



# Cardiac Surgery

RESOURCE GUIDE

*INFORMATION FOR PATIENTS*

Each morning when we greet each day,  
it's great to be alive

Appreciating the golden rays of the sun  
shining on the earth's beehive

And when you're in a hospital ward  
undergoing special care

In this our lucky country,  
we think it's only fair

Some other countries aren't so fortunate  
to share what we have here

We may take this for granted  
while others cringe in fear

Some people are outstanding  
in the standards they achieve

The "Mater Staff" at Townsville hospital  
are good examples I believe

Lots of people have employment  
as a job they need to do

The staff at "Townsville Mater"  
are devoutly devoted too

Doctors, nurses, working staff,  
"Thanks" for what you do

For compassion, care and sheer hard work,  
the credit goes to you.

Chick Williams  
Patient, Cardiac Unit

# WELCOME TO THE CARDIAC UNIT

The Cardiothoracic Unit and Coronary Care Unit provides insured patients' access to cardiac surgery and interventional cardiology, within the regions of northern Australia and as far north as Papua New Guinea.

We offer state of the art facilities and excellence in patient care, with a dedicated team of health professionals and support staff.

## CONTACT NUMBERS:

Coronary Care (CCU)	07 47274685 or 07 47274686
Cardiothoracic (CTU)	07 47274080 or 07 47274081
To dial direct to patient's room	07 47274___ followed by the room number

## VISITING HOURS:

10.00 am to 12.30 pm and 4.30 pm to 8.00 pm.

**We request there is no visiting outside these hours, unless previously arranged with staff.**

It is important that cardiac patients have rest during the day so visiting is restricted during the rest period from 12.30 pm to 4.30 pm.

## MEAL TIMES:

Breakfast	7.30 am
Morning Tea	10.15 am
Lunch	12.30 pm
Afternoon Tea	3.15 pm
Dinner	6.00 pm

# INTEGRATED SERVICES



Queensland Xray provide xrays and other medical imaging tests that may be required while you are in hospital.

They have a practice located at Mater Health Services North Queensland on the Fulham Road entrance to the hospital.

If you require blood tests, or other pathology services, these will be carried out by QML or Sullivan Nicolaides.

A range of service providers allows access to other investigations that may be required such

as echocardiogram and respiratory function test.

Physiotherapy services at the hospital are provided by an experienced team of physiotherapists employed by Mater Health Services North Queensland Limited.

Cardiac Rehabilitation Services are assisted by a multidisciplinary team of cardiac nursing, diabetes educator and allied health such as occupational therapist, dietician, physiotherapist, pharmacist, psychologist, and exercise physiologist.

We always like to hear feedback about your experience at the Mater. If you have a compliment, a complaint or concern, or an improvement idea you would like to share, please complete a Patient Feedback Form. Your nurse will be able to assist you.

If you are unsure of your rights and responsibilities please ask any member of staff, who will be happy to assist you.

It is our aim to make your stay at the Mater as pleasant as possible for you and your family. If there is anything that we can do to help, please do not hesitate to ask.



# CORONARY ARTERY BYPASS SURGERY

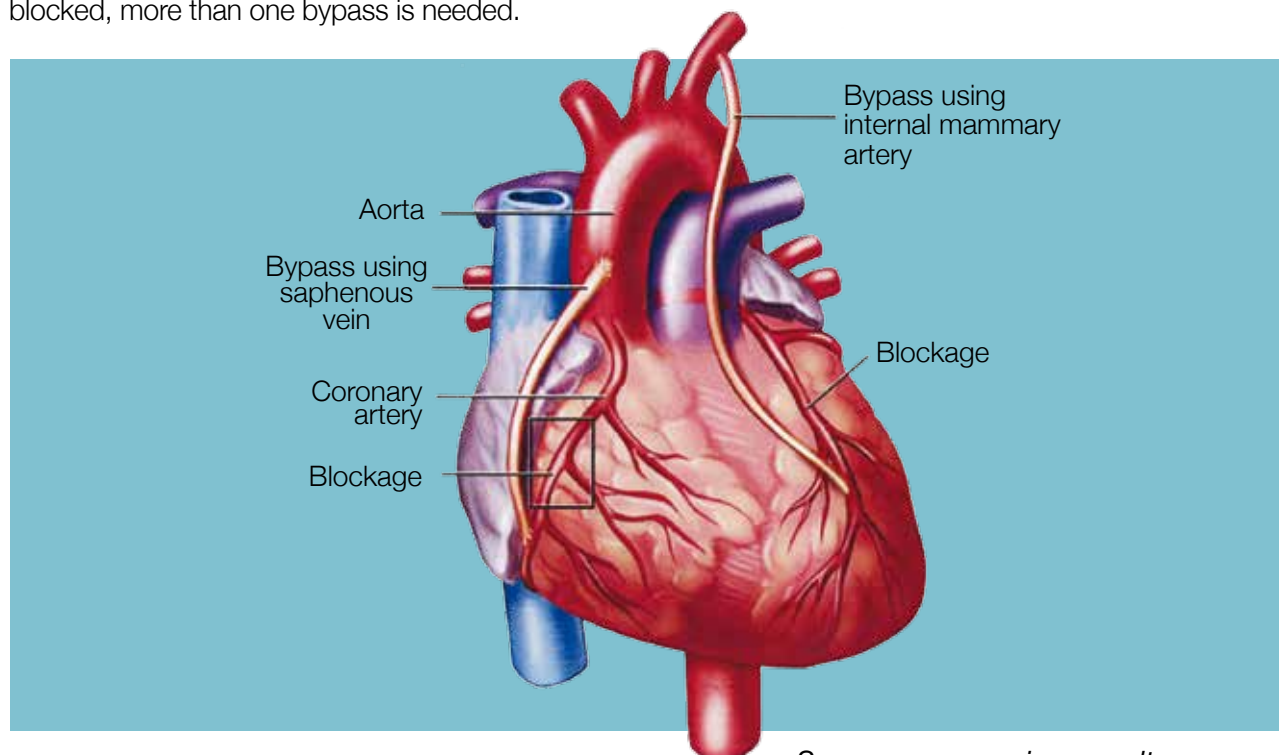
Coronary Artery Bypass Grafting (CABG) is a surgical procedure that bypasses blockages in the coronary arteries. Blood vessels (grafts) are taken from other parts of the body and reattached to the coronary arteries on either side of the blockage creating a detour for blood to flow along, thus improving the blood supply to the heart. The reason why this procedure is performed is because coronary arteries in the heart become narrowed or blocked due to atherosclerosis (plaque buildup). This does not allow adequate blood to flow into these arteries. If this happens, patients are at risk of heart attacks also known as myocardial infarction.

The vessels used for bypass can be taken from several places. Reattaching these vessels to new sites in the body is called "grafting". Some grafts are taken from the arms or legs, which leaves a wound on the inside of the limb used. The grafts will be attached at one end to the aorta (the main artery of the body) where they will fill with blood, and then to the affected coronary artery below the blockage. This will lead to a better blood supply to the heart muscle. If more than one artery is blocked, more than one bypass is needed.

Other grafts can be taken from the internal mammary artery (an artery in the chest) as it is already branched from the aorta, so only needs to be attached below the blockage (see diagram below).

Your body will compensate for any artery or vein removed from your arm or leg, and your circulation should not be altered in that area.

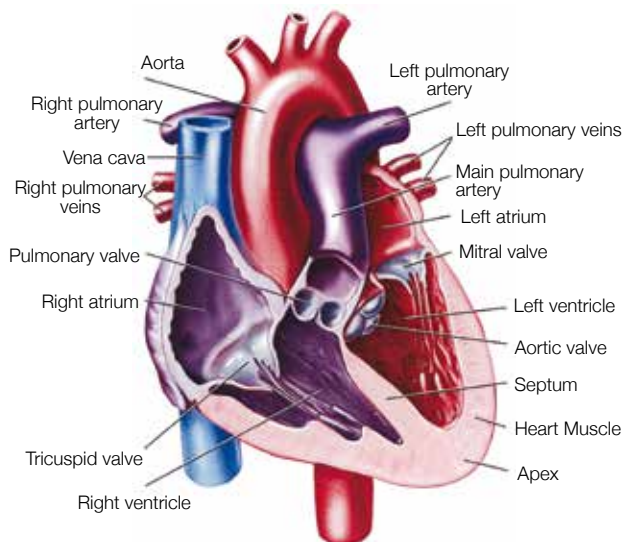
Cardiac surgery at Mater Hospital Pimlico can be carried out in two ways. The surgeon may stop your heart and connect you to a heart lung bypass machine for the duration of the operation. This machine mimics the heart and pumps blood through the body and supplies it with oxygen (as the heart and lungs normally do). Once the grafting is completed, the heart is restarted and blood is recirculated through the heart and around the body. This is called 'on pump CABG'. Sometimes it is possible to perform the surgery 'off pump' (i.e. without heart lung bypass machine) where the heart does not need to be stopped.



Source: [www.nursingconsult.com](http://www.nursingconsult.com)

# VALVE SURGERY

Heart valves are located between chambers of the heart and are designed to allow the one way flow of blood through the heart.



Source: [www.nursingconsult.com](http://www.nursingconsult.com)

The four valves are;

**Tricuspid** – on the right side of the heart, allows blood to flow from right atrium to right ventricle.

**Mitral** – on the left side, allows blood to flow from left atrium to left ventricle.

**Pulmonary** – separates right ventricle and pulmonary artery (to the lungs).

**Aortic** – on the left side, separates the left ventricle from the aorta.

There are several reasons why valve problems occur. Some people are born with valves that do not function properly. The valve may not open or close all the way. Depending on the severity of the problem, they may have no symptoms, or may have shortness of breath, tiredness, pain or fluid build up in your body or lungs.

Another cause of valve problems is previous rheumatic fever, even though this illness is experienced in childhood, rheumatic fever can cause permanent stiffening of valves, and an inability to close properly.

Similarly, other infections or diseases can cause problems with valves.

Valves are generally damaged in one of two ways:

1. Stenosis if it limits the flow of blood forwards, and
2. Incompetent or regurgitant if it does not close properly.

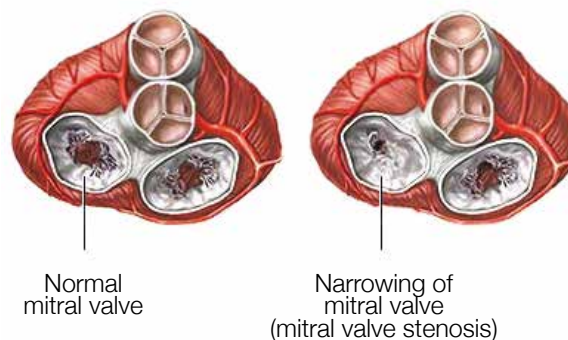
Sometimes both problems are present in diseased valves.

If the flow of blood is impaired by valve problems, the heart will have to work harder to supply blood to the body, and eventually it may fail, becoming weaker. When damaged or abnormal valves cannot be fixed, artificial valves may be used to replace them.

Mitral valves can be repaired if the problem is with thickening or scarring of the flaps (cusps or leaflets) which open and close. The surgeon may be able to cut the scarred part or to remove extra tissue from a stretched valve.

If the valve cannot be repaired, then it can be replaced with a new valve which the surgeon will sew onto a rim of tissue left from the old valve.

There are two types of replacement valves: tissue (or biological) valves and mechanical valves.



Source: [www.heartvalveleakage.net](http://www.heartvalveleakage.net)

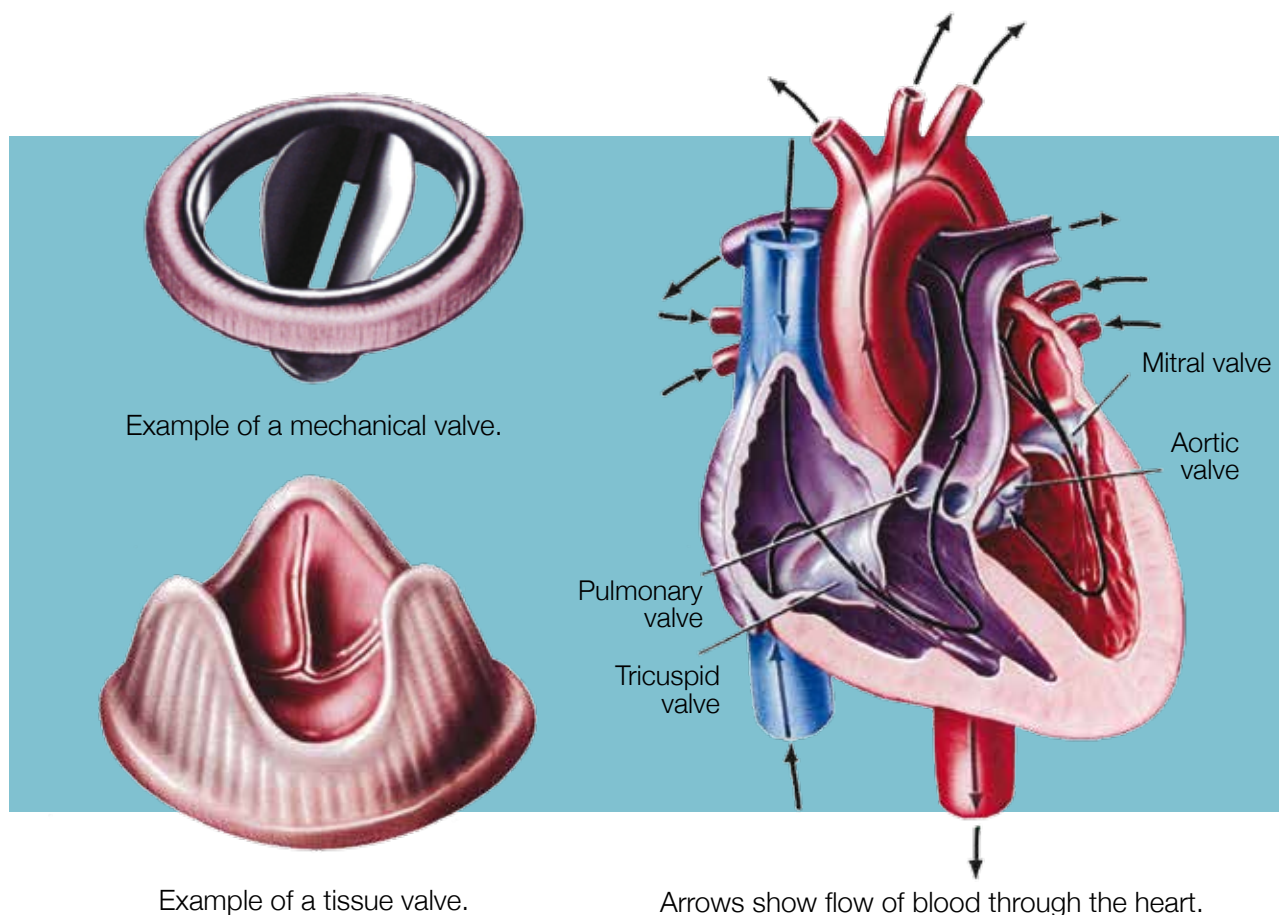
ADAM.

# VALVE SURGERY

Mechanical valves have some advantages over tissue valves, because they last longer. Unfortunately because they are made of plastic or metal, blood clots can form on them, so medication (Warfarin) to prevent clot formation will have to be taken for life.

Tissue valves although do not last as long, require anticoagulation only for six weeks after the operation and sometimes not at all.

## ARTIFICIAL HEART VALVES



## MINIMALLY INVASIVE HEART SURGERY

In some cases, minimally invasive heart surgery may be an option for replacing or repairing a valve.

The surgeon makes small incisions (cuts) in the side of the chest between the ribs. This type of surgery may or may not use a heart-lung bypass machine.

# AORTIC SURGERY

The aorta is the largest artery in your body and its role is to carry oxygen-rich blood from your heart to the rest of the body.

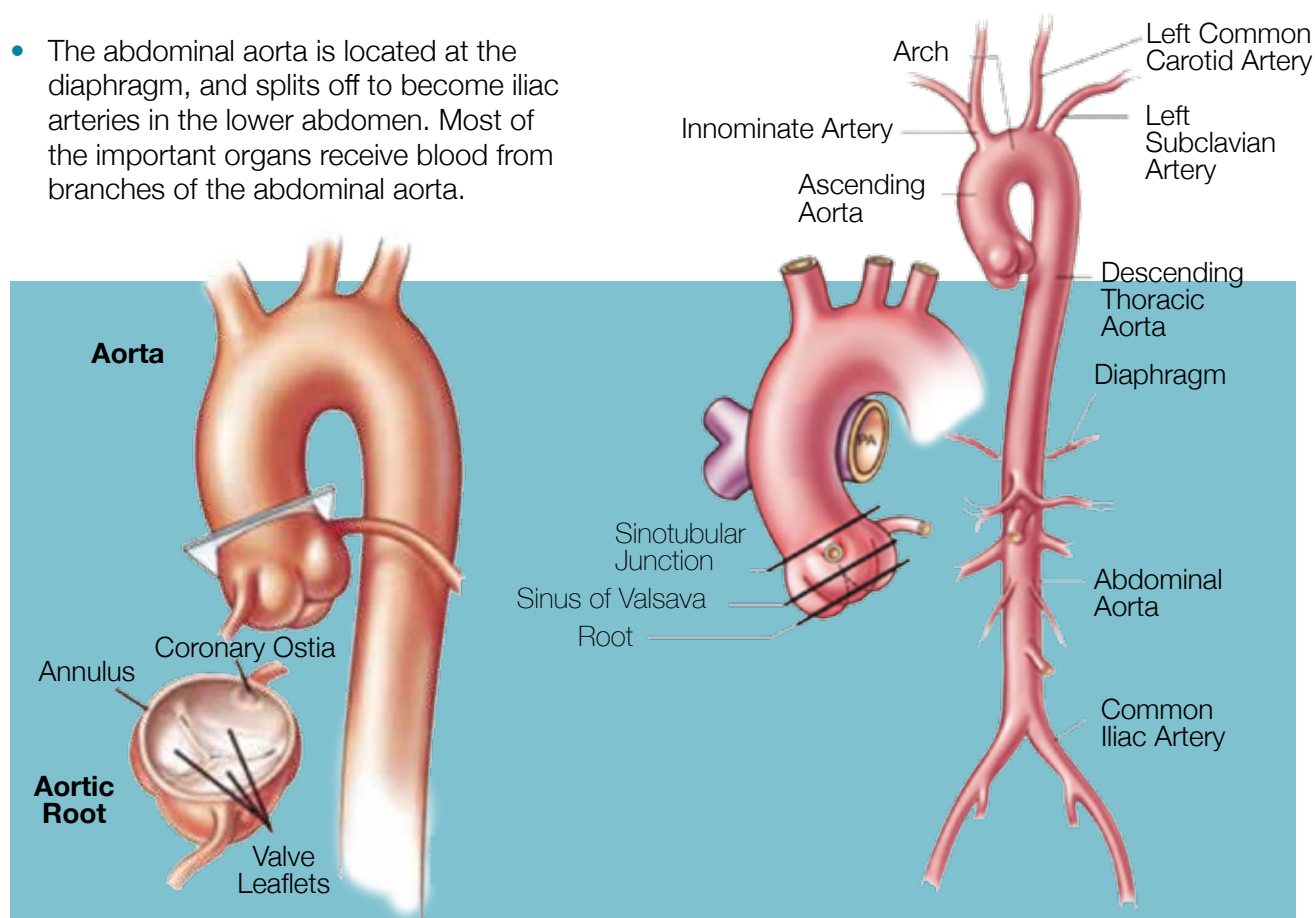
It is a vessel about 30cm long and just over 2.5cm in diameter.

## The aorta is divided into four regions:

- The ascending aorta rises up from the heart and the coronary arteries branch off the ascending aorta to supply the heart with blood.
- The aortic arch curves over the heart, bringing about branches that carry blood to the head, neck, and arms.
- The descending thoracic aorta is located down through the chest and branches supply blood to the ribs and some chest structures.
- The abdominal aorta is located at the diaphragm, and splits off to become iliac arteries in the lower abdomen. Most of the important organs receive blood from branches of the abdominal aorta.

## Similar to all arteries, the aorta's wall has several layers:

- The intima, the innermost layer, provides a smooth surface for blood to flow across.
- The media, the middle layer with muscle and elastic fibers, allows the aorta to expand and contract with each heartbeat.
- The adventitia, the outer layer, which provides additional support and structure to the aorta.



<http://www.my.clevelandclinic.org>

<http://www.kulvinderlall.com/>



# AORTIC SURGERY

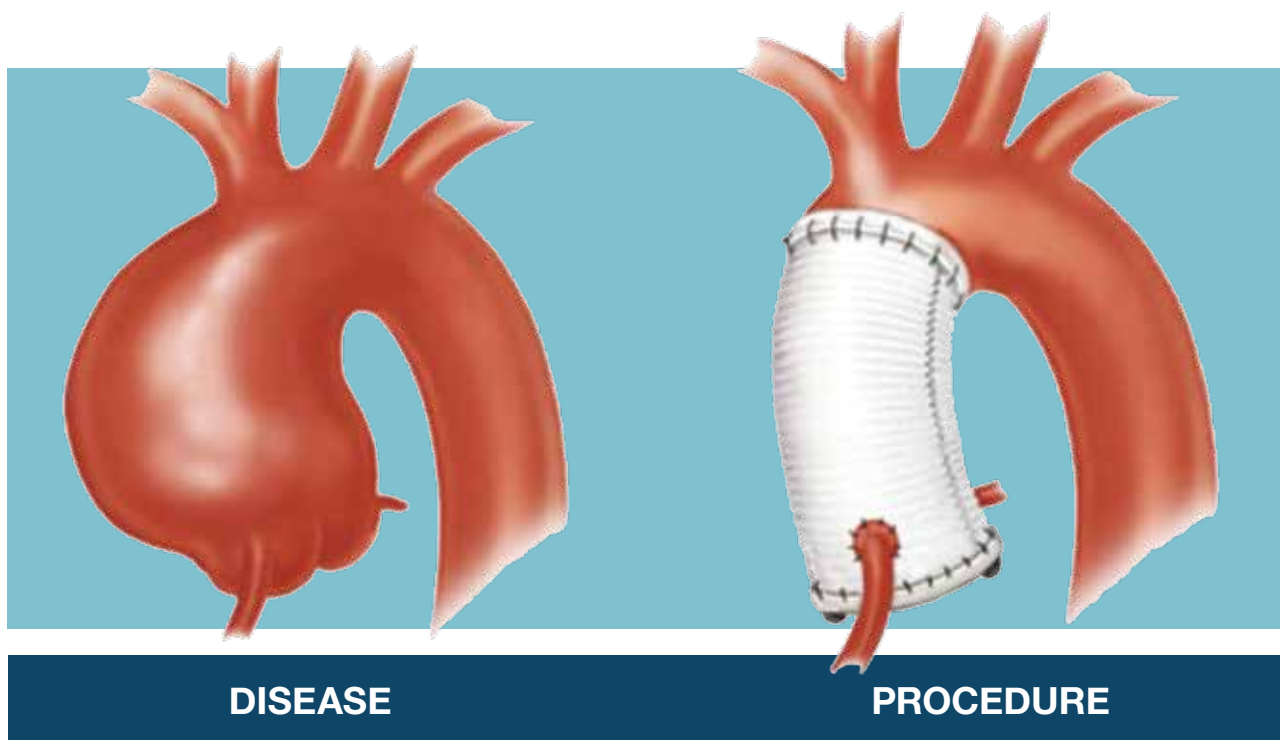
## AORTIC ROOT REPLACEMENT – BENTALL PROCEDURE

The Bentall procedure is a surgical procedure performed to repair defects of the aorta and involves:

- Removing the affected part of the aorta and aortic valve.
- Temporarily removing coronary arteries (that branch out from the ascending aorta).
- Replacing the aortic root (base of the aorta) with an artificial aortic graft and valve.
- Re-implanting the coronary arteries.

Surgical repair of the aorta may be indicated for the following conditions:

- Aortic regurgitation (when the aortic valve does not close properly).
- Aortic aneurysm (widening of the aorta).
- Dissection of the wall of the aorta (separation of the layers of the aortic wall).
- Genetic disease (such as Marfan's syndrome that causes weakening of the aortic wall).



**DISEASE**

**PROCEDURE**

<http://www.mountsinai.org>

# WHAT HAPPENS DURING THE PROCEDURE?

To reach the heart, the surgeon will make an incision down the middle of the chest and separate the breastbone (sternum). After surgery the breastbone will be rejoined with stainless steel wires (that remain permanently). The skin on the chest incision will be closed with dissolvable sutures (that do not need to be removed) and other graft sites on the legs/arms may be closed with dissolvable sutures or with staples (that need to be removed).

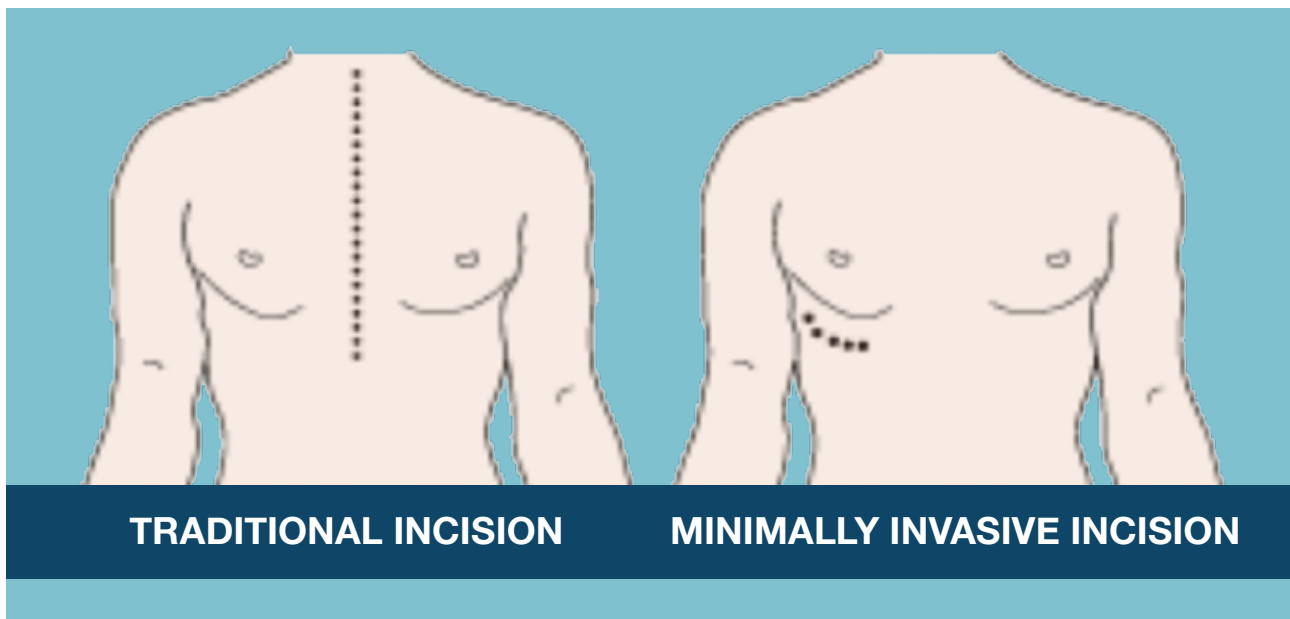
For minimally invasive surgery, the surgeon will make small incisions in the side of your chest between the ribs. These cuts can be as small as 5-8 cm where surgical tools will be inserted through these small cuts. One of these tools has a small video camera at the tip that is inserted through an incision and allows the surgeon to see inside your body during the operation.

Chest drainage tubes will be placed behind the sternum to drain excess blood from around the heart or lungs. They are connected to

a drainage collection system attached next to your bed. These will be removed within a couple of days after the operation. They are held in place with sutures which will be removed before you are discharged from hospital.

You may also have pacing wires attached to the surface of your heart during the operation. These will be covered with a sterile dressing, but can be attached to a pacemaker if your heart develops any unusual rhythms. The pacing wires will be removed after a few days. This is a painless procedure carried out by the nurses, and which will involve resting in bed for a short time.

The operation will take approximately two to six hours depending on the number of blockages to be bypassed and/or the number of valves being repaired or replaced. After the operation you will be transferred to the Intensive Care Unit (ICU).



<http://heartsurgeryva.com/services/heart-surgery/minimally-invasive.dot>

# ADMISSION

If you had an angiogram and are going home before surgery, please remember the following:

- Continue to take your current medication, as advised by your Doctor;
- When you come back to hospital, please bring the following -
  - all of your current x-rays
  - your medications
  - toiletries, loose clothing, sleepwear etc.
  - slippers or comfortable footwear;
- **Please do not bring large sums of money or valuables with you.** Give them to your family to take home. If this is not possible, we can arrange for them to be placed in the hospital safe.

When you arrive at hospital, please proceed to Admissions. Your personal details will be taken

and an Orderly will bring you to your room. All the rooms in the Cardiac Unit are single rooms with private facilities.

Your Nurse will ask a number of questions about your medical history and home circumstances to compile an admission profile, and to begin preparations for your discharge.

**If you live alone, for your safety, it is important that you make arrangements for someone to stay with you, or to stay with friends or relatives for at least the first two weeks after discharge.**

Please don't hesitate to ask questions if something is concerning you. Your Nurse will be able to help.



# THE DAY BEFORE SURGERY

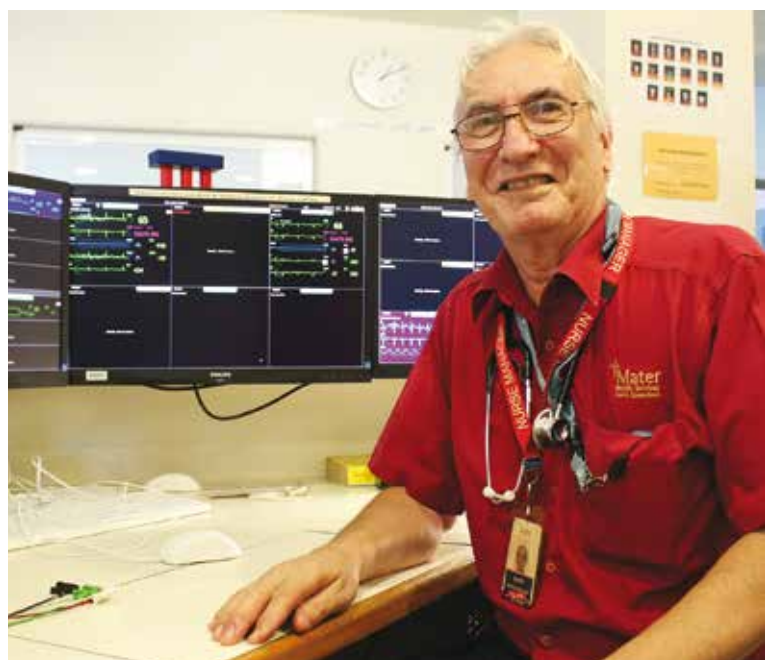
## THE TEAM

On the day before surgery, some members of the healthcare team will visit you in your hospital room. They will explain their role in caring for you and answer any questions you may have.

- Your **Cardiologist** will visit and discuss the results of your Angiogram and other tests.
- Your **Cardiac Surgeon** will talk to you about your operation and risks and benefits involved. They will visit you daily until your discharge.
- The **Anaesthetist** will visit before surgery to discuss your medical history and help you to understand their role in your operation. They will order medication (pre med) to be given before your surgery. This will help to keep you calm and comfortable.
- A **Cardiac Nurse** will be assigned to care for you each shift. Your Nurse will be aware of the Doctors plan of care and will provide all the nursing care you need.
- The **Physiotherapist** will visit before and after your operation to give you advice on breathing and exercises after the operation. They will visit daily following your operation to aid in return to normal function.
- The **Cardiac Rehab Nurse** will discuss ongoing **cardiac rehabilitation** and refer you to the nearest centre.
- The **Occupational Therapist** can assist with applying for home equipment and home help services if required.
- The **Diabetic Education Nurse** is available to help with the particular problems that diabetics face when having surgery.
- There is a **Dietician and Speech Therapist** in the Allied Health care team that may be referred for specific needs.
- **Pastoral Care** staff are trained to work in the medical setting. They are available 24 hours per day. Should you or your family wish to speak with a member of the Pastoral Care Team, please ask your Nurse.
- You and your family will be encouraged to visit ICU the night before your operation. The **ICU Nurses** will explain their role in your recovery and your family will have a chance to see the unit and become familiar with some of the equipment used there.

Coming into hospital can be stressful for you and your family and friends. There are many different ways of coping with heart disease.

- keep informed, keep things in perspective and challenge negative thoughts.
- maintain support by keeping close to family and friends.
- do enjoyable things, listen to music, crosswords, read etc.
- seek counseling for emotional and spiritual distress.



# THE DAY BEFORE SURGERY

## TESTS AND PROCEDURES

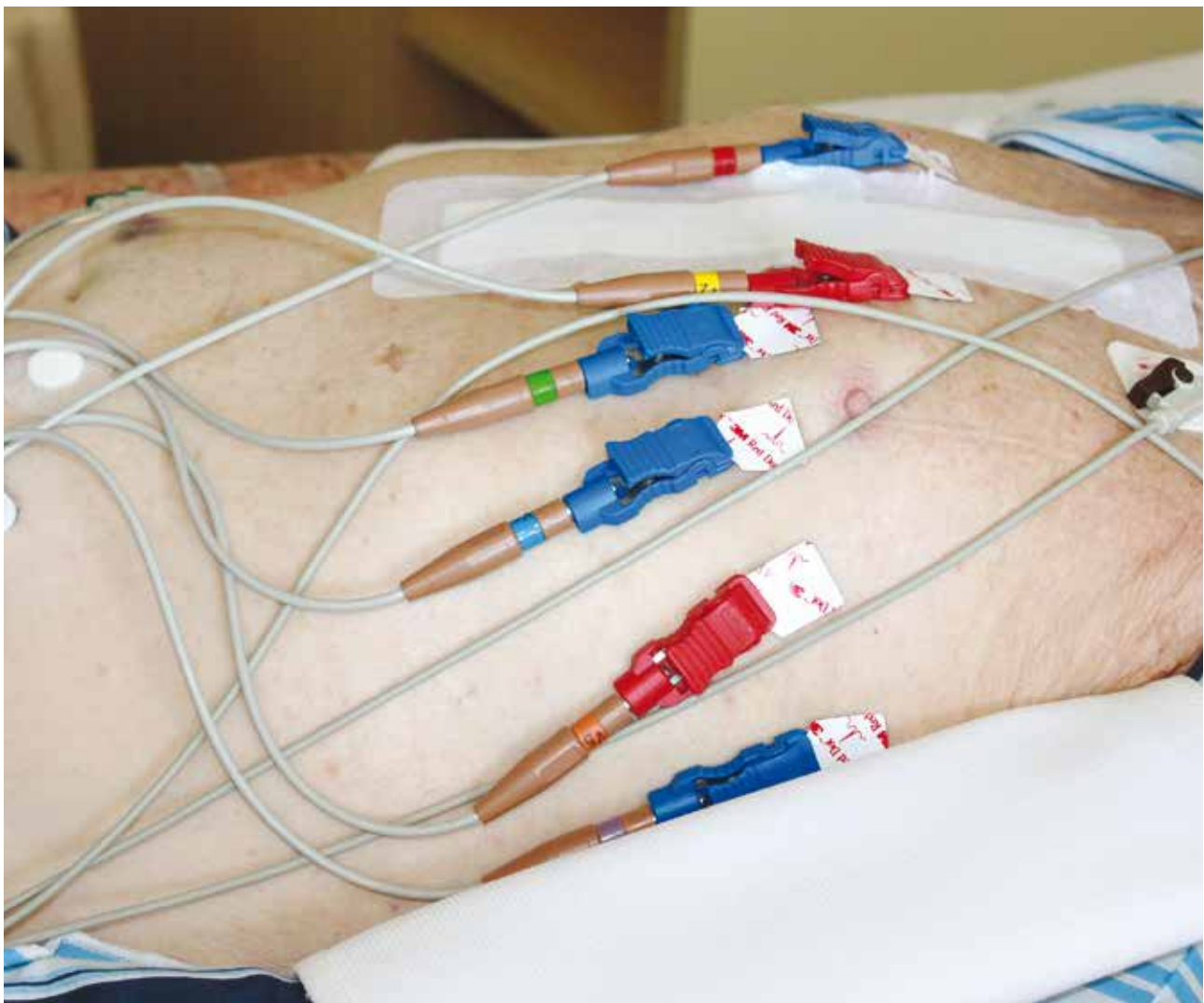
You will require a number of tests and procedures before your operation.

- Your Nurse will measure you for a pair of TED stockings. You will be given two pairs prior to surgery. These stockings are to help prevent formation of blood clots in the legs after surgery.
- Blood tests and a chest x-ray (if you have not had an x-ray in the last two weeks).
- You may require a breathing test - also known as a Respiratory Function Test (RFT).

Your doctor may order additional tests, depending upon the type of surgery and any other illnesses you may have.

In the evening before your operation you will have your chest, arms and possibly your legs shaved, and will have to shower using a medicated sponge. Your nurse will take you and members of your family for a tour of the ICU.

Your anaesthetist may have ordered a sleeping tablet for you, to help you get a good night's rest before surgery.



# THE DAY OF SURGERY

## PREPARATION

Depending upon the time of your operation, you may have nothing to eat or drink from midnight, or may have a light breakfast. Your nurse will advise you when it is time to get ready. You will have another shower with a medicated sponge and then put on a theatre gown and pants.

Your Nurse will then give you your pre-med, which you can swallow with some water. After you have your pre-med, you will stay in bed and your Nurse will put up the sides of the bed, for your safety. You will also be given some oxygen, while you rest.

Your family is welcome to come in early on the day of your surgery. They may go with you to the doors of theatre if they wish.

## IN THE OPERATING ROOM

You will be taken into the anaesthetic room in theatre, where the Nurse will welcome you and explain what will happen next. The Anaesthetist will start to put medications into the cannula in your hand and you will fall asleep. You won't remember anything more until you wake up in ICU.

We recommend that family members do not wait in the hospital, but find something to occupy them during your operation. Your surgeon will have advised them of an approximate time to return to the ICU waiting room, and he will come and speak to them there. The waiting room is provided with tea and coffee making facilities and a television. Sometimes, for a number of reasons, surgery times can be delayed, but the ICU staff will inform your relatives of any lengthy delays.

## INTENSIVE CARE UNIT

After the surgery you will be admitted to the ICU where you will stay for approximately two - three days. There is a high nurse-to-patient ratio in ICU so you will always have someone close by. Your

Nurse will ensure that your pain is kept under control and will look after all the equipment you will be attached to.

You may be a little confused or disoriented during your stay in ICU, and may remember very little of it. This is quite a normal reaction to the anaesthetic, the pain medication and the noisy environment in ICU, where you generally do not get much sleep. Every day after surgery your recovery will become easier.

There will be a number of tubes and monitors attached to you during the first few days after surgery:

- A breathing tube will be connected to a ventilator to help you breathe. You will not be able to talk while the tube is in place. Some patients may find this uncomfortable. As you wake from the anaesthetic and start to breathe on your own, the tube will be removed. You will then receive oxygen through a mask.
- Drains in your chest will help to collect blood and drainage from the chest cavity after the operation. These will normally be removed on day two.
- A urinary catheter will be in place to drain your bladder of urine. This is for your comfort and to help the Nurses and Doctors monitor the performance of your kidneys. This is usually removed the second day after your operation.
- Intravenous (IV) lines may also be in place, which will continue to give you fluids and medications into your veins, but as your condition gets better, these will be removed.
- An arterial line will be in place to monitor your blood pressure and used to take blood samples. The arterial line is usually placed in the wrist, however can be in the groin.

# THE DAY OF SURGERY

- You will be attached to a cardiac monitor during your stay in ICU, and the Doctors and Nurses will constantly monitor your condition.

Your Nurse will give you a sponge bath and help you to clean your teeth or shave if you want to, until you are mobile enough to shower. Ensure toiletries are brought into ICU. While you are in ICU, it is easier to wear an ICU gown rather than your own sleepwear. You will require only one set of sleepwear that will be worn back to the ward.

You will be visited daily by the Physiotherapist who will help you with deep breathing exercises and gentle leg and arm movements. The Nurse will encourage you to perform the exercises every hour while you are awake.

You will be seated in a recliner chair the day after surgery as this will allow greater lung expansion. Some patients may find this more comfortable than the bed.

Once you are fully awake, you may start to have sips of water, and then progress back to eating and drinking normally. You may not feel like eating initially but this will improve.

Your family (2 visitors at a time) are welcome to visit you during this time. They will need to ring the intercom bell outside the unit and the staff will bring them to see you. The visiting hours in ICU are 8:30am - 1:30pm and 4:30 to 8:00pm. The patients rest period is 1:30pm - 4:30pm and there is no visiting during this time except on the day of surgery. Upon entering and departing ICU, all visitors must wash their hands.



# POST SURGERY

## THE CARDIOTHORACIC UNIT

Once you no longer require constant care you will be moved to the Cardiothoracic Unit (CTU). You will feel very tired when you return to the ward. This is due to a combination of the anaesthetic, the medication you have been given, and lack of sleep. However, it is essential that you continue to do your breathing and coughing exercises and go for walks (with assistance) around the ward throughout the day.

## WALKING AND BREATHING EXERCISES

It is normal to experience some discomfort. Please tell your nurse if you have any pain. The medication given to you is to make your recovery as easy for you as possible. You will not be able to do your deep breathing or coughing exercises if you are in pain. Deep breathing and coughing exercises are essential to ensure your lungs are well inflated and prevent a chest infection.

Each day your activity level will gradually increase. Exercise within the guidelines given to you by the physiotherapist. It is important to take short walks during the day, building up the time and distance until you can manage full 'laps' of the ward. The physiotherapist and nurses will help you until you can manage this yourself. This will make you feel better, and you will have more energy. Changing your position regularly and doing leg exercises in-between walks is important for your circulation and helps keep your skin from becoming sore or breaking down. By the time of discharge, you will be able to walk a flight of stairs supervised.

## HYGIENE AND TOILETING

The nurses will help you with most activities for the first few days. Sitting out of bed, walking to the toilet, showering and getting dressed will be done with their help initially.

If you are having difficulty moving your bowels after surgery, you will be given a stool softener or laxative to help with this.





# POST SURGERY

As you become stronger, it is very important that you become as independent as possible before you go home.

## MONITORING

Instead of the constant monitoring in ICU, you will have a small portable ‘telemetry’ unit to monitor your heart rate and rhythm. You can carry this around with you, and the Nurses will monitor your heart rate on a central bank of computer screens at the Nurses Station. Your Nurse may or may not remove the telemetry before you shower as instructed by your surgeon.

If you had valve replacement surgery and are taking Warfarin you will have daily blood tests to determine what dose of Warfarin you will need. (See ‘Living with Warfarin’ booklet for more information).



## DAILY WEIGHTS

As part of the body’s response to healing, you may carry extra fluid and weigh several kilograms more than you did before surgery. You may notice that you have swelling in your arms and legs that will gradually disappear over the next few weeks. You can help reduce the swelling in your legs by sitting with your feet up and not crossing or dangling them over the side of the bed or chair. The extra fluid will pass and you should be back to your pre-admission weight when you are discharged. For this reason you will be weighed every morning to monitor the fluid loss.



## CARE OF WOUNDS

The stitches (also known as sutures) from the chest (sternal) wound are dissolvable however the stitches from the chest drains will be removed by your nurse before you go home.

If you had bypass surgery and have wounds on your legs and arms where the vessels were taken, you may have internal stitches which will dissolve once the wound is healed.

It is important that you do not have the water too hot when you shower, and that you gently pat the wounds dry afterwards. Your Nurse will show you how to clean the wounds with Betadine after each shower for 7 days after discharge.

It is important that you do not touch any wounds with your hands.

# POST SURGERY

You may also have pacing wires, covered by a small, clear dressing. If your heart beats too fast or too slow, a temporary pacemaker can be attached to these wires. The wires will be removed approximately 5 days after surgery.



## CARE OF STERNUM

**It is very important not to strain the breastbone.**

Sternal pillows reduce discomfort when coughing, and sneezing. If the pillow is not within reach, a self-hug will also produce the same effect as a pillow. You can use your pillow to splint your chest during activities such as in and out of bed. It is discouraged to walk with your pillow across your chest, however you are able to walk with it in your hand. These pillows are available to purchase from the Cardiac Unit.

**Remember** it will take your breastbone much longer to heal than the wound on the surface.

## TED STOCKING

You will also have to wear elastic TED stockings when in hospital to improve the circulation to your legs to reduce swelling and to prevent blood clots from forming. Your nurse will put them on and take them off while you are in hospital and show your family the best way to put them on. If you have leg wounds you may have to wear them for 6 weeks.



## MEDICATIONS

Some of your medications may have been changed or stopped after surgery. Often you will be given diuretics (water tablets) to remove any excess fluid from the body, and potassium supplements. Normally these will be ceased before you go home. You will be given oral pain medication every 4 to 6 hours. If you are unable to perform your physiotherapy exercises, walk or move about due to the pain, please tell your Nurse.



## MOOD CHANGES

During your recovery you may experience mood swings (sad, teary, frustration) or even confusion at times. This is usually only temporary and a result of the stress of surgery, medications and your body's response to the stress. Talk about your feelings with your nurse or doctor.

Post-operatively you will be working with the physiotherapist to facilitate your rehabilitation. This enables you to recommence an active lifestyle. The aims of physiotherapy are to optimise your breathing, progress your mobility and exercise program, ensure you understand your home exercise program, facilitate return to normal functional activities and assist in discharge planning including equipment needs.

## STERNAL PRECAUTIONS FOLLOWING CARDIAC SURGERY

- It is recommended that you avoid lifting greater than 5kg for 6 weeks. All lifting must remain pain free.
- All activity with the arms should be carried out within a pain free range. Do not push through the pain.
- Arms should be kept close to the body with any lifting activities.
- Avoid stretching both arms backwards at the same time for 10 days.
- Do not lift heavy groceries, laundry and children as this can create an uneven load through your sternum.

## IN AND OUT OF BED - LOG ROLL

The aim of this technique is to use momentum from rolling with counterweighting to avoid heavy load through your arms whilst getting in and out of bed.

### Getting Out Of Bed

- Bend your knees up one at a time.
- Roll over onto your side.
- Lower your legs off the edge of the bed and gently use your arms to move into sitting.

### Getting Into Bed

- Sit on the edge of the bed.
- Lie down onto your side, bringing your legs up at the same time.
- Keeping your knees bent, roll over onto your back.

## POSTURE

When walking, standing or sitting, be aware of your posture. Keep your head up, chin in, shoulders relaxed and your back straight.



## CIRCULATION EXERCISES

The following exercises should be completed every hour while you are awake. These exercises are important to minimise a blood clot from forming while you are resting in bed.

### Ankle Pumps

- Move both your ankles up and down.
- Repeat 10x.



### Static Quadriceps

- Tighten your thigh muscles so that you feel the crease at the back of your knee pushing down into the bed.
- Hold 3-5 secs and then relax.
- Repeat 10x.



### Static Gluteals

- Squeeze your bottom muscles together.
- Hold 3-5 secs and then relax.
- Repeat 10x.

## BREATHING EXERCISES

It is important to complete your breathing exercises every hour that you are awake. This will help keep your lungs open and clear of phlegm.

### Deep Breathing

- Take a slow deep breath in through your nose and fill your lungs completely.
- Your diaphragm should descend and your tummy rise.
- Hold it for 2-3sec and then slowly exhale for the same number of seconds you inhaled.
- Repeat 5x.



### Supported Cough

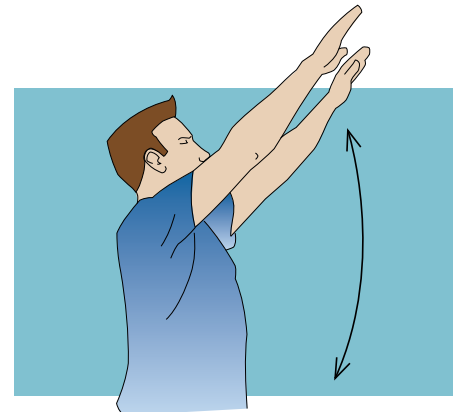
When you cough, you increase the pressure within your chest. This will place pressure on the incision site, which can make coughing uncomfortable and weak. To reduce this pressure, hug a small pillow or folded towel and apply a gentle but firm pressure to the incision site. It is important to cough to minimize the risk of post-surgical lung complications.



## UPPER LIMB DEMAND VENTILATION

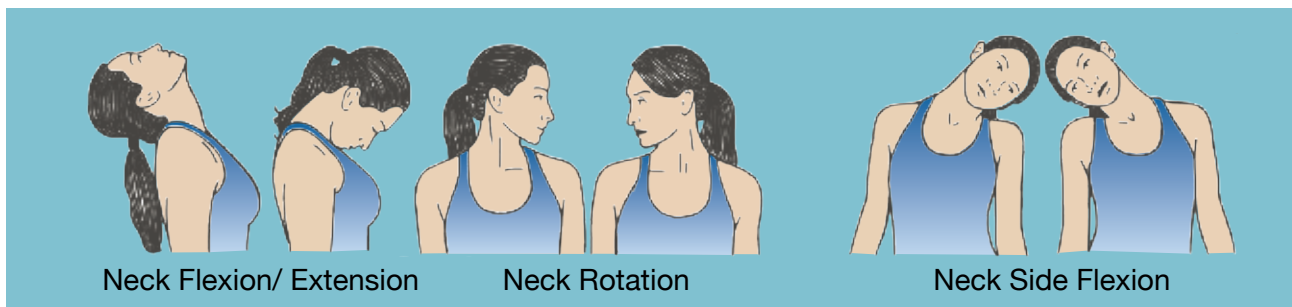
This exercise will be completed, as directed by your physiotherapist, once you return to the ward. Take a deep breath in as you lift your arms up. Breathe out as you bring your arms down by your side.

source: <http://www.heartonline.org.au/resources>

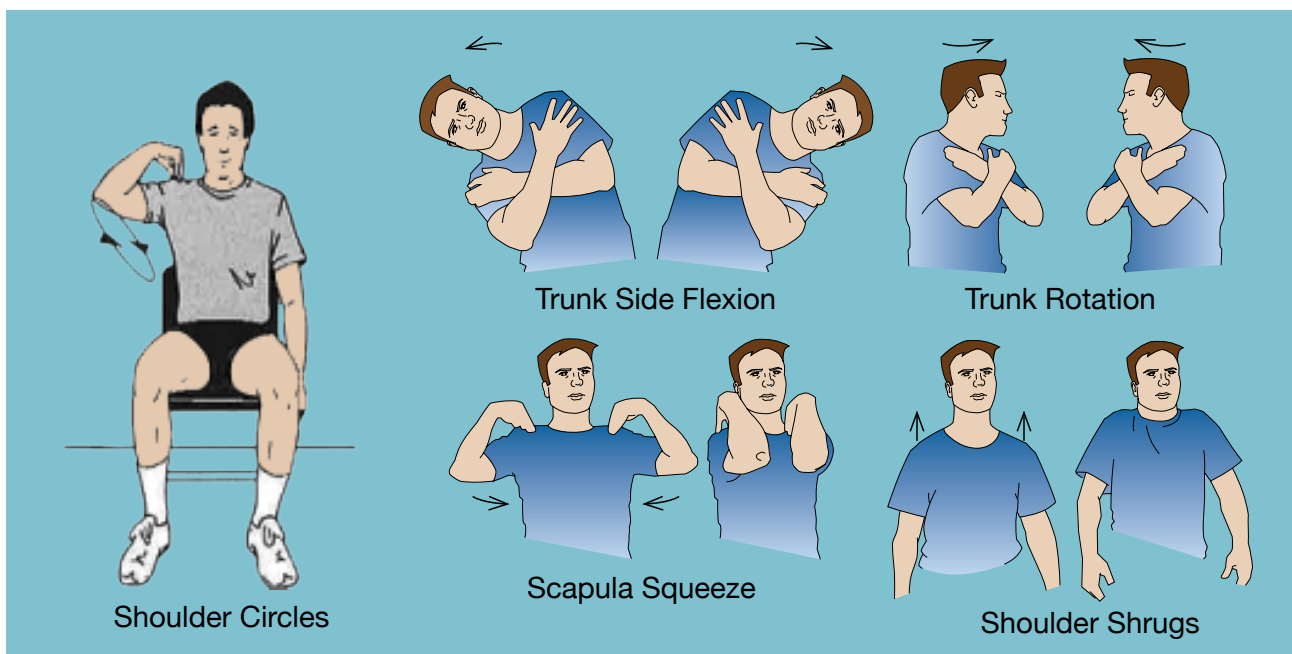


## TRUNK SHOULDER AND NECK EXERCISES

This exercise will be completed, as directed by your physiotherapist, once you return to the ward. These exercises will assist in good posture and reduce surgery-related musculoskeletal pain. They include: trunk rotation, trunk side flexion, neck rotation, neck flexion and extension, shoulder shrugs, scapula squeeze and shoulder circles.



source: <http://www.prehabexercises.com>



source: [https://www.emaze.com/@AWWZLCW/PE-\(Exercises-before-doing-the-activities\)](https://www.emaze.com/@AWWZLCW/PE-(Exercises-before-doing-the-activities))

source: <http://www.heartonline.org.au/resources>

## IN AND OUT OF A CHAIR

### Getting Out Of A Chair

- Move your bottom gently to the front of the chair.
- Place feet shoulder width apart.
- Bend forward from the hips and push your body up with your legs.



### Getting Into A Chair

- You are able to feel for the arm rest for safety and to ensure you are in the correct position.
- Feel the front on the chair touching the back of your legs.
- Place feet shoulder width apart.
- Bend at the knees and use your leg muscles to lower yourself onto the chair.
- Gently move your bottom back.

## WALKING

It is recommended that you complete frequent walks throughout the day, with assistance if required. Walking can help improve lung function and reduce general deconditioning. When you walk keep your pillow by your side as this will encourage a normal walking pattern and good posture. It is important for you to exercise regularly after your cardiac surgery to improve your heart and lung (cardiovascular) fitness. Try to progress the distance and frequency of your walking throughout your recovery period and into the future as directed by your health care professional.

On discharge you should continue with a walking program as outlined in your cardiac surgery resource guide. Your Cardiac Nurse will arrange for you to complete phase 2 of your cardiac rehabilitation after your 6 week review. This includes education and exercise sessions.



## STAIRS

Before discharge from hospital, the physiotherapist will guide you up and down the stairs. This is a mandatory requirement to ensure you are safe to discharge home.



# PLANNING FOR HOME

## PLANNING FOR HOME

Before you go home, you will be given a list of medications, how much to take and when to take them. You will also be given a copy of your latest ECG and x-rays.

If you are on Warfarin your dosage will be closely monitored and your nurse will help you to record the blood results in your Warfarin booklet. You may not have received your Warfarin dose on the day of discharge and therefore would need to ring the ward after 4.00pm. Your GP will then take over the care of your Warfarin requirements.

When you leave hospital, you will need to have someone stay with you for a couple of weeks to help with washing, lifting, mowing, cleaning and other tasks which you may not be able to manage initially.

These temporary limitations are to give your breast bone (which is held together with surgical wire) time to heal properly.

Where required, the occupational therapist will

assist you and your family with choosing home aids (eg. electric recliner chair, over-the-toilet seat etc.) and community care services that may be approved and visit you at home after you are discharged from the hospital.

A referral will be sent to your local Cardiac Rehabilitation Program.

Cardiac Rehabilitation is an exercise and education program designed to help you get back to a full and productive life.

It has 3 phases:

- **Phase 1** which is the period of recovery in hospital, and immediate few weeks post discharge,
- **Phase 2** which normally begins in the weeks after your operation, and
- **Phase 3** which is a lifetime plan to heart health.

Rehabilitation programs are available at the Mater Hospital Townsville, and in most areas of Queensland and other states, and are covered by most Health Funds.



# PLANNING FOR HOME

Each centre has a different format, but the principal of cardiac rehabilitation is:

- To begin a regular physical activity program.
- To teach you about heart disease and how you can reduce risk factors.
- To support you through changes and identify some coping strategies.
- To help modify your behaviour to make healthier choices.
- To help you feel better faster.
- To provide reassurance and support during your recovery.
- To aid in reducing the risk of complications and future heart problems.
- To provide support to family and friends.

The Phase 2 Cardiac Rehabilitation Program is conducted at the Mater Hospital on the ground floor where there is a fully equipped gym and meeting room.

A personalised exercise program will be developed by the staff, and your heart rate, rhythm and blood pressure will be monitored before and after your sessions. The phase 2 program includes:

- 8 gym sessions.
- an initial and final exercise assessment.
- an education session delivered in half a day and usually presented by a multidisciplinary team composing of a cardiac nurse, pharmacist, occupational therapist, dietician, and psychologist.

You can obtain more information and book in for an initial assessment before discharge by talking to a cardiac rehabilitation member.

If you have not heard from your local rehabilitation centre after 6 weeks, you should give them a call.

Cardiac Rehabilitation is the best way to look after yourself and your heart. Not only will you be fitter and healthier, but you will meet others in a similar situation, which helps you to see that there is life after heart disease and/or surgery.





## TRAVELLING HOME

You are probably looking forward to going home, but you may also feel a little apprehensive. The following information is designed to make the first few weeks of your recovery as easy as possible. Please remember that everyone recovers at a different pace. This booklet is intended only as a guideline. Should you have any particular concerns please contact your GP.

While you will not be able to drive for several weeks, it is perfectly safe to travel home by car.

- Take pain relief medicine before you travel and again every 4 - 6 hours if required.
- You must wear a seatbelt, but this will be more comfortable with your cushion between the belt and your chest.
- If your journey home lasts more than an hour, take frequent breaks, get out of the car and have a short walk. Remember to do hand and leg exercises while in the car. This will improve the circulation in your legs and help prevent swelling.
- If you intend to fly home, you will need a 'fitness to fly' certificate and approval from your surgeon.
- Domestic airlines have restrictions on the minimum number of days after surgery before you can fly and international airlines may have a longer period.

## SLEEP AND REST

- You should try to get 6 – 10 hours of sleep each day. You may find that you need to rest during the day, especially after meals or exercise.
- You will need to sleep on your back for 6– 8 weeks.
- Some people prefer to sleep on a recliner chair if sleeping in bed is difficult.
- It is very common to experience nightmares. These usually pass in a week or so, but if they persist, talk to your GP.

## CARE OF YOUR WOUND

- To prevent wound infection, ensure hands are clean before applying Betadine after each shower.
- Do not apply ointments, oils, creams, lotions, or powder to your incisions.
- Do not touch the wound with your hands or fingertips.

Although not common, sometimes a dissolvable suture may cause some irritation and may need to be removed.

See your GP early if any signs of wound infection such as: skin becoming inflamed, irritated, red, warm, sore, increase in drainage or pus, new swelling or pressure developing around the wound, odour from wound, increase in opening of the incision, or you develop a high temperature/chills.



## APPETITE

- Good nutrition will help your wounds heal and your body recover faster.
- Some people do not feel like eating when they first go home. This will improve as you become more active.
- Try to eat small, well balanced meals 4 – 6 times a day.

## VISITORS

Don't let other people exhaust you. Encourage friends and relatives to visit at a time that is convenient for you, and to keep their visits short until you are feeling stronger. Take the phone off the hook when you are resting.

**If you live alone, you should arrange for someone to stay with you for the first 2 weeks, especially at night.**

## CARING FOR YOURSELF

- After you go home, it is important to get out of bed, shower, and dress in casual clothes each day.
- Use warm, not hot, water to shower. You may also need to rest afterwards.
- Have a steady, non-slip stool or chair in the shower in case you need to sit down. Ensure it's suitable for your height and weight. Check safety prior to putting into shower.
- Shower when someone else is in the house in case you need assistance.
- Don't stay in the shower for too long, as this can cause softening of the wound edges.
- No tub bath.
- Gently pat wounds dry with a clean towel.
- Wipe the suture line after each shower with Betadine for one week after discharge.
- Try to expose the wound to fresh air for at least 5 – 10 minutes per day.
- If you have leg wounds you will need to wear your TED stockings for 6 weeks after you go home.

## MEDICATION

You will be given a list of your medication on the day you go home from the hospital. Get to know the names of your medications, their doses, their purpose, how often to take them and their side effects. Take them at approximately the same time every day. If you

find you have too many, it may be easier to ask your pharmacist to place your medication into prepared blister packs.

Do not stop or change your medications unless you talk to your doctor first. Check with your doctor and/or pharmacist before using any over-the-counter medications as they could change the effect of your prescription medications.

## ANXIETY AND DEPRESSION

- It is normal to have good days and bad days during your recovery. Every day you should feel a little stronger, but it is still normal to worry about the future, or the lack of control over your life. **These feelings often get better with time, and it can help to talk things over with your family. If you experience depression or anxiety for any length of time, you should contact your GP. There is help available.**
- You may also find it difficult to concentrate on anything for more than a few minutes. This is normal and will improve in the next few weeks. Take frequent breaks, and try not to make any important decisions until you feel better.

## HOW TO HELP YOURSELF

**The following program is a guideline of what you should aim for in the next six weeks.**

Exercise is the best way to regain your fitness and strength. It will also help you to feel better faster.

The easiest form of exercise to start with is walking. Continue to increase your physical activity by an extra 5-10 minutes each week.

Do not use a treadmill or other exercise equipment at home in the first 6 weeks after discharge or until your doctor has given you approval.

- Promote lung expansion by continuing your deep breathing exercises for the next 6 weeks or as indicated by your physiotherapist.
- Wear your **stockings (T.E.D.S.)** for 6 weeks if you have leg wounds and do not suffer from poor circulation (peripheral vascular disease – PVD).
- Keep your **pillow** with you for 6 weeks.
- Splint your chest when transferring to bed/ chair or coughing/sneezing.
- **Sleep on your back** until your surgeon allows you to sleep on your side.
- Wear your **chest binder** for 6 weeks if you have been ordered one.
- Women may find wearing a non-underwire surgical bra to provide support and ease discomfort from the incision site (being pulled by the weight of the breasts). The front open and close feature helps to put them on after surgery.
- Maintain good posture and avoid being in one position for too long. This will help reduce the discomfort in your back and shoulders.
- It is important to move carefully after cardiac surgery to allow the breastbone (sternum) to heal.
- Do your physio exercises regularly as instructed.
- You may cover your wound if there is discharge, otherwise leave them uncovered.
- You should continue to use your pillow to support your chest when coughing or sneezing for 6 weeks after your surgery.
- Try to sit in higher chairs and avoid low settees, which are hard to get up from.
- Your vision may also be a little blurred or you may see spots, even with your glasses on. This should pass however report this to your nurse or doctor.

You may be more aware of your heart beating, especially when you are resting. This will ease with time, but you may find it helpful to learn

to take your pulse, to check that it is within normal limits. Count your pulse for 15 seconds then multiply the number by 4. This will give an approximate pulse rate over one minute.



## PULSE SITES

**Carotid Pulse** - to find this pulse you need to first locate your Adam's apple with your thumb then reach the first two fingers on the other side of your neck and feel for your carotid pulse.

**Radial Pulse** - to find this pulse place your fingertips of your index and middle finger on the inside of your wrist in line with your thumb.

**Avoid strenuous activity or lifting loads exceeding greater than 5kg bilaterally.**

**Keep loads light, balanced and close to your body when lifting. Avoid quick, jerky, uneven upper arm movements that may create a shearing force on the sternum.**

If you have young children nearby, be aware of their presence and not be tempted to pick them up.

Twisting with your upper body can cause movement of the sternum which prevents its union. If you need to reach for something it may be helpful to:

- Turn with your entire body to face the object.
- Step close to it.
- It may be helpful to keep frequently used items at waist level to make it easier for you.
- If an item is above shoulder level or on the floor, consider asking someone to get it for you.

**No vacuuming, sweeping floors or mopping for 6 weeks.**

**No heavy lifting greater than 15kg for 6 months.**

## ACTIVITY GUIDELINE AFTER DISCHARGE

<b>Week One</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> minimum 2 times for 5 – 10 minutes each time at an easy strolling pace and consistent (aim for up to 5 - 6 times daily).</li> <li>• Review appointment with your GP.</li> <li>• Activity level the same as in hospital.</li> <li>• Apply betadine to wounds.</li> <li>• Get up, shower and dress.</li> <li>• Stay mainly in and around the house.</li> <li>• Limit visitors and phone calls.</li> <li>• Enjoy sedentary interests, reading, music, TV.</li> </ul>
<b>Week Two</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> minimum 2 times daily for 10 – 15 minutes each time at a comfortable pace.</li> <li>• Light activities in the house.</li> <li>• Preparing light meals.</li> <li>• Wiping dishes.</li> <li>• Limit visitors.</li> <li>• Setting the table.</li> <li>• Putting things away eg. your dirty clothes into the washing machine.</li> </ul>
<b>Week Three</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> minimum 2 times daily for 15 – 20 minutes each time at a comfortable pace.</li> <li>• Activities in the garden, light weeding, hand watering.</li> <li>• Social outings, visiting friends, eating out, theatre.</li> <li>• Consider booking your cardiac rehabilitation program if not already done so.</li> </ul>
<b>Week Four</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> minimum 1-2 times daily for 20 – 25 minutes at a comfortable pace.</li> <li>• Increase social activities as desired.</li> <li>• Increase household activities in duration – ( Remember 2kg limitation).</li> </ul>
<b>Week Five</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> minimum 1-2 times daily for 25 – 30 minutes.</li> <li>• Increased household activities as tolerated. Remember 1-2kg weight restriction.</li> <li>• Increased social activities as desired.</li> </ul>
<b>Week Six</b>	<ul style="list-style-type: none"> <li>• <b>Walking</b> 1-2 times daily for 30 minutes each time striding out.</li> <li>• Review appointment with surgeon and cardiologist.</li> <li>• With your doctors' approval, you may;</li> <li>• Return to some jobs, alternate duties or part time work.</li> </ul>

This is only a guideline and you should stop immediately if you feel:

- excessive pain;
- light headedness;
- excessive shortness of breath;
- nausea or excessive fatigue;
- 'clicking' of the chest,

and if symptoms persist, consult your doctor.

## RESUMING SEXUAL INTERCOURSE

Many people are worried about resuming sexual intercourse after surgery, but under normal circumstances, it is no more strenuous than climbing 2 flights of stairs. Like all other activities, it is something you can try when you feel you are ready. Communicating with your partner will help you to relax. Just be patient and try to keep your sense of humor. You may find that a position which does not put pressure on your breastbone will be more comfortable. If it is causing undue fatigue or breathlessness, stop and try again in a few days. Remember, intercourse may be affected by some of the medications you are taking, again, discuss this with your GP if you are worried.

## GP VISITS

You should visit your own Doctor within the first few days following discharge. Remember to take along a copy of your medications, and a copy of your ECG. If you are on Warfarin then you may need to see your GP in the afternoon or the next morning following discharge to organize a blood test and your next dose of Warfarin. You may be interested in receiving some information about medi-alert identification. Pamphlets are available on the ward.

You should contact your GP at any time if you have any concerns about any aspect of your recovery or if you experience any of the following;

- If wounds become sore, red or if there is discharge from the wounds.
- If you develop a fever.
- Irregular or fast heart beats.
- Constantly light headed or dizzy.
- You are feeling worse rather than better.
- Swelling in legs have become worse or you gain 2kg in 24 hours.
- Blood in your urine or bowel motion.

**If you experience severe chest pain or excessive shortness of breath at rest – you should call an ambulance.**

Your doctor and other health workers are there to help you, but much of your recovery is up to you. You need to slowly rebuild your strength by doing a little more each day without pushing yourself too hard.

## DENTAL CARE

Certain procedures, such as a root canal or tooth extraction may allow bacteria from the mouth to enter the bloodstream and in rare circumstances can infect the heart valves and lining of the heart, causing them to become inflamed. In some cases, people who have had a repair or replacement of any of their heart valves may need to be protected (with antibiotics) from an infection of the inner heart lining (Infective Endocarditis) before undergoing such procedures.

Infective endocarditis (IE) is an infection of the lining of heart chambers or valves with bacteria, fungi, or other organisms and occurs most commonly in people who have abnormal heart valves or had previous heart surgery.



Everyone should follow a program of good mouth and tooth care. This includes a professional cleaning every six months, twice-daily tooth brushing, and daily flossing. These measures can help to prevent plaque and bacteria from building up around the gums and teeth.

## TIPS TO REMEMBER

- Pace yourself, don't feel rushed or overtired.
- Move carefully to protect your breast bone.
- Walk every day. Increase the length and speed gradually.
- Take your medication as directed.
- Talk to family and friends about how you feel.

## THE DO'S AND DON'TS OF RECOVERY

The following table gives a general guideline to the activities you can and can't do over the next few months. However, you should stop immediately if you feel any pain, become short of breath or become dizzy during an activity. If you feel any movement or 'clicking' in your breastbone, stop immediately and see your doctor.

**Remember** your recovery depends mostly on you. A healthier lifestyle after surgery can greatly reduce the risk of a further cardiac event.

Your cardiac rehabilitation team can help you not only to regain your strength after surgery, but also to make the choices needed to have a healthier and happier life.

<b>1-3 months</b>	<ul style="list-style-type: none"> <li>• Support chest when coughing and sneezing.</li> <li>• Sleep on back for 6–8 weeks.</li> <li>• Gradually increase activity levels.</li> <li>• Follow home walking plan.</li> <li>• Check with your doctor before resuming driving at 6–8 weeks.</li> <li>• Do not lift heavy groceries, laundry and children as this can create an uneven load through your sternum. Use two hands for lifting and keep elbows and load close to your body.</li> <li>• Avoid sudden jerking or twisting of breastbone, like swinging golf club, casting fishing rod.</li> <li>• Avoid pushing and pulling like shifting furniture, pull starting mower, opening tight jar lids.</li> <li>• Attend cardiac rehabilitation 6 weeks after surgery.</li> </ul>
<b>3-6 months</b>	<ul style="list-style-type: none"> <li>• Gradually increase lifting to 5kg.</li> <li>• Begin more strenuous activities such as:                             <ul style="list-style-type: none"> <li>- Gardening (raking, light digging). Do not pull start mower.</li> <li>- Woodwork – remembering 5kg limit.</li> </ul> </li> <li>• Lawn bowls.</li> </ul>
<b>6 months</b>	<ul style="list-style-type: none"> <li>• May begin Golf, Fishing, Mowing lawn, pull starting mower / boat engine.</li> </ul>

**The above table is intended as a guideline – check with your doctor if you are concerned.**

# POINTS TO REMEMBER

1. Make an appointment with the GP within the first day you arrive home if you are on Warfarin otherwise within the first week.
  - Take a copy of the list of medications and the ECG to show your GP. Your GP will need to keep you stocked with medications from now on.
  - If taking Warfarin please see your GP the day you are released from hospital or the next morning, as you need to have regular blood tests, and daily Warfarin. This will be monitored by your GP.
2. Make an appointment to see your cardiologist in 6 weeks (or within the first 3 months after your operation). If you had a valve repair/replacement you may need to have an echocardiogram prior to seeing your surgeon.
3. Make an appointment to see the surgeon in 6 weeks for your post operative review if one has not already been arranged for you.
  - Take a copy of your medications list and ECG with you to the appointment.
  - Take your X-rays if requested.
4. Your nearest rehabilitation centre will contact you within approximately 6 weeks.
5. Keep your shoulders in line with your bottom, this will ensure you are not twisting, stretching or bending.
6. Hug your pillow when coughing and sneezing. This will help support your chest and help your recovery.
7. Continue your breathing exercises as instructed by your physiotherapist. This will increase your lung capacity and help clear your air ways.
8. Wear your stockings for 6 weeks if you have leg wounds and do not suffer from peripheral vascular disease (PVD). Wear them in the car, train, bus or plane when traveling.
9. Walk tall, head up and watch what is in front of you. Keep your shoulders relaxed.
10. Have your pillow with you when you are a passenger in a car. It may be more comfortable to place it between you and the seat belt.
11. Sleep on your back for the next 6-8 weeks or as directed by your surgeon.
12. Keep exposure to the sunlight for only a few minutes to avoid burning.
13. Contact the ward Team Leader if you are unsure of anything over the next few weeks 4727 4080 and see your GP for any concerns.
14. Ring 000 for any Emergency including sudden difficulty breathing, and chest pain that is different to your sternal discomfort that you experienced in hospital.

*On behalf of the staff from the cardiac ward  
we wish you a speedy recovery.*



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