals.

## Before your operation

### Nutrition

Good nutrition is important prior to an operation and will help you cope better with the recovery. Eating enough calories, protein, vitamins, and minerals can help you get better faster.

Before your surgery, eat a healthy balanced diet to better prepare you for the procedure and your recovery. It is important to eat enough so your body has the right material to build tissue, minimize muscle loss, and help you fight infections.

If you are losing weight, you are likely not getting enough calories. Please let your surgeon or clinical nurse specialist know.

### Activity

It is important to maintain as much normal physical activity as you feel able to prior to your operation. Exercise helps you be in the best shape possible before your surgery and can help speed up your recovery. You do not need to join a gym. Just going for a walk 15–30 minutes per day is helpful. Regular walking is recommended to keep your heart and lungs healthy.

### Smoking

If you are a smoker, it is important for you to stop smoking as soon as you know you are having an operation. 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 ELECT team on 486 8920 ext 42117 or 021 509 251

Alternatively you can ask a nurse to refer you or send an e-mail directly to [elect@waitematadhb.govt.nz](mailto:elect@waitematadhb.govt.nz)

## Alcohol

The amount of alcohol you drink can affect you during and after your surgery. Alcohol can interfere with your anesthetic and other medications we give you. It's important to talk with your healthcare providers about how much alcohol you drink. This will help us plan your care. **Do not drink any alcohol for at least 48 hours** before your surgery.

## Anxiety or Mood

It is very normal to feel anxious or worried before surgery. Having pain or trouble moving can affect your mood and disrupt your sleep. We also know that stress increases the release of hormones that can delay healing and recovery.

Exercise, meditation, relaxation, and breathing exercises can help improve your outcomes after surgery. These can also help to reduce pain and promote sleep.

Try this focused breathing exercise:

- Sit or lie down in a quiet place
- Relax your muscles and be aware of feeling them 'let go'
- Take a slow deep breath in
- When you breathe out, focus on making it long, steady, and slow

## Upper Gastrointestinal (Upper GI) clinic

Before your operation you will have an appointment in the Upper Gastrointestinal (Upper GI) Clinic where you will be seen by the team of clinicians. Each clinician will explain and discuss with you the various aspects of the operation and recovery and what to expect. Please ask as many questions as you like at this appointment. It is a good idea to write your questions down as you think of them and bring them with you to appointments. If you think of questions later, your clinical nurse specialist can answer them for you or ask a doctor to talk with you.

The team of people who you may see in the Upper GI clinic includes:

### Surgeon


The surgeons will give you information about your illness, the operation, and its benefits and possible risks. They will explain to you what to expect afterwards for your immediate and longer-term recovery. The surgeons will also explain what the possible long-term effects of the operation might be.

### Anesthetist

The anesthetists are the doctors who look after you during and immediately after your operation. Throughout the operation, the anesthetist will keep you asleep, monitor your heart, blood pressure, oxygen and breathing, making sure you are as safe as possible.

Before you see the anesthetist, you will have an electrocardiogram or ECG which traces your heart rhythm. You will then meet the anesthetist 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 anesthetic 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 operation.


### **Intensive Care Medicine Specialist**

The Intensive Care Specialists look after patients in the High Dependency Unit (HDU). They will care for you, along with your surgical team, during the first few days after your operation. They will also assess your current health and your fitness to have a major operation. S/he will tell you what to expect in the first few days after your operation.

### **Clinical Nurse Specialist (CNS)**

The CNS coordinates your care, provides support to you and your family/whānau, and ensures you have the information you need about your illness, treatments, hospital stay and post-operative recovery expectations.

The CNS will also provide you with information about other services and professionals in the hospital and in the community.



Other people who may be involved in your care at different time points include:

**Dietitian**

You may see a dietitian if your surgeon has concerns about your weight and nutrition before surgery.

**Psychologist**

Psychologists can help with adjusting to being diagnosed with cancer and the impact that this may have on you and your family/whānau.

Psychologists can help with:

- making sense of what is happening
- preparing for and making decisions about treatment
- coping with feelings such as anxiety, fear, low mood or distress
- the impact on relationships
- coping with side effects such as pain, treatment side effects and fatigue


Talk to your clinical nurse specialist if you would like to be referred to this service.

**Physiotherapist**

A Physiotherapist will teach you deep breathing and circulatory exercises and will assist you with your mobility after your operation. This is important to help reduce the risk of post-operative complications, such as blood clots and lung infections.

**Social Worker**

Social workers can assist you and your family/whānau to deal with personal, emotional, relationship and social problems that are health



related. Social workers also provide supportive counseling and referral to services in the community.

### **The Needs Assessment Service (NASC)**

The needs assessor can discuss whether you need any help with personal cares at home. NASC services include:

- Coordinating short/long term supports 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.

## During your hospital stay

After the operation you may be cared for in the High Dependency Unit 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 night. Otherwise, you will be transferred back to the surgical unit after your operation.

The HDU is a dedicated unit with specialist intensive 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.

The intensive care team is constantly in the HDU and will visit 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.

You will be connected to monitors for your heart's activity, blood pressure and oxygen levels. You will have extra oxygen delivered through either a mask or tubes that are positioned comfortably into your nose.

The intravenous drips and drains will be inserted while you are under anesthetic to deliver fluids and medicines into your blood stream. Your nurse will explain them to you.

Your family/whānau are welcome to phone the unit to ask about your progress. We ask that this please be done through a designated family/whanau member or friend to control the number of telephone calls to staff.

Prior to leaving the HDU for the surgical ward, most of your drips and drains will be removed and certain monitoring discontinued. This shows your improving condition and readiness to be cared for in the ward.

## **Pain relief**

A combination of pain relief will be used to keep you as comfortable as possible after your operation. This may include:

### **PCEA (patient-controlled epidural analgesia)**

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. 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.

The nurses will check regularly on your comfort. It is very important that your pain is controlled. If you are unable to breathe deeply and cough after the operation without it hurting, you could develop a chest infection. Please let the staff know how you are feeling so they can help you.

### **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 by mouth.

## **Urinary catheter**

You will have a tube to drain the urine from your bladder. This will be removed once your epidural has been removed and you are able to get up to the toilet.

## **Eating and drinking**

Every person's recovery is different. After surgery, your body needs healthy foods with extra calories and protein to help you heal. It is normal for your bowels to move slower than normal after surgery. The surgical team will advise you when you are able to safely eat and drink after surgery. Drinking and eating as soon as you can after surgery helps your bowels return to normal.

## **Mobility**

It is important for you to get up and move around as soon as you can. Lying in bed leads to muscle weakness and can cause blood clots and lung infections. Walking regularly is important for your recovery as it increases strength, prevents complications, and can help get your bowels moving. We will encourage you to get up and walk around the unit as soon as you can. Most people are up and walking the day of surgery.

## **Emotions**

It is common to feel emotional during your recovery period. When you are feeling down it may help to talk to someone about it, including your family/whānau and close friends, your doctor or your nurse. It can also help if your family/whānau and close friends understand that it is not unusual for patients to feel down at times after a Hepatectomy operation. If you feel overwhelmed, please talk to your doctor or nurse so that they can help you.

# Possible complications of an Hepatectomy operation

All operations have risks and potential complications. An hepatectomy operation is a major operation and certain complications can occur. Your surgeon will discuss with you what the risks and chances of a serious complication are for you. The following are the main complications which will have been discussed with you before your operation:

## Bile Leak

A bile leak is a hole in the bile-duct system that causes bile to spill into the abdominal cavity. Although uncommon, it is possible that a bile leak may occur as a complication from surgery.

Your surgical team will review the severity of your leak before advising you the plan to manage this. A leak can be treated with antibiotics and drains and in more severe cases, another operation may be necessary to repair a leak.

## Liver Failure

Liver failure is a rare but severe postoperative complication of hepatectomy. It is closely associated with a catastrophic insult to the liver like surgery, cirrhosis, limited residual liver tissue, or a massive intraoperative hemorrhage. Your surgical team take several steps prior to your surgery to reduce the chance of liver failure post-surgery. After surgery, you will be closely monitored with daily blood work and surgical team review.

## Haemorrhage

Around 1 in 10 patients may need a blood transfusion during or after surgery.



## **Chest infection / Pneumonia**

Having an abdominal wound can increase the chance of developing a chest infection. It is important that your pain is well managed because pain will prevent you from breathing effectively and moving – both of which are essential to help prevent a chest infection. Please let your surgical team or nurse know if your pain is preventing you from doing your deep breathing.

If you smoke, stopping now will help reduce the chance of a chest infection after the operation.

## **Wound infection**

Any surgical wounds have a chance of becoming infected and great care is taken to minimize this risk. Stopping smoking at least 2 weeks prior to an operation has been shown to reduce wound infection rates.

## **Blood clots in the leg**

Blood clots in the leg can happen after a major operation and during periods of immobility. To help reduce this risk:

- Your nurse will give you compression stockings to wear
- You will be fitted with disposable leg sleeves which use an air pump to create intermittent compression, or squeezing, around your calves to help with the blood flow.
- You may be started on some blood-thinning medication a day or so after the operation
- You will be helped to get out of bed and move around as soon as possible after the operation



## Long term considerations after a hepatectomy operation

There are some potential long-term considerations to keep in mind after your hepatectomy operation.

### **Alcohol**

Avoid alcohol for at least a month and only drink alcohol in moderation after this time. If you have cirrhosis or a transplant, you must stop drinking alcohol. Your surgical team will talk to you about this.

### **Medications**

Therapeutic acetaminophen (paracetamol) is safe after major liver resection provided liver function is adequate.

If you have any concerns regarding your medications and your liver, please discuss this with your surgical team.

## After you go home

You will feel tired and weak for a few months however it is expected that you will continue to feel stronger over this time. Light physical activity and regular walks, several times a day, are encouraged. It is recommended that you gradually increase your activity, taking the time to rest often, until you are back to your normal level of activity. Many patients have reported that it has taken up to a year to feel completely recovered. Sexual activity may be resumed when you feel comfortable to do so.

You may also have times when you are feeling down or worried. If you start to feel concerned about your mood please consider either talking with your family doctor, your Cancer Society nurse or clinical nurse specialist. They will be able to refer you for some extra support.

The operation and recovery period can also be a stressful time for both patients and family/whānau. Your family/whanau and support people can contact the Cancer Society if they feel they would like some extra support.

Please avoid lifting anything heavy for at least six weeks after your operation. 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 an operation. Please check this with your insurance company.

After you go home you will continue to be followed up in the outpatients' clinic. At the time of your discharge you will be told when you will be seen in clinic and the booking clerk will post you an appointment letter. Please don't hesitate to contact your Clinical Nurse Specialist (CNS) if you have any questions or concerns between your appointments.

The UGI team wishes you well with your recovery.



Useful contact details

**North Shore Hospital**

(09) 486 8900 or 0800 80 93 42

Ward 4 ext 42684

Ward 8 ext 42673

High Dependency Unit ext 43728

**Patient Enquiries**

(09) 486 8900 ext 42430

**Dietitian / Nutrition service**

(09) 486 8900 ext 43556

**Maori Health Services- Mo Wai Te Ora**

(09) 486 8900

**Asian Health Support Services**

(09) 486 8314

(09) 486 8900 ext 42314 / 43863

**Social Workers**

(09) 486 8920 ext 43271

**Chaplain**

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

**Cancer Society**

0800 226 237

## Support Groups

**Cancer Society of New Zealand:** Provides a range of free support services for people with cancer and their family/caregivers, including information on cancer and its effects.

<https://www.cancer.org.nz/>

- Phone: 0800 226 237
- Email: [info@cancersoc.org.nz](mailto:info@cancersoc.org.nz)

**Gut Cancer Foundation:** Provides information on gut cancers, support, and resources.

<https://www.gutcancer.org.nz/>

- Phone: 0800 112 775
- Email: [info@gutcancer.org.nz](mailto:info@gutcancer.org.nz)

**Look Good, Feel Better:** A free program for any person with cancer to gain confidence and attain wellness.

<https://lgfb.co.nz/>





A series of 20 horizontal dashed lines for writing.





Classification: 010-01-01-031  
Date Issued: June 2022

**Te Whatu Ora**  
Health New Zealand  
Waitematā