



Sir Charles  
Gairdner Hospital

# CARDIAC SURGERY

## PATIENT INFORMATION BOOKLET

***Please bring a hard copy of this booklet into hospital with you or bookmark it in your phone or tablet, it will be referred to during your admission***



## **INTRODUCTION**

Welcome to Sir Charles Gairdner Hospital. This booklet has been designed to help patients undergoing heart surgery, and their families, better understand what will happen during their hospital stay. It will also help prepare you for your return home.

Please feel free to ask any questions.



**TYPE OF SURGERY**

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**DATE OF SURGERY**

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YOUR SURGEON IS

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YOUR CARDIOLOGIST IS

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PATIENT EDUCATOR

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PHYSIOTHERAPIST

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You will be cared for by an excellent team of staff who specialise in the care of patients undergoing heart surgery. They will assist you in your recovery and provide information if required on dietary recommendations, stress management, quit smoking programmes and home aids. The social work department can provide advice with financial matters, as well as family and home difficulties. Please inform your nurse should you require any of these services

## **ADMISSION TO HOSPITAL**

As per your admission letter, you will either be admitted on the day of surgery or the night before.

If you are being admitted on the day of surgery, a nurse from the Day Of Surgery Unit (DOSU) will phone you on the afternoon of the working day prior to your admission to advise you what time to report to the admissions desk in G block reception.

If you are being admitted the night before, please phone Ward G62 via the Switchboard on 6457 3333, at 11am on the day of your admission to confirm bed availability. At this time you will be informed of what time you need to report to the admissions desk in G block reception. From there you will be directed to Ward G62.

## **WHAT DO I NEED TO BRING?**

- Toiletries in a small bag
- Any medications you are currently taking
- Glasses with protective cover
- Hearing aid
- Dentures
- A hard copy of this **THIS BOOKLET** or bookmark it in your phone/tablet

Please bring only the listed items as Intensive Care has limited room and can not accommodate any other belongings. Please leave all jewellery (including wedding band) with your family and avoid bringing valuables into hospital.

## **WHEN CAN FAMILY MEMBERS VISIT?**

We welcome visitors between 8am and 8pm, however there is a strict rest period between 1-3pm everyday and we have no visiting between these hours. You will be asked to provide the staff with a contact number for **ONE** person, a family or friend that you wish your surgeon to contact after your operation. Whilst you are in hospital information provided over the phone is limited to your Next of Kin only.

After your surgery you will be transferred to the Intensive Care Unit (ICU) which is located on the 4<sup>th</sup> Floor in G block via the gold lifts. During your stay in ICU we suggest that only immediate family visit you. After your stay in ICU you will be transferred to the High Dependency Unit (HDU) on G62.

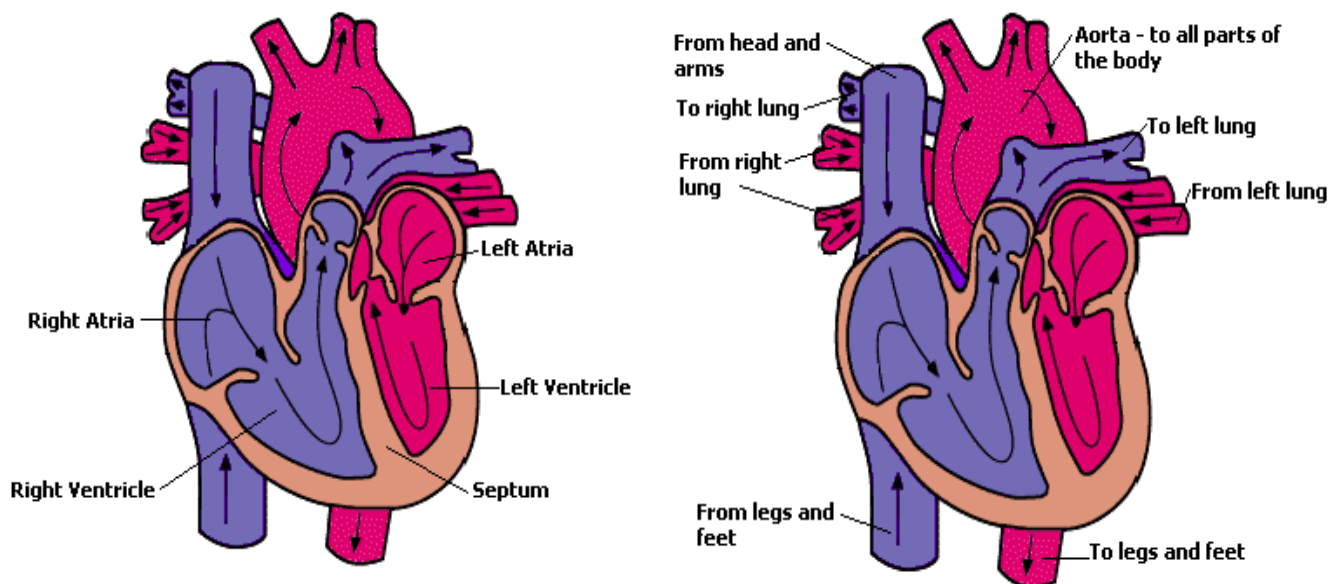
In ICU and HDU only two visitors are allowed at a time. It is a good policy for visitors to check with the nursing staff before visiting, to ensure that you are up to receiving visitors.

No doubt family and friends will want to send you flowers or gift baskets whilst you are in hospital, however they are not allowed in ICU or the HDU.

## **ABOUT YOUR HEART**

The heart is the size of a large fist and lies between the lungs, slightly to the left of centre, and is protected by the breastbone. It is a large muscular organ that pumps blood, rich in oxygen and nutrients to the body.

The heart is made up of four chambers. The two sides of the heart are separated by a thin wall called the septum. The two upper chambers are known as the left and right atrium and the two lower chambers are known as the left and right ventricles. The atria receive blood into the heart and the ventricles pump blood out of the heart.



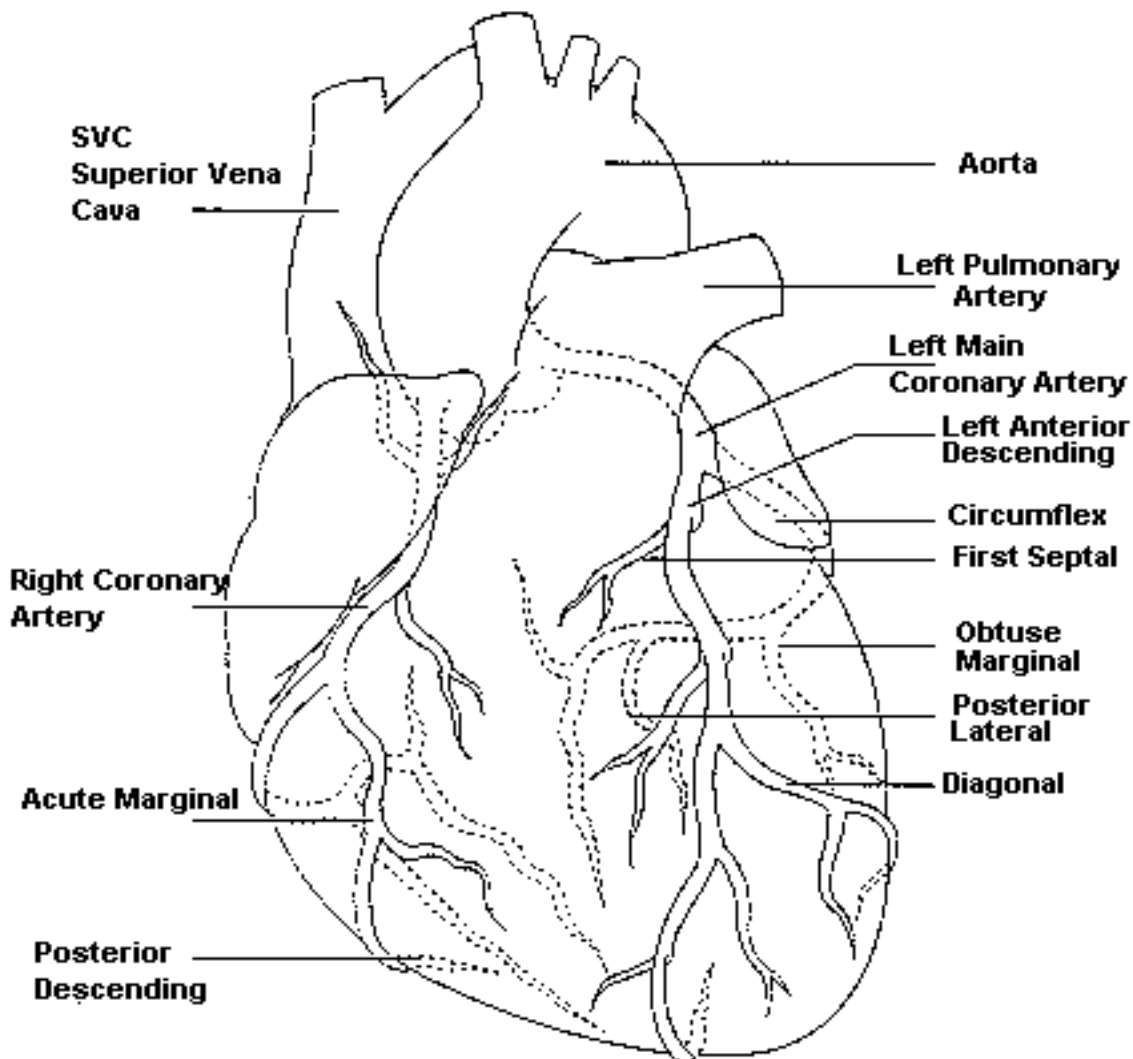
Blood from the body fills the right side of the heart which is then pumped to the lungs to receive oxygen. This blood, rich in oxygen and nutrients is then pushed to the left side of the heart. The heart then pushes this blood out of the heart into the aorta, supplying the body with the oxygenated blood.

## **FOR BYPASS SURGERY ONLY**

### **CORONARY ARTERIES**

The coronary arteries supply the heart muscle with blood and therefore oxygen. These arteries fill with blood during the resting period of the cardiac cycle.

The coronary arteries are split into two, the right coronary artery and the left



coronary artery. Each major artery then splits off into smaller sub-branches.

## **FOR BYPASS SURGERY ONLY**

### **WHAT IS CORONARY ARTERY DISEASE?**

Coronary artery disease (CAD) is one of the most prevalent types of cardiovascular disease. The main feature of CAD is the narrowing and hardening of the arteries as they become lined with plaque, known as atherosclerosis. The plaque accumulates until the artery is very narrow and it becomes difficult for blood to get past. This means that the muscle beyond the narrowing is not getting the amount of blood and oxygen it needs. The lack of oxygen to the heart muscle leads to chest pain, commonly known as angina.

The Process of Coronary Artery Disease  
(Atherosclerosis)



In the normal  
Coronary Artery  
the inside surface  
is smooth.

Plaque has  
developed  
inside this  
Coronary artery.

This Coronary  
artery is totally  
blocked with  
plaque and a  
Blood clot.

© ADAM

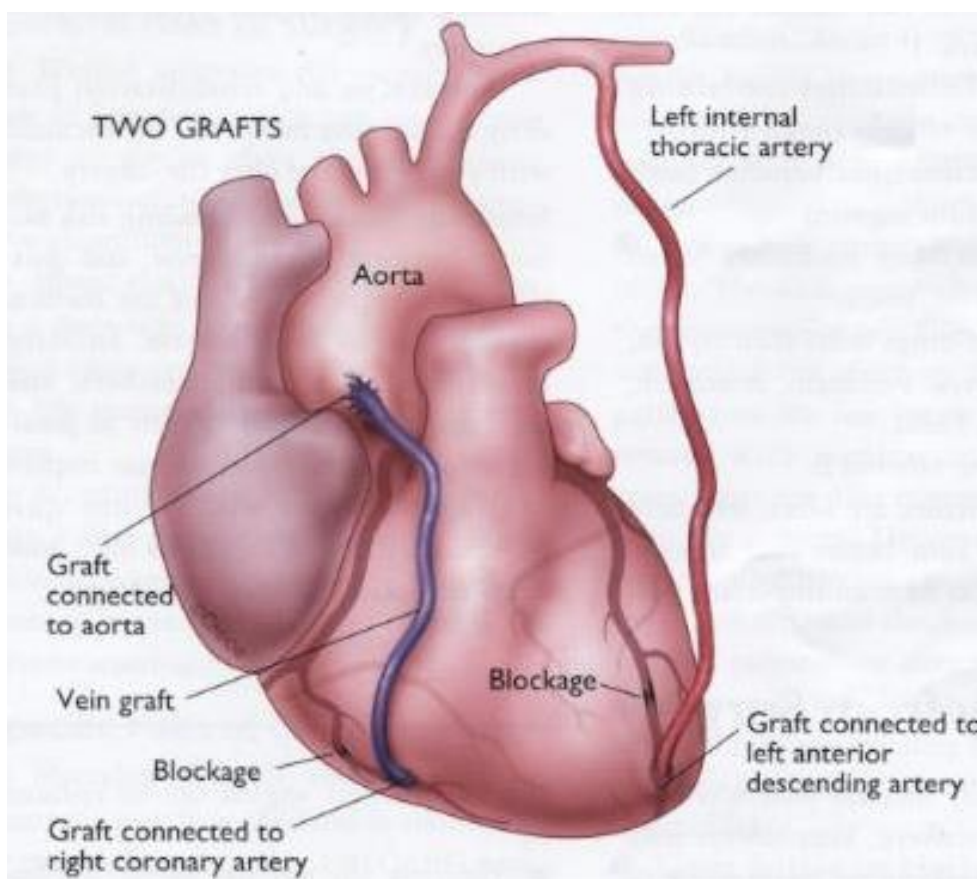
A heart attack results when the blood flow is completely blocked by plaque or a blood clot lodges in the narrowed artery.

## **FOR BYPASS SURGERY ONLY**

### **WHAT IS CORONARY ARTERY BYPASS SURGERY?**

CABG surgery is performed to bypass blockages and severe narrowing of the coronary arteries. Surgery is usually necessary when there are blockages in many arteries or in the major arteries that are too extensive or too dangerous to be treated with a minimally invasive balloon and stenting procedure.

To bypass the blockage or narrowing, a vessel is taken from your chest and/or leg, and sometimes your arm to form a 'graft'. One end of the graft is attached to the aorta; the largest artery in your body, and the other end is attached to the coronary artery, past the area of the blockage. This means that the blood rich with oxygen is supplied to the heart muscle beyond the blockage.



## **FOR BYPASS SURGERY ONLY**

### **ABOUT THE DONOR GRAFTS**

The majority of donor veins are taken from the leg, the vessel used is known as the saphenous vein. The wound will usually extend from ankle to knee, but can go to mid-thigh or to the groin. The surgeon may need to use just one leg, or both. This will depend on the quality of the vein and the number of bypasses you need.

The internal mammary arteries run down the inside of the chest wall, either side of the sternum. One end of the artery is left attached to the branch of the aorta and the other is sewn to the coronary artery beyond the blockage.

Another graft can be taken from your forearm; this vessel is known as the radial artery. Should the surgeon need to take a donor artery from your arm, the wound will run from the wrist to elbow on the underside of the arm.

### **WHAT HAPPENS WHEN YOU TAKE THE GRAFTS?**

The surrounding vessels from where the graft was taken will do the work of supplying blood to the tissues or returning blood to the heart. If your saphenous vein is used from your leg you may notice some swelling for a period after the surgery, you can help to relieve the swelling by elevating your legs when sitting. Taking the vein does not affect your ability to walk. If the radial artery is used, you may notice some swelling in your arm which will gradually subside.



# FOR VALVE SURGERY ONLY

## ABOUT YOUR HEART VALVES

Heart valves control the direction of blood through the four chambers of the heart. They act as one way doors ensuring blood doesn't flow backwards.

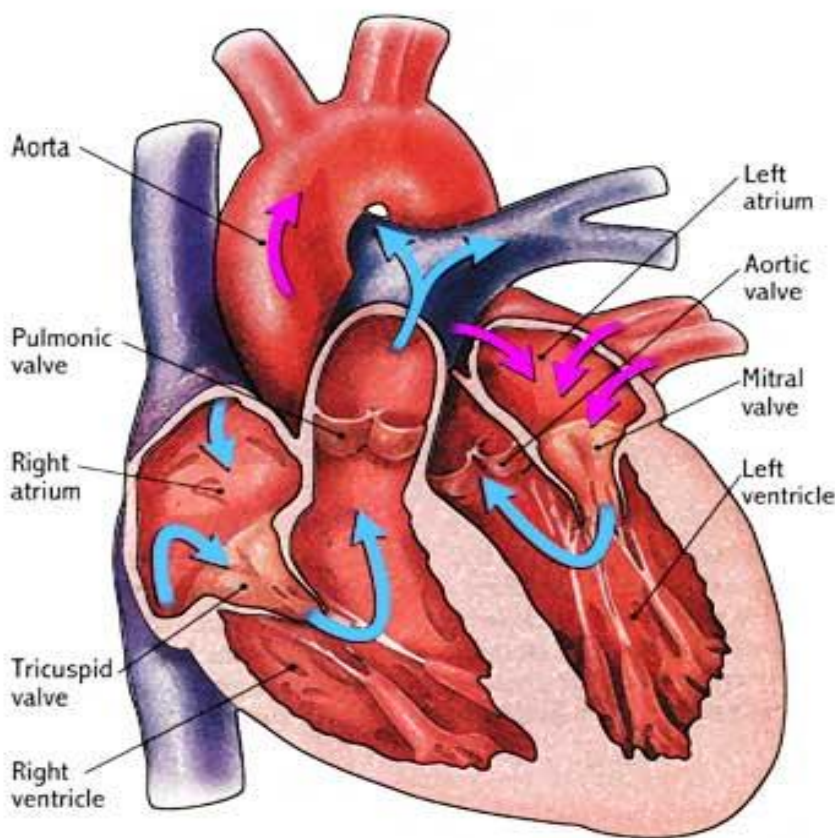
There are four heart valves, two on each side of the heart.

On the left side:

- Aortic
- Mitral

On the right side:

- Tricuspid
- Pulmonary



The valve opens to let blood through.



The valve closes to stop blood from flowing backward.

## **FOR VALVE SURGERY ONLY**

### **WHAT IS VALVULAR DISEASE?**

Valves can be damaged in a number of ways. Defects can be apparent at birth or acquired from infection, disease (particularly Rheumatic fever), aging or general wear and tear.

Any of these conditions can result in scarring or thickening of the valve causing stenosis or regurgitation.

**STENOSIS:** means that the valve is narrowed or constricted, which limits forward blood flow.

**REGURGITATION:** means the valve is unable to close properly allowing a back flow of blood.

When valves fail to open or close properly the heart has to work harder to pump blood around the body. This can produce symptoms of shortness of breath, exercise intolerance, tiredness, chest pain or build up of body fluid.

By **repairing** or **replacing** the valve, it reduces the workload on the heart, allowing it to function more efficiently.

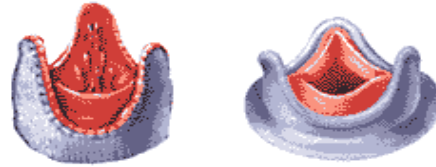
A repair is sometimes an option for Mitral and Tricuspid valve surgery. Repairing the valve can be done by placing a ring (annuloplasty ring) to reinforce your own valve, or by repairing the muscles that hold the valve in place.

## **FOR VALVE SURGERY ONLY**

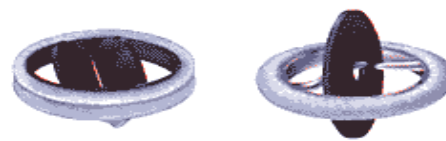
When a repair of the valve is not possible it is removed and replaced with a new valve.

There are two options for valve replacement:

1. Tissue Valves:



2. Mechanical Valves



**Tissue:** A bioprosthetic valve, sourced from a pig or cow. These are specially treated before being used.

**Mechanical:** Man made valves composed of titanium, carbon and graphite.

The type of valve you receive depends on a number of factors that your cardiologist and surgeon will discuss with you prior to your surgery

### **Warfarin**

Many people require an anticoagulation medication called Warfarin after their valve operation. Warfarin is used to prevent blood from forming unwanted clots around the valve. If you receive a mechanical valve you will require Warfarin lifelong. If you receive a tissue valve you will be on Warfarin for approximately three months. We will discuss Warfarin with you during your hospital stay.

## **FOR BENTALL PROCEDURE ONLY**

### **WHAT IS THE BENTALL PROCEDURE?**

The Bentall procedure is a type of open heart surgery where the ascending aorta is replaced as well as the aortic valve.

The ascending aorta is the main blood vessel that extends out of the top of the heart and begins the delivery of oxygenated blood to the body. The aortic valve is the valve between the aorta and the left ventricle, which is the left lower chamber of the heart.

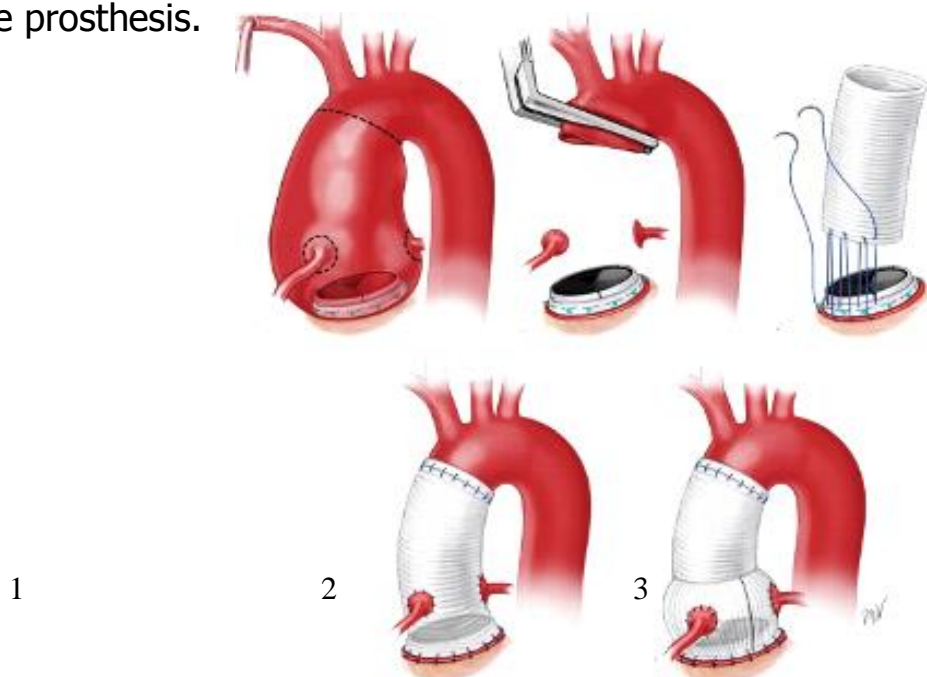
### **WHY IS A BENTALL PERFORMED?**

A Bentall is performed when the walls of the ascending aorta are weakened and start to bulge, causing an aneurysm. Causes of a weakened aorta include atherosclerosis; a build up of cholesterol in the artery, high blood pressure, diabetes, infections, smoking, age, or inherited disorders.

Having a weakened aorta can be life threatening which is why it needs to be replaced.

### **HOW IS THE SURGERY PERFORMED?**

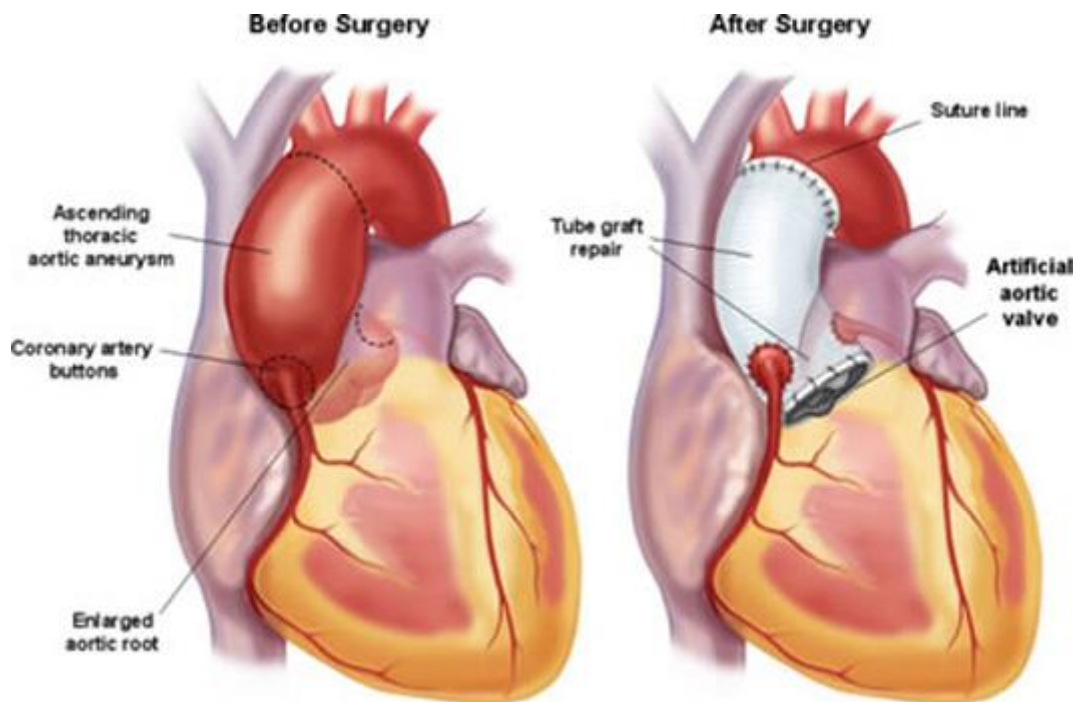
This procedure is performed like most open heart surgery. An incision is made through the sternum or breastbone, called a sternotomy. The ascending aorta is replaced with a woven material graft, and the aortic valve is replaced with a mechanical or tissue prosthesis.



## FOR BENTALL PROCEDURE ONLY

### HOW LONG DOES THE SURGERY TAKE?

Typically, this procedure takes 3-5 hours. Your hospital stay will be similar to that of other open-heart surgeries being around 5-7 days.



## **WHAT HAPPENS BEFORE SURGERY?**

### **DIET REQUIREMENTS PRE-OPERATIVELY**

It is very important that the week prior to your surgery you eat a healthy diet of fruits and vegetables. This will help reduce the risk of you becoming constipated after the operation.

### **DOSA (Day of Surgery Admission)**

If you are being admitted the morning of the surgery through DOSA, you will be seen in Pre-Admission Clinic by members of the surgical and anaesthetic team, as well as having preoperative chest X-ray, ECG, and blood tests taken. You will receive a phone call from the DOSA staff the working day before your operation. They will inform you of your fasting and admission times and confirm what medications you need to take on the morning of your operation.

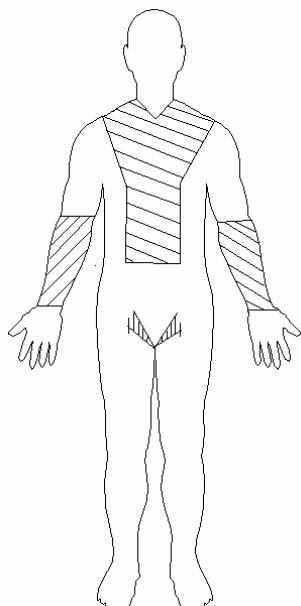
### **NIGHT PRIOR ADMISSION**

If you are being admitted to hospital on the evening prior to your surgery you will meet a member of the surgical team in Pre-Admission Clinic, and have a chest X-Ray and blood tests done whilst you are there. You will meet the Anaesthetist once you are admitted to the ward, and have the other necessary pre-operative requirements completed.

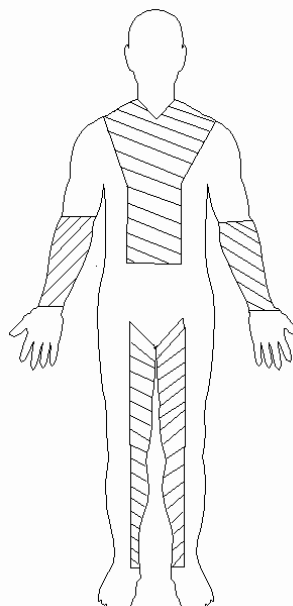
### **PRE-OPERATIVE REQUIREMENTS**

**Shave:** Hair on your chest, leg and arms will be clipped to assist the surgeon during the operation and reduce the risk of infection. This will happen the night prior, or will be completed by the DOSA nurses on admission.

#### **Hair Removal for Valve**



#### **Hair Removal for CABG**



**Shower:** You will be asked to shower twice with an antiseptic soap. This is also to reduce the risk of infection. If admitted via DOSA, you will be given the soap and instructions at pre-admission clinic.

**Nose Cream:** You will be asked to apply a small amount of anti-bacterial ointment to the inside of each nostril twice before surgery. This is to help prevent the spread of infection.

**Tests:** Prior to your surgery you may be required to do a sputum or urine sample. Some patients are also required to have lung function tests and an ultrasound of their neck, called a carotid doppler.

**Bloods/X-Ray:** These are taken for screening and comparison after the operation. The majority of time these will be completed in Pre-Admission Clinic. You will also have your blood group cross-matched in case you need a transfusion later on.

**Fasting:** You will usually be fasted from food and drink from midnight before the surgery; however fasting times can vary, depending on the timing of your operation. You will be informed when to fast by the nurses. If you are coming through DOSA the nurses will call you with instructions for fasting.

**Contact details:** You will be asked to provide staff with the contact number for **one** person, family or friend, who you wish the surgeon to contact after the operation is completed.

**Medication:** You will be given all your regular medications by the nurses unless otherwise indicated by your doctor. If you're coming through DOSA, your surgeon or a member of the surgical team will inform you of what medications you can take before surgery.

When you come into hospital you will be given a blood thinning medication called Heparin. After your surgery you will be given a Heparin injection two to three times a day until discharge. Heparin is required for the cardio-pulmonary bypass machine and is also used to prevent deep vein thrombosis (blood clots).

## **WHAT HAPPENS ON THE DAY OF SURGERY?**

### **DOSA:**

On the morning of your admission you will have your second shower with the antibacterial soap at home. Please do not apply any deodorant, perfume, powder or make up after your shower. Please present to G Block Reception at your admission time. Once admitted, the DOSA staff will clip any hair if needed, then give you a gown to wear. You will then be given tablets to make you sleepy. You may need to wear an oxygen mask after taking these tablets. From the DOSA unit you will be taken to the anaesthetic room where you will be given an anaesthetic to keep you asleep during your operation, then through to the operating room.

### **Night before surgery admission:**

You will be woken early to have your second shower with the antibacterial soap, and be given a gown to wear. We will give you tablets to make you sleepy, and if requested by your anaesthetist you may also have an injection to make you drowsier. You will have an oxygen mask on once you have had the medications. From the ward you will be transferred to the holding bay then proceed to the anaesthetic room, where you will be given an anaesthetic to keep you asleep during your operation. Once you have the anaesthetic you will be taken through to the operating room.

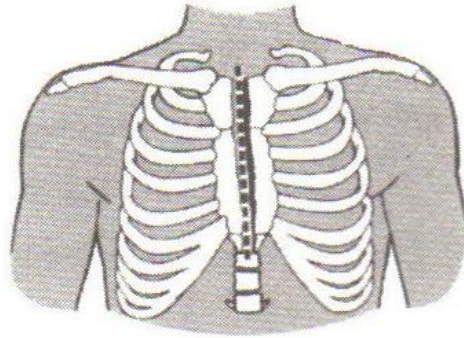
## **THE SURGERY**

### **HOW DOES THE SURGEON REACH THE HEART?**

The surgeon starts the operation by making an incision down the middle of the chest and through the sternum. The wound extends from the base of the neck (between the collarbones) to the end of the sternum. Once the surgery is finished, four to eight stainless steel wires will hold the bone together. These wires will remain in place and are not removed. The wound is stitched from the inside with dissolvable stitches.



It takes approximately 4 to 6 weeks for your breastbone to start to knit together and up to 12 weeks before it fully healed. This is why many activities are restricted in the three months after your surgery.



## **HEART-LUNG BYPASS MACHINE**

After the chest is open, the heart is visible and accessible to the surgeon. The heart-lung bypass machine is then connected, taking over the work of the heart and lungs during the operation. Blood returning to the heart from the body is diverted to the machine via tubing. The blood is then filtered and oxygenated and returned to the body. Once the bypass machine and tubing are working, the heart is stopped. The surgeon can then start operating on your heart. When the surgery is completed the heart is restarted and the heart-lung bypass machine is removed.

If you are having a CABG it is possible in some instances for the surgeon to perform surgery whilst the heart is still beating, therefore avoiding the use of the heart-lung bypass machine. This is referred to as 'off-pump' coronary artery bypass or OPCAB.

A stabilisation device is used to hold a section of the beating heart still, to allow the surgeon to operate on that particular area. Research has shown there is little difference in recovery times (both short and long term) between on and off pump surgeries.

Off-pump surgery is not suitable for all patients, and the decision to use it will be made by your surgeon.

## **WILL I NEED A BLOOD TRANSFUSION?**

Blood transfusions are only given when absolutely necessary, as your bone marrow can rapidly replenish your stores. In Australia all blood products are thoroughly screened. If you have any objections to receiving blood products for any reason, it is very important that you discuss this with your surgeon before your surgery.

## **WHAT HAPPENS IN INTENSIVE CARE?**

When the surgery is completed, you will be taken directly to the Intensive Care Unit (ICU) for recovery. Whilst there you will receive one to one nursing care and will be closely monitored by the doctors.

When arriving in ICU you will still be under anaesthetic. You will be 'woken up' when the doctors think you are ready. The time varies for everybody, but is usually 4-12 hours after the operation. The average length of stay in the ICU is one night or less than 24 hours. When the doctors think you are ready, you will be discharged from the ICU to the high dependency unit on ward G62.

Most people who have heart surgery have little memory of their stay in ICU, although some state they were aware of their families visiting.

## **CAN FAMILY VISIT INTENSIVE CARE?**

Family members are welcome to visit you in ICU. Only two visitors are allowed at a time and we recommend that only next of kin or close family and friends visit. The ICU can be an overwhelming environment when visiting a loved one due to invasive tubes, monitoring equipment, noise and lights. Your family members are encouraged to read the following sections so they know what to expect in ICU when they visit.

## **HOW LONG WILL SURGERY TAKE?**

Cardiac surgery takes on average four to five hours. Your surgeon will telephone your next of kin after the surgery. It is best if your family remain at home so they can be easily contacted. If your family would like to visit you in ICU it is helpful for them to wait an hour or two after your surgeon calls, before they arrive, to allow the nurses to settle you in.

## **WHAT EQUIPMENT WILL BE ATTACHED TO ME AFTER SURGERY?**

### **Breathing Tube (Endotracheal Tube)**

Shortly after being taken to the theatre room, you will be put under a general anaesthetic. You will then have a tube inserted in your mouth and down the windpipe (trachea), called an endotracheal tube. The tube will be connected to a ventilator which will breathe for you. The tube is kept in for as long as you are sedated and is removed in the ICU when you wake up. After the tube is removed an oxygen mask will be placed over your face. We will monitor your oxygen levels and remove your oxygen therapy when your levels return to normal.

Most patients will be asleep for less than 24 hours. The tube may leave you with a sore and scratchy throat for a short period. Throat lozenges can help.

### **Nasogastric Tube**

A nasogastric tube is a plastic tube passed down through your nose to your stomach. It is used to keep your stomach empty and reduce the risk of vomiting while you are sedated. The nasogastric tube is usually removed in Intensive Care.

### **Intravenous Lines**

Initially you will have a number of intravenous lines, or drips which are used for medications, taking blood samples, and monitoring. Most of these are inserted during surgery, whilst you are asleep. A large intravenous line, known as a Central Venous Line, is placed into the major vein in your neck, the internal jugular. This remains in for 2-3 days after the surgery. Most of the other lines are removed in ICU.

### **Drainage Tubes**

During the surgery 2-3 drains are placed beneath the ribs to drain any blood, fluid and air that accumulate around the heart. These tubes remain in place for 24-48 hours. These will be removed in ICU or when you return to the ward, depending on the amount of drainage. Your surgeon will decide the best time to remove them. The nurses will remove the tubes.

## **Urinary Catheter**

A urinary catheter is inserted during surgery, it is a tube placed into your bladder to drain your urine. This is necessary to allow the team to measure the amount of urine you are passing after surgery so we can assess your kidney function. The catheter is usually removed 2-3 days after surgery.

## **Heart Monitor**

After your surgery you will be connected to a heart monitor via leads on your chest. This allows constant monitoring of your heart rate and rhythm. When you return to the ward you will be transferred on to a wireless monitor, this allows you to walk while still being monitored.

Development of a fast irregular heart rate is common following surgery. This is more of an inconvenience than a major complication, but can make you feel dizzy and require treatment with medications. You will have your heart monitored for longer in this case.

## **Pacing wires**

During surgery you may have 1 or 2 wires inserted in the upper part of your abdomen (just under your ribcage). On one end of the wire is an electrode which lies on the surface of your heart, the other end is outside your body. These are called 'Epicardial pacing wires'. As the heart is not used to being handled it can become irritated and beat too fast or too slow or in an irregular manner. These pacing wires can be connected to a temporary pacing box which will allow staff to pace your heart, if required. These wires are placed as a precautionary measure only. They are removed 3-5 days after surgery, unless they are being used.

**You will not be allowed to use any electric/battery operated hand-held devices while the wires are in place. Including electric razors and MOBILE PHONES.**

## **COMPLICATIONS**

Cardiac surgery is a big operation and does have serious complications. Your surgeon will discuss the most serious complications with you when you sign consent for the operation. Here we will discuss some of the more common post-operative complications you may experience when you are on the ward.

### **Atrial Fibrillation (AF)**

Atrial fibrillation is when the heart beats irregularly and sometimes, very fast. It can cause you to feel palpitations, dizzy, lightheaded, breathless and tired.

This is a very common complication post cardiac surgery, occurring in approximately 30% of CABG patients and 40% of valve patients.

AF may be treated with medications or with electric defibrillator shocks if required. Treatment options will be discussed at the time.

### **Hallucinations**

Post operative delirium is a fairly common occurrence. It is thought to be as a result of the heart-lung bypass machine and/or anaesthetic. However the exact cause is unknown. Post-operative delirium may manifest as temporary confusion, however the most common symptom is visual hallucinations or vivid dreams. If you experience any of these symptoms please let your nurse know as the dreams and hallucinations can be treated with medication.

### **Constipation**

Constipation is a common complication after heart surgery. It is usually the result of the body slowing down during/after surgery, dehydration and medications. You will be commenced on gentle laxatives on your return to the ward, with a possible need for suppositories or an enema later on. Treatment decisions will be made at the time.

### **Nausea**

Post-operative nausea and vomiting happens to 50% of surgical patients. There are several reasons for this including low blood pressure, irregular heart beat, anaesthetic and other medications. The nasogastric tube will help to avoid vomiting and medication will help relieve the nausea. Usually the nausea will resolve a few days after the surgery.

## **Swelling**

During the operation you will be given intravenous fluid through your drip. This extra fluid may cause your hands and legs to swell, particularly if a vein has been taken from your leg or arm. Elevating the affected areas will help reduce the swelling. Fluid may also accumulate in the lungs. Therefore it is important to participate in physiotherapy and continue the deep breathing and coughing exercised to assist with fluid removal.

## **TAKING CONTROL**

Much of the success of your recovery is in your hands.

The day after your operation the Physiotherapist will help you out of bed for the first time. Then each day the Physiotherapist will work with you to progress your walking over increasing distances. Even though you start walking with assistance it is not long before you are able to independently pace yourself. If you are tired, rest and start again later.

Once able you will be encouraged to shower yourself and care for your own hygiene needs. This will help you gain confidence in your ability to look after yourself before discharge.

It is important that we work with you to manage your pain relief effectively. Regular pain relief is provided, however please tell your nurse if you feel this is inadequate. At SCGH we have an Acute Pain Service run by the Anaesthetic department. They are available 24hrs a day if we require any assistance in managing your pain relief.

Most people experience changes in appetite and taste after surgery. Eating small frequent meals can help to promote the return of your appetite. It is important to keep your fluid intake as normal as possible. We suggest starting with sips of water when you are waking up then increasing the amount as you tolerate. Please tell your nurse if you feel sick/nauseated, so appropriate medications can be given.

## **HOW LONG WILL I BE IN HOSPITAL?**

The length of stay varies with each person's individual response to surgery. The average length of stay after Coronary Artery Bypass surgery is 4 to 6 days and for Cardiac Valve surgery between 5 to 7 days.

During your first week at home it is important to have someone at home with you.

If you are from the country we request that you stay in Perth for approximately 1 week after discharge. You will need someone to stay with you in Perth. Please contact the PATS department in your area prior to your surgery for travel assistance. If you require accommodation advice, please inform your local PATS office or the Patient Educator as soon as possible.

You will require 2 follow up appointments after your operation. The Cardiothoracic appointment is usually 4 to 6 weeks after discharge. Your cardiology team that referred you to the surgeons will also review you approximately 4 weeks after discharge. If you are from the country these appointments are made as close together as possible.

If you or your family have any questions once you return home please do not hesitate to contact our Patient Educator.

## **PHYSIOTHERAPY AFTER SURGERY**

The physiotherapist will see you to progress your physical activity once you return to the ward. This is important to enable the small air sacs in your lungs that have closed down to reopen, to remove any build up of mucus, as well as ease the mechanical stiffness of your chest wall.

We remind you of 2 important things:

- Do not push or pull through your arms
- Cuddle a pillow or towel to your chest when coughing for support and comfort.

By assisting you to become active again you retain most of your natural muscle strength and balance, along with quickly regaining your independence and confidence. Everything is done in a controlled way. We monitor your heart rhythm and rate as well as your oxygen levels whilst you exercise to track your recovery.

We progress your walking distance and pace as quickly as your body allows, in most cases reaching distances starting at 30 metres or more and building up to 200 metres 4 times a day by the fourth day.

We give you advice on your posture as well and teach you shoulder stretches to aid your recovery. We conduct a stairs assessment with you prior to discharge. This is seen as the maximal exercise test before you go.

We also prescribe you a 6 week activity program before you go home to progress your cardiovascular fitness, and optimise the flexibility of the wounds and ribcage as it heals.

## **GOING HOME**

### **GETTING BACK TO NORMAL**

Recovery time may seem to pass slowly after major surgery. Your body has been slowed down by the decrease in activity, lack of sleep, medications and the surgery itself. You may feel drained physically and emotionally. Your family may feel the need to over protect you. You can help them by sharing this booklet with them, and letting them be involved in your rehabilitation. They too will then understand how much activity you should be doing. Use common sense, be patient and set realistic goals. The majority of patients find their sleeping patterns are disrupted after surgery, sleeping usually becomes easier when you are at home and in familiar surroundings. Also coping with too many visitors is exhausting and will slow your recovery, so it is necessary to restrict visitors for the first couple of weeks.



## **HOW DO I TAKE CARE OF MY STERNUM?**

Your physiotherapist will discuss getting back to normal activities with you and provide activity guidelines and an exercise program to follow. Remember your breastbone will take 8 to 12 weeks to heal and it is important that you follow these guidelines. Many people ask if they can lie on their sides to sleep, you will not harm your breastbone by lying on your side in bed however please do not lie on your stomach. Please continue to wear your seatbelt while travelling in a motor vehicle, it is a good idea to position a pillow or cushion underneath your seatbelt initially.

## **HOW DO I LOOK AFTER MY WOUNDS?**

### **General Wound Care**

- Observe your wounds each day for signs and symptoms of infection (even if a plastic dressing is in place)
- Signs of infection include:
  - Redness**
  - Swelling**
  - Increased Pain**
  - Increased Heat**
  - Discharge/Pus**
- If this occurs see your local GP or alternatively contact the Patient Educator.

### **To care for wounds which are uncovered**

- Wash them in the shower before the rest of your body
- Use your usual soap that you use at home.
- Gently pat dry

### **To care for wounds covered with a plastic dressing**

- Trim loose edges as the plastic lifts
- If water pools beneath the dressing at any time, it should be removed.
- Care for uncovered sections of the wound as mentioned above (there is no need for another dressing)
- **Remove the dressing 7 days after discharge.** If the dressing is removed or falls off before this time, there is no need for a new dressing.

Avoid swimming pools, spas and baths for 6 weeks, or until the wounds are completely healed. Do not apply any creams, lotions or powders to your wounds.

Your wounds will take 4 to 6 weeks to heal. The colour of your wound will gradually change from purple to red to pink over the next few months as healing takes place.

### **WHEN DO I NEED TO SEE MY GP?**

You should see your GP about 1 week after you go home, even if things are going well. Other reasons to seek medical attention include:

- Wound Infection
- Increased Shortness of Breath
- Fever or Chills
- Dizziness or feeling faint
- Blood Pressure monitoring
- Persistent Irregular Heart Beat (Palpitations)

### **FOLLOW-UP APPOINTMENTS**

Before leaving the hospital you will be given a follow up appointment with your cardiothoracic surgeon in 4-6 weeks after your surgery. You will follow up with the surgeon only once. You will see your cardiologist at 4 weeks after your operation and your medical care will then be taken over by them.

If you see a private cardiologist outside of Sir Charles Gairdner Hospital it is your responsibility to organise this appointment.

### **COUNTRY PATIENTS**

You are required to stay in Perth, within an hour of the hospital for at least one week before returning to the country. You will need to return to Ward G62 for a review 1 week after your discharge for follow up.

## **WHAT ABOUT MEDICATIONS?**

During your hospital stay it is likely that a number of your medications will change. When you go home you will be provided with medications and an up to date medication list. **It is important you follow the new list ONLY.** Do not stop taking any heart medications without first seeing your cardiologist.

If you are commenced on Warfarin remember to check with your GP or pharmacist when starting new medications, including vitamins and herbal supplements, as some medications can interact with Warfarin.

## **WHY ARE MY ANKLES SWOLLEN?**

If you have a leg wound, some fluid accumulation is normal in the ankle and lower leg. This may persist for a few weeks, but this should not stop you from exercising. When sitting, always elevate your leg. Do not cross your legs and avoid standing still for long periods. **If both ankles begin to swell, seek medical attention.**

## **PAIN**

You will experience some discomfort for a few weeks after the surgery. You may even experience more pain than you had at discharge as you increase your activity levels. The wound may also be numb or feel tingly, this is normal. It is important that pain does not get in the way of recovery. You should continue with the exercise regimen and cardiac rehabilitation sessions. Taking regular painkillers will help you do so.

It is recommended that you take regular paracetamol (panadol), four to six hourly for at least the first week post discharge. If you still experience pain when taking regular panadol, a stronger painkiller can be taken in addition. The patient educator will discuss pain relief with you.

If your pain becomes worse or you experience chest pain that is different from the wound pain, please go to your nearest Emergency Department.

## **CONSTIPATION**

With the combination of medication, inactivity, lack of appetite and surgery, you may find that you have become constipated. Drinking plenty of water, eating fruits and vegetables and gradually increasing your exercise will help. If the problem does persist, ask your pharmacist or GP for advice.

## **PALPITATIONS**

It is normal to experience some palpitations after surgery. The palpitations are due to the heart beating fast, irregular or a having a few extra beats out of place. If you have an episode of palpitations and it stops after 10-15 minutes, do not be too concerned.

However if you have an episode of palpitations that continues for more than 10-15 minutes and is not stopping and/or you are feeling sweaty, dizzy, nauseous, or short of breath it is important you seek medical attention.

## **TIREDDNESS & MOOD SWINGS**

Even though you are well enough to go home, it takes time to recover and you may feel tired for the next 4-8 weeks. Sleeping usually becomes easier when you are at home and in familiar surroundings. If you continue to have trouble sleeping, see your GP. Coping with too many visitors is exhausting and will slow your recovery, so it may be necessary to restrict visitors for the first couple of weeks.

It is normal to have good and bad days, and ups and downs in your mood. A link between heart surgery and depression has been established and is not uncommon, so if these feelings do not improve you may want to seek help.

## **TASTE AND VISUAL DISTURBANCES**

Some people find that they experience some double or blurry vision after the operation. This can take about 6 weeks to settle down. If the problem persists after this time, then see your optometrist. Most people find that they suffer from a lack of appetite and taste disturbances. This is quite normal and your taste will generally return in 2 to 3 weeks.

## **WHEN CAN I GO BACK TO WORK?**

This depends on the type of job that you do. The general rules are 6 weeks off for everyone and this is extended out to 12 weeks for people with jobs that require manual handling due to the healing time of your breastbone. Sick leave is best discussed with your surgeon prior to leaving hospital or alternatively when you attend your follow-up appointment.

## **WHEN CAN WE BE INTIMATE AGAIN?**

There are no restrictions on resuming intimacy. By the time you leave hospital, your heart will be able to cope with the amount of energy required. It is a matter of when you and your partner are ready.

## **VALVE SURGERY PATIENTS ONLY**

**If you have had valve surgery there are some additional points to remember. PLEASE READ THIS SECTION CAREFULLY.**

**These are vital to protect your repaired or replaced valve, and will need to be monitored lifelong.**

**You must now take care to prevent and promptly treat any kind of infection.**

You must inform your GP or cardiologist if you have any:

- Infected wounds
- Severe throat infection
- Infection in your mouth
- Burning on passing urine
- Fevers or generally feeling unwell
- Swelling of the feet, legs and/or hands

In order to protect your new heart valve it may be necessary to take antibiotics before and after certain procedures.

**ASK YOUR DOCTOR ABOUT THE NEED FOR ANTIBIOTICS BEFORE ALL DENTAL WORK, MEDICAL PROCEDURES AND SURGERY.**

Oral hygiene is important and regular dental checks are essential.

## **WARFARIN**

If you received a tissue heart valve or have atrial fibrillation you may be discharged on Warfarin. When your Warfarin can be stopped will be decided by your surgeon and cardiologist.

If you received a mechanical heart valve you will now be on lifelong Warfarin therapy.

You should tell your doctor or dentist that you take Warfarin well before any planned procedure (including operations in hospital, minor procedures at the doctors' surgery and some dental work) so that your Warfarin therapy is considered during the planning of your operation/procedure. You may be required to temporarily stop your Warfarin and have injectable anticoagulants instead.

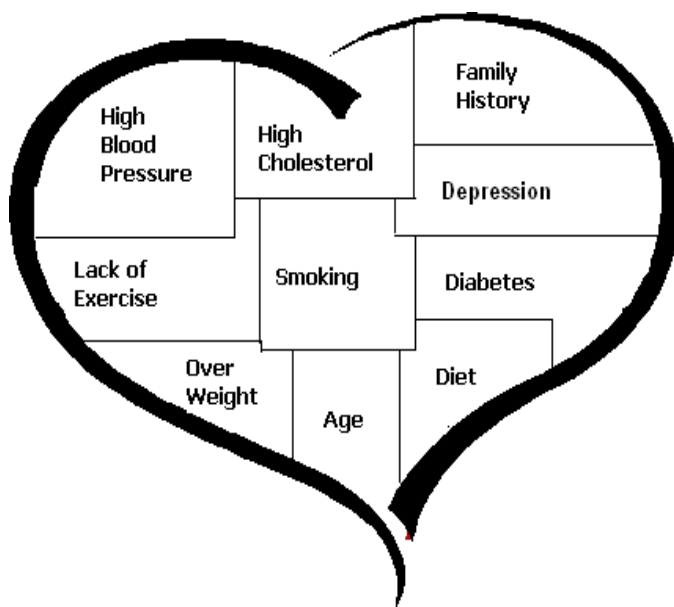
Patients on long term Warfarin should consider joining Medic Alert. Your doctor can help you do this.

After your surgery the Patient Educator or pharmacist will discuss Warfarin and your other medications in more detail before you go home.

## **BYPASS SURGERY ONLY**

### **RISK FACTORS FOR HEART DISEASE**

Two important ways of caring for yourself are by taking your medications as prescribed, and making lifestyle changes to reduce your "risk factors". Risk factors are anything that contributes to any one of us having heart disease. Now is the time to identify your risk factors.



### **SMOKING**

To stop smoking is the single most important thing you can do to reduce your risk of developing further heart disease. The benefits of stopping smoking are almost immediate. A year after the cessation of smoking, you will have halved your risk of further heart disease and heart attack compared with that of a continuing smoker. If you require any further assistance or advice please contact **QUITLINE on 131 848**. Please note patients, visitors and staff are not permitted to smoke on the SCGH grounds.

### **DIABETES**

Diabetes increases the risk of developing heart disease. As your body copes with the stress of major surgery, your blood sugar levels can fluctuate. It is essential to monitor your blood sugar levels more frequently on your return home to allow for appropriate medication adjustment by your GP or Diabetes specialist if needed. Nursing staff will discuss follow up with your community diabetes education provider prior to discharge. For more information visit the Diabetes Australia website [www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au) or contact the Diabetes Information line 1300 136 588.

## **HIGH BLOOD PRESSURE**

Blood pressure is the measure of pressure on the inside of blood vessels as the heart pumps and relaxes. The National Heart Foundation guidelines recommend your Blood Pressure be equal to or under 130/85 (130/80 if you are diabetic) and it is important to ask your GP to check it for you. Exercise and maintaining a healthy weight along with taking prescribed medications will help keep your blood pressure within normal limits. If left untreated high blood pressure can lead to further development of heart disease.

## **BLOOD CHOLESTEROL**

We all have blood cholesterol. It is a fatty substance produced by our liver and found in our blood. We need cholesterol, but it is a problem if blood cholesterol levels are too high, as it causes heart disease. The main cause of high blood cholesterol is eating foods high in saturated fat i.e. full fat dairy, butter, coconut and palm oils, deep fried-take away foods, biscuits and pastries.

The total cholesterol in the blood is made up of "good" (HDL) cholesterol, which can protect the heart against heart disease, and "bad" (LDL) cholesterol, which can block arteries increasing the risk of heart disease.

One way to help lower your blood cholesterol is to adopt a healthy eating pattern. You will be given a dietary guideline package before you are discharged. Secondly your doctor may recommend medication to assist in controlling your cholesterol levels.

Doctors recommend that you aim to keep cholesterol levels within these ranges:

|                           |            |
|---------------------------|------------|
| Total Cholesterol         | <4.0mmol/L |
| Low Density Lipids (LDL)  | <2.0mmol/L |
| High Density Lipids (HDL) | >1.0mmol/L |
| Triglycerides             | <1.5mmol/L |



## **DIETARY TIPS TO A HEALTHY HEART**

- Use margarine spreads instead of butter
- Use a variety of oils for cooking- some suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Choose low or reduced fat milk and yogurt or 'added calcium' soy beverages. Try to limit cheese and ice-cream to twice a week.
- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat. Try to limit fatty meats including sausages and delicatessen meats such as salami.
- Incorporate dries peas, dried beans, canned beans or lentils into two meals a week.
- Make vegetables and grain based foods such as breakfast cereals, bread, pasta, noodles and rice the major part of each meal.

The National Heart Foundation guidelines recommend **alcohol** intake should be limited to no more than: two standard drinks a day for men and one standard drink per day for women, with one or two days without alcohol per week. If you would like more information on healthy eating please ask the Patient Educator for a 'Diet for a Health Heart' information pack.

## **PHYSICAL ACTIVITY**

Regular exercise, such as walking will help reduce future heart problems. The National Heart Foundation recommends exercise for 30 minutes a day at least 5 days per week. The Physiotherapist will discuss your post operative exercise routine in more detail prior to discharge to help you gradually build up to 30 minutes. Exercise is good for you; it will assist in lowering your cholesterol and maintaining a normal blood sugar. Exercise and a healthy diet will also help to reduce weight. Excess weight especially around your tummy area, is a direct risk for heart disease.

## **DEPRESSION AND SOCIAL ISOLATION**

Depression and social isolation have been linked to coronary heart disease. Therefore, it is important that you seek help from an appropriate professional (your GP can refer you to a psychologist) if you think this risk factor applies to you. Further information about depression and anxiety can be obtained at [www.beyondblue.org.au](http://www.beyondblue.org.au) Information Line 1300 224 636

## HOME ACTIVITY PROGRAM

This program will assist you to safely return to your normal activities and help you regain your strength after surgery.

You should pace yourself and **return to activities gradually**. Take note of how you are feeling and adjust your activity levels accordingly. **If you start feeling unwell stop what you are doing, have a rest, and try again when you are feeling better.**

Most people will feel much better 6 weeks after surgery but you can expect full recovery to take up to 12 weeks.

Do not get discouraged, even if you are finding it difficult to keep up with the program, especially in the first 2 to 3 weeks at home. This is quite common and will usually pass as you continue to feel with time.

Your home activity program consists of four parts:

- A guide to resuming activities after surgery
- A daily walking program
- Advice on good posture after the operation
- A set of exercises to prevent stiffness in your upper body after surgery



## RESUMING ACTIVITIES AFTER SURGERY

Below is a guide indicating when you may be able to resume activities after your surgery and is usually **taken from the date of surgery**. These are the minimum guidelines for resuming activities and are based on the time it takes for the breast bone to heal, therefore most of your restrictions are about the use of your upper body.

**If you are unsure** about returning to an activity, **check with your Surgeon or Cardiologist** first.

|   |                |
|---|----------------|
| <b>Driving</b>  | <b>6 weeks</b> |
| <b>Domestic tasks</b>   |                |
| Lifting - <b>2kg max</b>  | <b>2 weeks</b> |
| - gradual increase up to 5kg                                      | 6 weeks        |
| Light sweeping (indoors)  | 4 weeks        |
| Vacuuming   | 8 weeks        |
| Raking leaves   | 6 weeks        |
| Lawn mowing   | 8 weeks        |
| Digging + gardening on all fours                                  | 12 weeks       |
| <b>Light desk work or computing</b> ( <u>short periods only</u> ) | 2 to 4 weeks   |
| <b>Sport &amp; Recreation</b>                                     |                |
| Golf  |                |
| - putting   | 2 weeks        |
| - chipping  | 8 weeks        |
| - driving   | 12 weeks       |
| Lawn Bowls  | 6 weeks        |
| Fishing   |                |
| - from a pier   | 6 weeks        |
| - from a boat   | 12 weeks       |
| Swimming  |                |
| - <u>dipping (provided wounds are healed)</u>                     | 4 to 6 weeks   |
| - breast stroke   | 8 weeks        |
| - freestyle   | 12 weeks       |
| - surfing/paddling  | 12 weeks       |
| Cycling   |                |
| - stationary  | 6 weeks        |
| - moving  | 12 weeks       |
| Jogging/Ball sports   | 12 weeks       |

# TYPICAL PROGRAM OF ACTIVITIES ONCE YOU ARE OUT OF HOSPITAL

These guidelines are useful for you to review regularly so that you know what sorts of activities you are able to do week by week.

## Week 1 (Usually **first week out of hospital**)

- Get up at your usual time and dress
- Balance your activities with frequent rest periods
- **Light activities:** make a cup of tea/coffee and light snacks
- Sedentary interests: reading, watching TV, playing cards
- **Take stairs slowly** and rest midway if necessary
- Avoid wide arm movements (except for exercises), stooping and bending
- **Do not lift anything heavier than 2kg** (kettle, 2L milk bottle)

## Week 2

- **Light chores:** making a light meal, tidying the bed (not lifting the mattress!), washing dishes
- Watering the garden with a hose, looking after indoor plants
- Going for short drives **as a passenger** (people living in the **country** can be driven home but with **frequent rests** along the way)
- **Do not lift anything heavier than 3kg**

## Week 3

- Continue to get **adequate sleep and rest**
- Light activities in the garden
- **Outings in the community** (shops) or with friends, for short periods of time (make sure there is somewhere you can sit down to rest and avoid busy times)
- **Do not lift anything heavier than 4kg** until you can drive

## Week 4

- Household activities: ironing, hanging out washing (not sheets and towels), light sweeping
- Indoor bowls
- Go to see a film or spectator sport (prolonged sitting)

## Week 5 & 6 (Continue to pace yourself as you start to do more activities)

- **No** activities that require prolonged stooping and bending: **no vacuuming, no scrubbing the floors**
- Most routine chores: clean bathroom, kitchen tidy up

## DAILY WALKING PROGRAM

For most people, walking is the most beneficial form of cardiovascular exercise to assist recovery after surgery.

### Why?

- It conditions your heart and lungs
- It helps to control blood pressure and cholesterol levels
- It helps to burn energy and aids in weight loss
- It improves muscle tone and endurance
- It makes you feel good and improves quality of life

You are encouraged to walk **twice daily minimum** in the beginning as prescribed by your physiotherapist.

### Remember:

- Walk at a comfortable pace. You should be able to keep up a conversation whilst you walk. If you cannot then slow down a little.
- Walk in comfortable conditions: avoid extreme heat or cold.
- **Avoid hills** and uneven ground for a few weeks although some inclines cannot always be avoided.
- Do not take the dog with you in the first few weeks.
- Do not walk if you are feeling unwell.
- Do not walk immediately after meals: wait approximately 45 minutes before exercising.
- If possible walk with someone until comfortable to go alone.
- If walking alone ensure you take a mobile phone with you in case of an emergency.

### Whilst walking if you experience:

- More intense breathlessness
- Chest pain
- Nausea
- Dizziness
- Headache
- Inappropriate tiredness
- Muscle cramps

→ **Stop and Rest**

If these **symptoms persist for more than 10 minutes** or **return** you should **consult your GP**.

As you improve you will find yourself walking at a more brisk pace.

As you increase the distance and pace of your walk include a 5 minutes warm-up (a slower walk) at the start and a 5 minutes cool down (another slow walk) at the end of the walk. This helps to prepare the body for the increased activity and prevents general muscle soreness from developing.

After 6 weeks you should aim to maintain your fitness levels by **continuing a minimum of 30 minutes** of cardiovascular exercise **at least 5 times per week**.

## **GUIDE TO YOUR WALKING PROGRESSION**

Aim to **increase your walking time by  $\frac{1}{2}$  -1 minute per day**. Constant gradual progression is better than under/over doing activity.

**WEEK 1**                    minutes X 2 per day minimum

**WEEK 2**                    minutes X 2 per day minimum

**WEEK 3**                    minutes X 2 per day minimum

**WEEK 4\***                    minutes X 2 per day\* (**call your physio**)

**WEEK 5**                    minutes X 1 per day

**WEEK 6**                    minutes X 1 per day

**\* This is the earliest you should ring your physiotherapist regarding Cardiac Rehabilitation, as your breastbone will not have had sufficient time to heal prior to this. You also need to be able to walk continuously for 20 minutes for 2-3 consecutive days before you ring. Some may need to ring later than this which is fine.**

**Completion of a Cardiac Rehabilitation program is highly recommended and will further progress your fitness, strength and flexibility to optimise your recovery.**

### **CARDIAC REHABILITATION EXERCISE GROUP**

Cardiac Rehabilitation exercise groups are run at Sir Charles Gairdner Hospital (SCGH) by a Physiotherapist and at various other venues around the state if you live further away. Cardiac Rehabilitation is a progression from the home activity program that you have been given whilst in hospital. **The group is designed to help you achieve a new or previous level of fitness in order to safely return to full activity, and encourage you to maintain this level following completion of the program.**

The purpose of the program is to:

- Assist your recovery from surgery
- Improve your cardiovascular fitness and muscle strength
- Improve your quality of life
- Provide you with further information about exercising correctly
- Provide you with a program that you can continue with at home

The SCGH Cardiac Rehab group is free and is run twice per week for one hour per session. **People are expected to attend twice weekly for a 6 week period.**

For more information on cardiac rehabilitation groups, please ask your physiotherapist prior to discharge, or contact them through switch board on 9346 3333 pager 4060. If you don't live close to SCGH, there may be a cardiac rehabilitation centre and exercise program in your area.

**Please note there may be a fee to attend Cardiac Rehabilitation in your area. You must complete an assessment prior to starting a Cardiac Rehabilitation Group to determine your exercise ability.**

The Cardiac Rehabilitation Nurses and the Cardiology Allied Health team at SCGH run free information sessions which run for two hours each, over three weeks. Each week different topics are discussed including:

- Healthy Heart Diet
- Exercise and your Heart
- Stress Management
- Medications
- Angina and Risk Factor Management
- Keeping your recovery on track

For bookings please contact the Cardiac Rehabilitation Co-ordinator on 9346 4302. Please note bookings are essential.

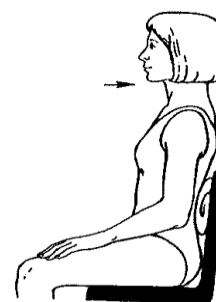
## GOOD POSTURE AFTER YOUR OPERATION

This is very important, especially in the first 6 weeks to minimize muscle stiffness and chest discomfort.

There may be a tendency to lean forward and round your shoulders initially, particularly if your incision is painful. **Remember to be aware of your posture at all times, whether you are lying down, sitting or walking.**

Try to keep your head upright, shoulders back and back straight. Use cues such as looking in the mirror to check your posture.

**In the first 6 weeks it is also important to continue with supporting your chest when coughing and/or sneezing**

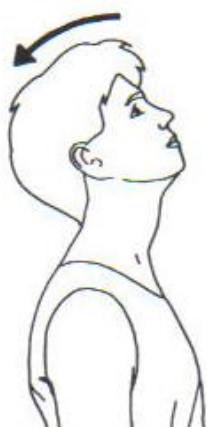


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## STRETCHES TO PREVENT STIFFNESS IN YOUR UPPER BODY AFTER SURGERY

It is common to feel some discomfort and stiffness, particularly in your shoulders and chest after surgery. The stretches that follow are designed to stretch and maintain the muscles of your shoulders and chest wall. All the stretches on the pages should be done slowly and you should feel a gentle stretch without pain with each one. If you have any pain, or your breastbone clicks more than normal when doing the stretches you should stop. Sit on an upright chair without arms e.g. a dining chair, so your back is supported but your arms are free to move sideways.

**REPEAT EACH OF THE FOLLOWING EXERCISES 5 TIMES, TWICE A DAY MINIMUM DURING THE FIRST 6 WEEKS AFTER SURGERY**



Sitting up tall  
Move your head backwards as far as is comfortable.





Sitting up tall

Turn your head to one side until you feel a stretch.

Repeat to the other side.



Sitting up tall

Bring one ear towards one shoulder until you feel the stretch on the other side.

Repeat to the other side.

For the following **always use both arms at the same time.**

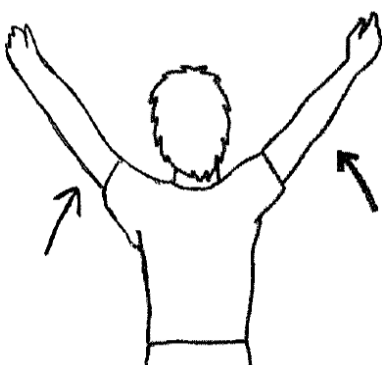
Please let your Physiotherapist know if you have any pre-existing neck or shoulder injuries whilst you are in hospital.



Sitting up tall.

Lift your arms up keeping your elbows in.

Breathe in on the way up and out on the way down.



Sitting up tall.

Lift your arms up sideways with your thumbs leading the way.

Breathe in on the way up and out on the way down.



Sit with your back straight and feet firmly on the floor. Gently pull your shoulder blades together while turning your thumbs and hands outwards.

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## CONTACT NUMBERS

### **Cardiothoracic Patient Educator** (During working hours)

Ph 6457 3333 and ask for the Cardiothoracic Patient Educator to be paged on 4391

### **Cardiothoracic Physiotherapist** (During working hours)

Ph 6457 3333 and ask for the Cardiothoracic Physiotherapist to be paged on 4060

### **After Hours**

Ph 6457 3333 and ask to be transferred to Ward G62 and ask to speak to the nurse in charge.

**Cardiothoracic Office:** 6457 2383

**We hope that this booklet has helped you through your hospital stay and recovery after your heart surgery.**

