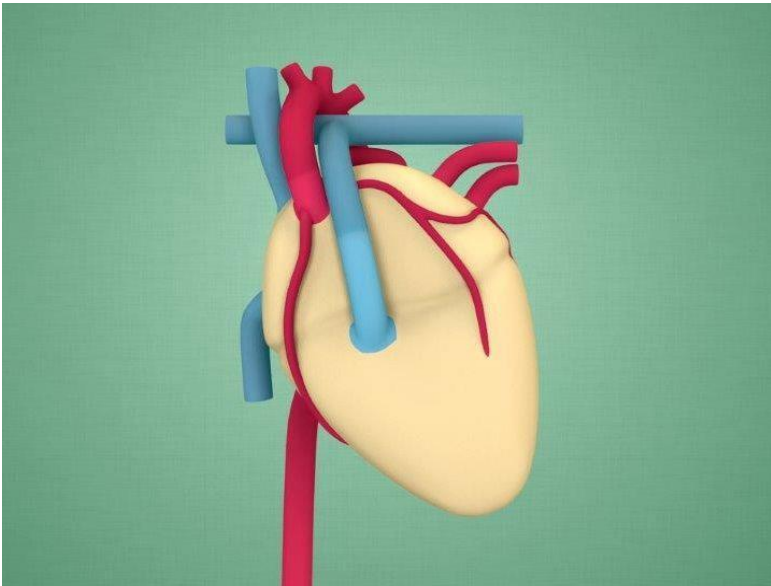




CARDIAC SURGERY

Patient Handbook



CARDIAC SURGERY

Patient Handbook

1st Edition 1993

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Acknowledgements

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INTRODUCTION

St Vincent's Hospital was founded in 1857 and is well known for treating people with heart problems.

This booklet will give you information about heart surgery and your recovery. We aim to explain what usually happens during admission to hospital and to help you plan for your return home.

Your admission to hospital may be a new experience and could make you feel nervous. Please ask questions if there is anything that you or your family do not fully understand about your treatment.

You can find more information about your heart, and watch simple animations and videos, on the St Vincent's Hospital Heart Health website (<https://svhhearthealth.com.au>).

We want to work together with you and your family or carer, to get the best recovery from your operation.

Interpreter Service

If English is not your first language and you would like an interpreter, or you have hearing difficulties and need a sign language interpreter, please contact the Admissions Office: 02 8382 2052.

A free interpreter service can be booked at least one week before you come to hospital.

**SMOKING IS NOT ALLOWED ANYWHERE
AT ST VINCENT'S HOSPITAL**

HEART SURGERY

Coronary Artery Bypass and Cardiac Valve surgery are the two most common types of heart operations.

Valve surgery may be required on the Aortic, Mitral or Tricuspid valves.

Other types of heart surgery include:

- fixing a weakness in the heart that was there at birth;
- repairing a swelling (aneurysm) in the wall of the heart or in the aorta (largest blood vessel taking blood from the heart around to the rest of the body).

For these types of operations a bypass machine is needed. This machine does the work of the heart and lungs while the surgeon operates on your heart.

<p>My operation:</p> <hr/> <hr/> <hr/>
<p>My Surgeon:</p> <hr/>
<p>Date of operation:</p> <hr/>

Coronary Artery Bypass Surgery

This operation uses blood vessels from other areas of your body to bypass the blockages in the coronary arteries.

The surgeon may choose to use an artery from inside your chest (internal mammary artery) (Figure 1), veins from your legs (saphenous vein) or an artery from your forearm (radial artery) (Figure 2). The decision depends on your individual situation.

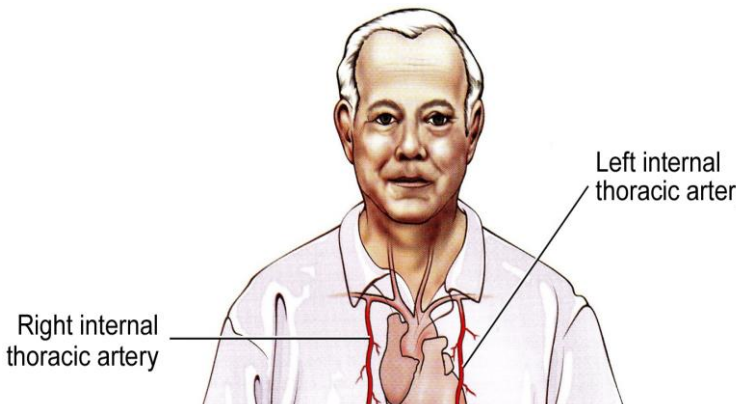


Figure 1

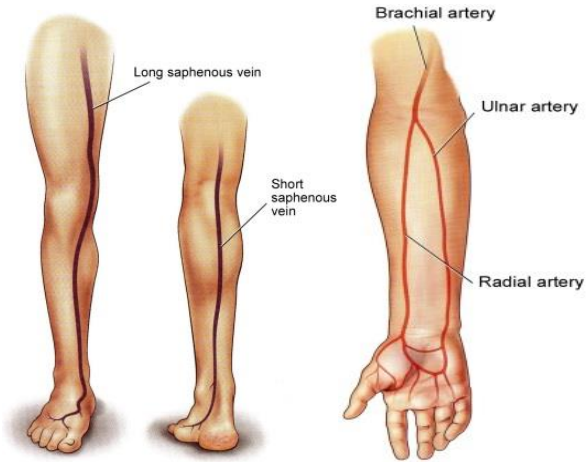


Figure 2

Valve Surgery

There are four valves inside the heart (Figure 3). They act as one-way doors, helping the blood to flow in one direction.

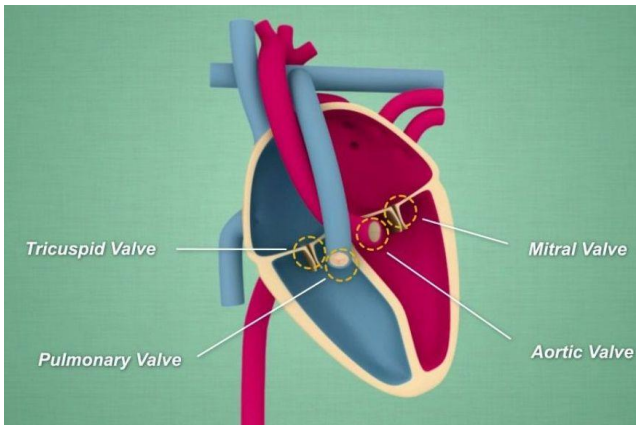


Figure 3

Certain conditions such as an infection, Rheumatic Fever and birth defects can lead to:

- stenosis, or blocking-off, of blood through the valve
- regurgitation, or backflow, of blood through the valve.

This means the valve does not open and close properly.

The Aortic and Mitral Valves are the most common valves to be affected.

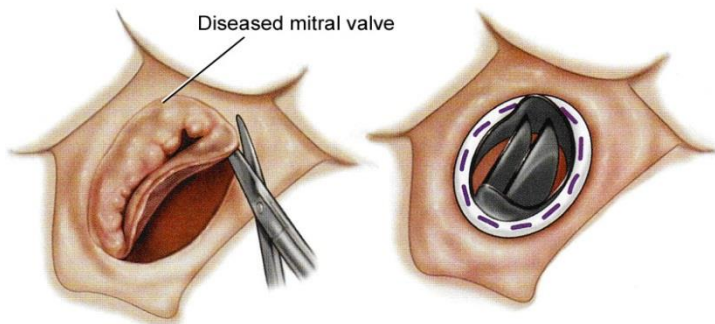
When a valve is not working properly the heart needs to work harder to pump the blood around the body. This can make the heart weaker. Chest pain/tightness, dizziness and shortness of breath can start to happen.

If you need an operation to replace a valve, there are two types that can be used:

- Mechanical (man-made) (Figure 4) or
- Biological/Tissue (human or animal valve) (Figure 5)

Your surgeon will talk to you about the differences and explain which type of replacement valve is best for you.

Mitral Valve Replacement with a mechanical valve

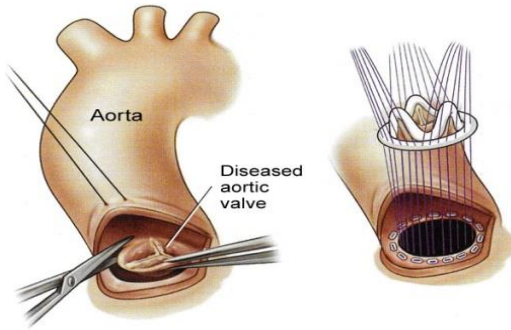


The surgeon opens the heart and removes the mitral valve.

The artificial mitral valve is stitched into place. (Above shows a mechanical valve.)

Figure 4

Aortic Valve Replacement with a tissue valve

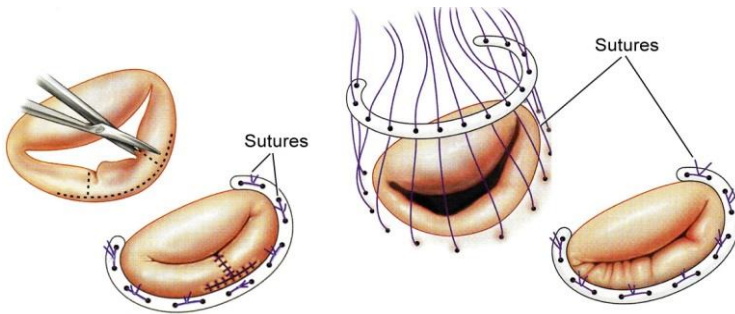


The surgeon opens the aorta and removes the aortic valve.

The artificial aortic valve, in this case a tissue valve, is stitched into place.

Figure 5

Mitral Valve Repair



The surgeon removes excess tissue from your valve and repairs it with stitches. A ring or band is used to make the edge (annulus) of the valve smaller.

The ring or band allows the valve to close properly.

Figure 6

Atrial and Ventricular Septal Defects

The heart is divided into four spaces. Some people are born with a small hole (defect) in one of the walls between these spaces. This can cause blood to move the wrong way through the heart. People with this condition might feel tired and breathless.

A hole can be repaired by stitching or patching it with:

- biological tissue (from another animal or from your own body) or
- man-made material (e.g. stainless steel; nylon).

Heart Aneurysms

An aneurysm is a weakness in the heart muscle causing it to bulge. This may be caused by a heart attack. The heart is unable to pump blood round the body very well. Some people feel weak, dizzy, and breathless and may get chest pain.

Aneurysms can be repaired. Your surgeon will explain the techniques that can be used.

There are many other heart conditions and different types of surgery. If you have any questions please ask the medical and nursing staff.

What part of my chest is cut for the operation?

Sternotomy

This is the most common method for patients having heart operations. The cut down the middle of the sternum or 'breast bone' is about 20 – 25cms long. (Figure 7)

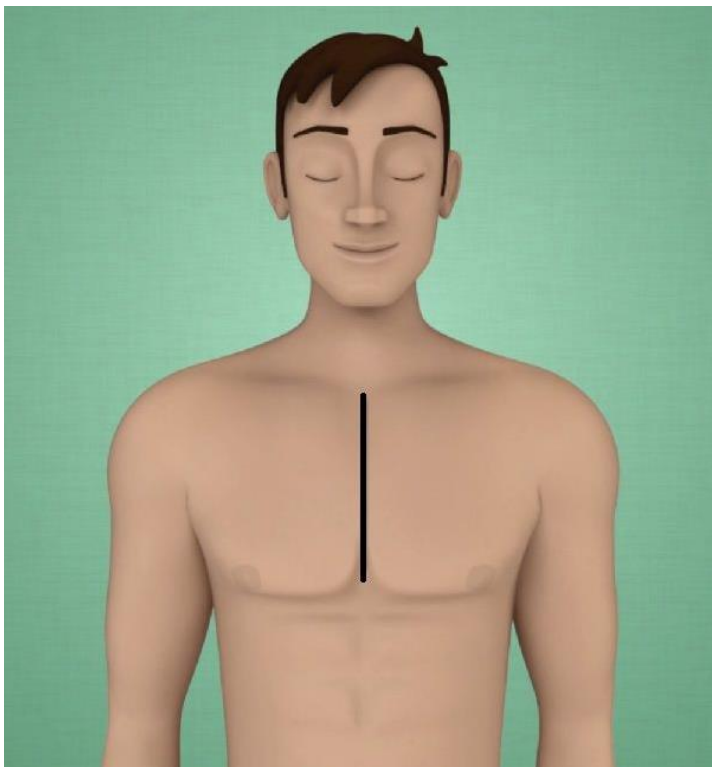


Figure 7

A small, circular, electric saw is used to cut down the sternum.

At the end of the operation the bone is pulled together tightly with stainless steel wires. (Figure 8)

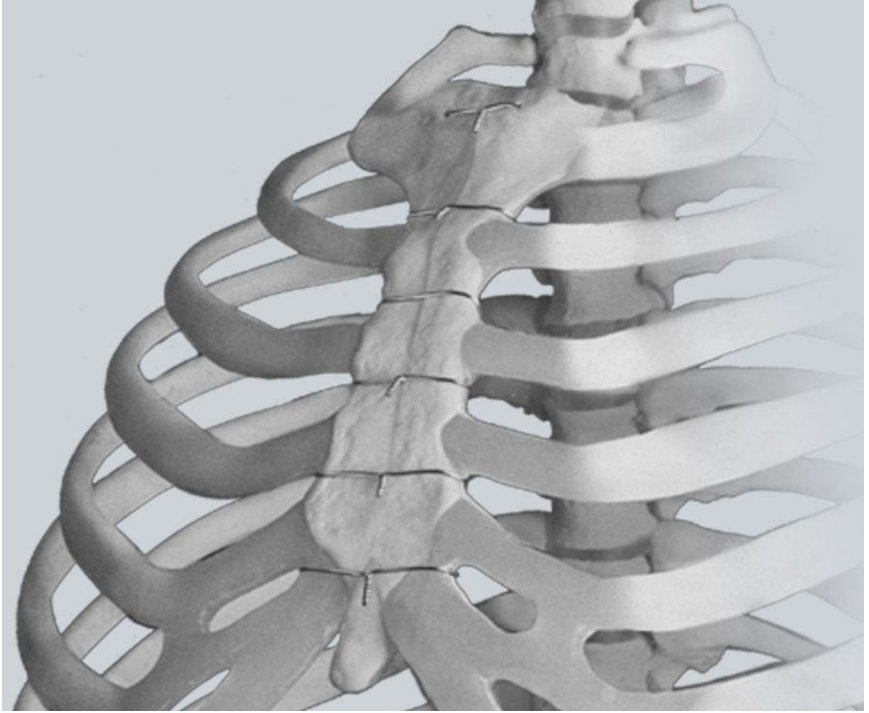


Figure 8

These wires stay in for the rest of your life and are unlikely to cause any problems. Like any broken bone, the sternum takes 6 – 8 weeks to mend.

Other types of cuts to the chest

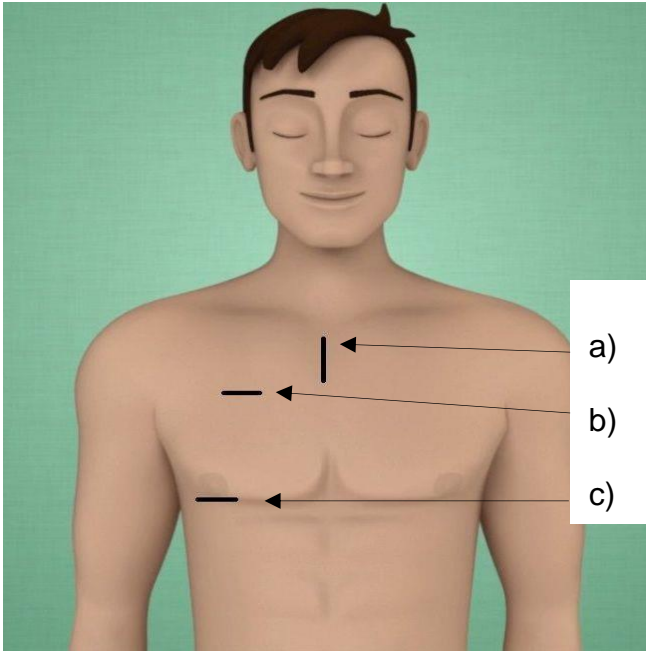


Figure 9

a) Hemi sternotomy

A vertical cut is made down the upper part of the 'breastbone' (sternum) and is about 6cm long.

b) Right Anterior Mini-Thoracotomy

Sometimes used for Aortic Valve operations. A horizontal cut about 6cm long on the upper right chest. The surgeon can get to the heart between the second and third ribs. No wires are needed, as the bone has not been cut.

c) Right Antero-Lateral Mini-Thoracotomy

Can be used for Mitral Valve surgery. A horizontal cut under the right breast, about 6cm long. The surgeon can open the chest between two ribs. No wires are needed, as the bone has not been cut.

Mini-Thoracotomy is also called Minimally Invasive surgery.

PREPARING FOR HEART SURGERY

What happens when I go on the waiting list for cardiac (heart) surgery?

Although the surgeon may not have an exact date for your operation, someone from the Admissions Department at St Vincent's Hospital or a doctor will be in touch with you by letter, email or telephone.

You may be asked to fill out different forms (e.g. Health Questionnaire) and send them back to the Admissions Department before coming to hospital.

You can ask for help with this form by telephoning the Admissions Department: (02) 8382 2052.

Why do I need to fill out the 'Health Questionnaire'?

Answering the questions helps us to plan your care in hospital as safely as possible. You should tell us:

- what operations you have had before
- if you have ever had a bad time with operations or anaesthetics
- if you have allergies and cannot take certain medications – we can usually give something similar that is safer for you

- what medicines/tablets you take, including any you buy yourself (e.g. vitamins; natural remedies; eye drops; skin creams; skin patches; etc.). Some of these might not work in their usual way and could be dangerous when we need to give you other medications in hospital.

It is also useful to know your own medical history and that of your family.

- **What can I do if I am not covered by Medicare?**
- **What can I do if I want to be treated as a Private (chargeable) patient in St Vincent's Public Hospital?**
- **What if I am from overseas?**

You must let the Admissions Department (02 8382 2052) know if any of these things apply to you. There are likely to be fees and charges you will need to pay.

You can request an estimate of these costs from your Surgeon before treatment.

What should I be organising while I am on the waiting list for surgery?

Before you come to hospital, have a think about which of your family or friends you want to be responsible for making decisions for you if you became too sick to answer for yourself at any time. It is a good idea to have a talk with this person so that they understand your wishes. This helps them to tell hospital staff about what is important in your care and treatment if you cannot speak for yourself.

For more information: www.planningaheadtools.com.au

Remember to:

- Keep taking your tablets and medication as prescribed by your doctors.
- Stay as active as possible without getting any chest pain or becoming short of breath. You should have enough breath to talk in complete sentences while you are being active. If you start to feel dizzy or light-headed slow down or stop what you are doing.
- Practice deep breathing, coughing and leg exercises before the operation. This will make the exercises easier after surgery and help to stop lung infections and blood clots forming in the legs.
- Keep up your walking, shopping, housework, etc.
- Try not to get constipated (needing to strain when having a 'poo'). Ask at your local chemist/pharmacy for medicine to help you go to the toilet, if necessary. You should have your bowels open (have a 'poo') the day before surgery, as it will be a few days before you may feel like using the toilet.
- Remove any nail varnish/polish before coming in to hospital.

Be Smoke-Free

Giving up smoking is the single most important thing you can do to help stop heart problems getting any worse. Smoking brings down the level of oxygen in your blood and damages the walls of the blood vessels. When you give up cigarettes, your body starts to recover quickly.

From the moment you stop smoking, your heart condition will start to become less risky. One year after stopping, your chance of another heart attack is around half that of someone who keeps smoking.

When you stop smoking:

- Your recovery from surgery can take less time
- Your wounds can heal faster with less scarring
- Your heart does not have to work as hard
- Your heart rate and blood pressure can improve
- Your lungs have a chance to become less congested
- Your chance of a heart attack or stroke become less

Is it safe to use Nicotine Replacement Therapy (NRT) if I have heart problems?

Yes, but it is best to talk with your doctor before starting. Using NRT is always safer than continuing to smoke. NRT products do not contain any of the harmful chemicals found in tobacco smoke. Using NRT increases your chances of quitting.

Talk to your GP about prescriptions for NRT or other quit smoking medications.

Contact the NSW Quitline, tel. 13 7848 (13 QUIT) or online: <https://www.icanquit.com.au>.

Alcohol information

Many medications or tablets may be affected when you drink alcohol. The medication/tablets may not be digested by your body properly. This means that they cannot work as well.

Alcohol can lead to problems like stomach ulcers, so ask your doctor if it is safe for you to drink alcohol. You should not be drinking more than two standard drinks a day. Drinking more than this increases your chance of illnesses or injury.

Should I stop taking any tablets before my operation?

It is important to ask your GP/local doctor about which medications you should stop and when. For example:

Anticoagulants (blood thinners) will cause you to bleed more during the surgery.

- Warfarin (*Coumadin, Marevan*)
- Rivaroxaban (*Xarelto*); Apixaban (*Eliquis*);
- Dabigatran (*Pradaxa*)
- Clopidogrel (*Iscover, Plavix*)
- Ticlopidine (*Ticlid*)
- Aspirin (*Astrix, Cardiprin, Cartia, Disprin, Solprin*)

Non-Steroidal Anti-inflammatory medications can also thin your blood and make you bleed more. For example:

- Ibuprofen (*Nurofen*)
- Indomethacin (*Indocid*)
- Naproxen
- Celebrex

Can I still take my vitamins, natural remedies or herbal treatments?

Some of these types of tablets or therapies can affect the blood and liver function when you have an operation. They may also cause a reaction with some of the medication we need to give you when you are in hospital. To find out which ones you can take please talk to your G.P./local doctor or Specialist doctor.

Diabetic medication

You might be asked to stop taking your diabetic tablets before you have a big operation. Ask your G.P. or surgeon about this.

As a general rule:

- Metformin (e.g. *Glucophage*, *Diaformin*, *Diabex*): Stop two days before your operation day.
- SGLT-2 inhibitors (e.g. *Dapagliflozin*, *Forxiga*): Stop three days before your operation.
- Insulin:
 - ½ your usual dose of insulin on the evening before your operation and
 - ½ your usual dose on the morning of the operation.

Do not stop taking any other medications unless your doctors tell you to.

ROUTINE MEDICAL TESTS

Your GP/local doctor will need to organise some routine tests before your heart surgery, for example:

ECG (electrocardiograph) – a recording of the electrical action in your heart. This is done as a baseline so that we can compare any changes before and after the operation.

Chest X-ray – to see if you have any lung problems.

Dental X-Ray – is only needed if you will be having heart valve surgery. It can show-up dental problems which must be treated **before** any operation on your heart valves. This helps to stop the possibility of any infections from your teeth or gums getting into your blood stream and on to the new valve.

Carotid Dopplers/Ultrasound – a scan of the blood vessels in the neck to measure blood flow to the brain.

Blood tests – are taken to check how other parts of your body (organs) are functioning.

These include:

- Liver and kidney function
- Hepatitis B & Human Immunodeficiency Virus (HIV) – blood infections
- Blood glucose level, HbA1c (to check for diabetes)
- Blood clotting
- Medical swabs of your nose and throat to check for any infections

What happens if these tests show I have an infection or blood problem?

The results of the blood tests do not stop you having an operation – it helps us to make your operation and treatment in hospital as safe as possible.

What if I have an infection in the nose or throat?

Bacterial infections (e.g. Staphylococcus; MRSA; 'Golden Staph') can be found on about one third of healthy adults without causing any problems. However, these infections might stop the healing of cuts or injured skin.

Therefore, we recommend that these infections are cleared **BEFORE** having heart surgery.

How to clean your body before the operation.

If you have enough time before the operation day it is best to follow these instructions:

You need to buy all these products from a pharmacist:

- 2% Chlorhexidine (Microshield™) liquid soap (200mls will be enough for 5 days)
- 2% Chlorhexidine 20 wash cloths (there may be 4 or 8 in a packet)
- Mupirocin (Bactroban™) 3gm nasal ointment

Use the treatment for **five days** before your operation. If you do not have enough time, or you are already in hospital, start as soon as possible. Carry on with the course after the operation - until you have had a total of **five days**.

This chart shows what you need to do each day. You can tick off each activity after you do it (Table 1).

	Day 1	Day 2	Day 3	Day 4	Day 5
Wash your hair with the special soap	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
Wash your body with normal soap	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
Wipe your body with the special wipes	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>

Table 1

Follow the steps in this order:

- 1. Wash your hair and body with 2% Chlorhexidine, liquid soap (Figure 10). Avoid getting any soap in your ears or eyes.**
- 2. Rinse and dry yourself as normal.**





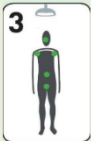

Instructions for full body wash using Chlorhexidine soap

Daily showers with Chlorhexidine soap is offered to you to reduce the risk of serious infections such as bloodstream infections. It will also reduce the risk for colonisation and infection with resistant bacteria such as VRE and MRSA.

It is important that the entire body is washed each time. Follow the steps below for washing instructions. Ask for assistance if you are unable to reach all parts of your body.

Avoid getting any solution in your ears or eyes.

If you get any skin problems please contact the nursing staff for advice.
Only use skin lotion provided by the ward, other lotions may inhibit the antibacterial effect of Chlorhexidine.

	<ul style="list-style-type: none">• Wet entire body.• Turn the water off.		<ul style="list-style-type: none">• Rinse off all the soap.
	<ul style="list-style-type: none">• Wash your hair using Chlorhexidine soap.• Avoid your eyes and ears.		<ul style="list-style-type: none">• Repeat stage 2 to 4 a second time.
	<ul style="list-style-type: none">• Rub the soap over your entire body.• Start at the top and work your way down.		<ul style="list-style-type: none">• Dry yourself off with a clean towel.• Start at the top and work your way down.• Put on clean clothes.

Adopted this instruction from IMACS ISL-ID together with 3M and Molnlycke Health Care–St Vincent's Infection Prevention Management Department; Giulietta Pontivivo November 2015

Figure 10

3. **Wipe your body with 2% Chlorhexidine body wipes. Use four body wipes each day. Throw each wipe away after you use it.**
 - **Wipe 1** – clean face & both arms
 - **Wipe 2** – clean chest, belly and back (as much as you can)
 - **Wipe 3** – clean both legs
 - **Wipe 4** – clean between your legs and bottom
4. **Leave your skin to dry. Do not wash off until your shower the next day.**
5. **Clean your bedroom and bathroom (Table 2).**
 - Change and wash your clothes and linen
 - Change into clean clothes or pyjamas after showering
 - Wash your dirty clothes, underwear, pyjamas and bed linen (towels, sheets, face washers and bath mats) using hot water and laundry detergent
 - Dry your clothes and linen in the sun or use a dryer

	Day 1	Day 2	Day 3	Day 4	Day 5
Clean your bedroom and bathroom	No	Yes <input type="checkbox"/>	No	Yes <input type="checkbox"/>	No
Change clothes and pyjamas	Yes <input type="checkbox"/>	No	Yes <input type="checkbox"/>	No	Yes <input type="checkbox"/>

Table 2

It is not necessary for other family members to be tested. But if a family member has boils or skin infections they should see their GP/local doctor.

ATTENDING THE PRE-ADMISSION CLINIC

How do I find the Pre-Admission Clinic?

You can ask someone from your family or a friend to come with you to the Pre-Admission Clinic (PAC).

At 08:00hrs - come to the main entrance of St Vincent's Hospital and go to the enquiry desk on your right. You will be asked to check that we have the right details in your medical file.

You will then need to go up to the Day Procedure Centre (DPC) on Level Five, in the Xavier Building:

- Take the lifts to Level Five
- Turn left out of the lift
- Go through the glass doors – they will open automatically
- Go to the Reception Desk in the DPC, to ‘check-in’.



Figure 11 Pre-Admission and Day Procedure Centre

What happens at the Pre-Admission Clinic?

You and your family member/friend will then wait to be met by a nurse.

During your day at the Pre-admission Clinic many different people will meet with you, including:

Nurse - takes you to a small office room to check your pulse; blood pressure; weight; height; etc. This helps us work out how much medication you may need at different stages of your treatment.

Care Coordinator or Nurse Consultant - explains:

- what happens when you are admitted to hospital;
- how long you might be in hospital;
- where you will be throughout your hospital stay – e.g. Xavier 10 South Ward; Operating theatres; ICU (Intensive Care Unit);
- how and why you must do deep breathing exercises for your recovery;
- how to look after your surgical wounds;
- best times for your family/friends to visit you;
- plans you must make in preparation for going home after the operation.

Use this time to talk with the Care Coordinator about the things that matter to you and your family/carer before, during or after your operation.

The Care Coordinator will see you most days during your stay in hospital.

Resident or Intern doctor –

- orders a blood sample to be taken from you to ‘cross-match’ your blood in case you need a blood transfusion during the operation;
- ask you about the problem you have had with your heart and about any other illnesses you have had when you were younger;
- writes a summary in your hospital file so it is up to date.

Anaesthetist – explains how they put you to sleep for the operation and what medications or drips may be used to help with pain after the surgery.

Registrar doctor – assists the senior surgeon in the operation. The registrar will talk about any possible dangers there may be in having the operation and answer your questions about this type of surgery. This helps you understand the Consent Form.

Operation Consent Form

Your doctor will ask you to sign a Consent Form. This means that you give permission for the operation to go ahead, which includes having the anaesthetic and any blood transfusions.

The doctor should give you enough information and explain things so you can make your own decision.

If you have any doubts/questions about your operation please ask your doctor and anaesthetist at St Vincent's Hospital.

Your complete admission to hospital, including the operation and recovery, will be managed by many other people, for example:

Doctors – A team of doctors are involved in your care before and after your operation. The doctors include:

Surgeon – doctor who does the operation and is in charge of your treatment.

Cardiologist – doctor specialising in heart diseases and treatments but does not do operations.

Senior Registrar – doctor who helps the surgeon with the operation and is second in charge of your treatment.

Junior Registrar – doctor helping during the operation and third in charge of your treatment.

Resident – doctor on the ward and/or Pre-Admission Clinic, working under the surgeon and registrars, ordering tests and prescribing medications for you.

Other specialists –

Anaesthetist – doctor who will put you to sleep and keeps your lungs working during the operation.

Perfusionist – a specialist who controls the heart-lung bypass machine during your cardiac surgery.

Intensivist – doctor who specialises in caring for patients straight after major surgery and will manage your treatment in the intensive care unit (ICU).

Nurses – care for you while you are in hospital. There are different nurses in each department of the hospital specialising in different types of nursing care.

Social Worker – can talk over any concerns you may have e.g. looking after other family members including being a carer; financial/work issues during or after your surgery. Your social worker may also link you with community help when you go home from hospital e.g. shopping services; house-cleaning services, transport; etc.

Pastoral Care – can help you in your personal or spiritual response to your ill health. Being in hospital can be upsetting, and being ill can make you reflect on life and its meaning. Chaplains and pastoral care staff can spend time with you and contact any religious person you would like to see or speak with.

Dietitians – Dietitians help you understand the best type of foods and how much you should be eating to make the best recovery.

Occupational Therapist – gives advice about getting back to usual activities after your surgery e.g. cooking, driving and working.

Pharmacist – gives you information to help you understand what medicines or tablets you need and when to take them.

Physiotherapist – explains how to do the deep breathing exercises after your operation. They will also help you to walk and get stronger on your feet each day.

Cardiac Rehabilitation Nurse – gives you information about the changes you may need to make in your daily life to get the best recovery after your heart operation. You will be given the name and telephone details of a Cardiac Rehabilitation program in your local area. It is good to start this program within one week of going home.

Heartline – A special telephone service that you can call to get information and support about keeping your heart healthy. Call 1300 362 787 or visit:

www.heartfoundation.com.au

PLANNING FOR ADMISSION TO ST VINCENT'S HOSPITAL IN SYDNEY

How will I know what day and time I will be admitted to hospital?

Most people for this operation will be admitted on the same day as the surgery. You will need to check what time to come in by telephoning:

Day Procedure Centre: 02 8382 3778

between 3 – 6pm one day before your operation.

If your operation is planned for a Monday, make sure you call between 3 – 6pm on the Friday before.

Regional and Remote patients

If you live over 100kms away the NSW Isolated Patients Travel and Accommodation Assistance Scheme (IPTAAS) provides some financial assistance to those who need to travel more than 100kms one way to the nearest appropriate specialists.

For further information visit

<http://www.enable.health.nsw.gov.au/home/ipaas>

Is there a car park at St Vincent's Hospital?

There is a car park at the hospital. Hourly rates can be found via the website: www.svhs.org.au

Is there anywhere to stay near St Vincent's Hospital?

We have some terraced houses at the back of the hospital. There are stairs in most of them to a second floor, and a steep hill from these houses to the main entrance of the hospital.

If you have difficulty walking up stairs or hills you will need to find different accommodation nearby.

For information about availability and rates at St Vincent's Hospital contact our Accommodation Officer Tel: (02) 8382 2114 or visit our website: <https://svhhearthealth.org.au>.

You can also search online for hotels near the hospital.

What should I bring to hospital?

When you come into hospital for your operation please bring:

- ☐ Telephone numbers for your relative or carer
- ☐ Medicare card
- ☐ Pension card
- ☐ Credit card
- ☐ Photo Identification e.g. Driving Licence
- ☐ Your Cardiac Surgery Information Booklet
- ☐ Any legal documents that you have prepared that are to do with your health care (for example, an enduring guardian appointment document or an advance care plan). For more information see: www.planningaheadtools.com.au
- ☐ No more than \$50 in cash. You can bring your ATM card, as there is a cash machine in the hospital entrance. Family or friends may be able to bring you some more cash when they visit, if you need it later.
- ☐ Medications and tablets you are taking – how much and how many times a day you take them. This includes:
 - tablets
 - capsules
 - eye drops
 - injections such as insulin
 - puffers/inhalers
 - creams/ointments
 - alternative/herbal/traditional medicines

- ☐ Bring a list of your usual medicines to hospital to make sure we have the right information. (Ask your local pharmacist or G.P. to print a new list.)
- ☐ Any equipment for your breathing you may be used to using at home e.g. nebuliser; CPAP (for sleep apnoea).
- ☐ Pyjamas/nightdress – you only need one in a larger than normal, to make it easier to get on.
Nightdresses with buttons at the front are also easier to wear.
- ☐ Dressing gown.
- ☐ A hard case for your glasses.
- ☐ Wash-bag with toothbrush, toothpaste, denture pot, hair brush or comb. Do not bring soap, shampoo, towels or face washers as you must use the hospital ones.
- ☐ Handkerchiefs or tissues.
- ☐ One set of comfortable day clothes – loose fitting, e.g. track suit to travel home in.
- ☐ Underwear (ladies, please bring one bra, an older one, as it will be looser).
- ☐ Flat, comfortable shoes, e.g. trainers or slippers that are not 'slip-on' but fit you well.
- ☐ Mobile phone and charger.
- ☐ Phone card. Each bed has a bedside telephone, which you can receive calls to you. To make calls to outside the hospital, you need to buy a phone card from the shop in the front foyer of St Vincent's Hospital.
- ☐ If someone is coming with you and planning to stay near St Vincent's Hospital, they must also remember to bring a supply of their own any medicines/tablets.

ADMISSION AND SURGERY DAY

What time must I stop eating and drinking?

When you telephone the Day Procedure Centre to find out when to come into hospital, the nurse will tell you not to eat anything from 12 midnight the night before surgery. You may drink clear fluids up to 2 hours before your operation.

If you have been told to take any medications in the morning, you must only have a sip of water to help swallow the tablets. Your stomach must be empty to stop you being sick during the operation.

Where do I go when I arrive at the hospital?

When you arrive at St Vincent's Hospital

- take the lifts up to **level 5** and turn to your left
- walk through the automatic glass doors into the **Day Procedure Centre**
- go to the main desk and tell the Administration Officer you have arrived.

You will be asked to check your name and address on the hospital papers are correct.

A nurse takes you into the admission area and gives you a white gown. There are changing rooms where you need to take off all your clothes and put on the white gown. You will also be given a paper hat to wear before going into the operating theatre.

Make sure you have taken off:

- Jewelry and wedding rings, if possible,
- Contact lenses/glasses
- Personal underwear
- Hair clips

If you wear dentures you do not need to remove them. Your nurse helps you to pack-up the important items, like your toiletries and glasses. These will be taken to the ICU (Intensive Care Unit) during your surgery. The rest of your things can be taken home by a friend or relative and brought back a few days after the operation. We only have a small cupboard on the ward where your things can be locked away.

Please note: The hospital takes no responsibility for lost or stolen property.

Cancellation of surgery

Sometimes we have to do emergency operations. Unfortunately, this can mean that your surgery needs to be cancelled either because the operating theatre is in use, the surgeon has been up all night operating or that all the beds in the ICU (Intensive Care Unit) are full.

The Surgeon will need to look ahead at the operating days/times and see when you can next be booked in for surgery. This could be days or even weeks, and might mean that you will need to return home.

Clipping body hair.

If you have hair on parts of the body where the surgical cut will be made, we will use electric hair clippers to remove the hair before the operation. This is to help stop the chance of getting an infection in these cuts.

For men:

- the chest – where the main cut will be
- wrists, arms and groins – where drips need to be put in
- front of both legs – where the veins may be taken if you have bypass surgery

For women:

- both groins – where drips need to be put in

You may need to have another shower with the Chlorhexidine antiseptic soap after any hair clipping.

Family and carer duties

We realise that this can be a very stressful time for your family and friends. One of them can come with you to the Day Procedure Centre and wait with you until you go into the operating theatres.

Although there is a waiting room for your close relatives or friends outside the ICU (Intensive Care Unit) on Xavier level 5, it is a good idea for them to plan something to do away from the hospital while you are having your operation.

The staff in the ICU will answer telephone enquiries. To keep down the number of telephone calls to the ICU staff, we ask that you arrange for just one person from your family or friends to call the ICU. They can then pass information to your other relatives and friends, letting them know how you are.

OPERATING THEATRES

How long will the operation take?

Heart surgery usually takes about 3 – 5 hours. You will be taken through to the operating theatres on a bed.

A nurse will:

- ask your name and date of birth
- ask if you know what operation you will be having
- take you to the anaesthetic room

The anaesthetist will:

- check your name and details again
- check your blood pressure
- put sticky dots on your chest and link you to the wires from the heart monitor
- put a drip in your arm
- give you oxygen to breathe, through a mask

You will be wheeled into the operating theatre. The staff will lift you onto the theatre table and the anaesthetist will put you to sleep. You may find that you do not remember much about this time.

When you are asleep the anaesthetist will use special machines and equipment to:

- help you breathe
- watch your heart beat and blood pressure

A urinary catheter will be put up into your bladder to drain urine (a small tube to allow urine out of your body whilst you are asleep).

What happens during the operation?

Before the surgery starts, the skin of your chest and groin will be cleaned with an antiseptic liquid to help stop infection.

When the surgeon has opened your chest the heart-lung (bypass) machine will be connected and take over the work for your heart and lungs during the operation.

Your body temperature will slowly be brought down to cool you. This is a little like putting your body into hibernation and reduces your body's need for oxygen.

When the surgery is nearly finished, your temperature will slowly be brought back up to normal, around 37 degrees centigrade, your heart will start beating again and you will be taken off the bypass machine.

The surgeons will put in two tubes above your stomach just under your ribs. These tubes (chest drains) drain away any fluid. They are usually taken out by your nurse after two to three days.

Two thin metal wires (pacing wires) will also be inserted near the chest drains. These are attached to a small box, in case your heart beat needs to be controlled after the operation. These wires are usually removed by your nurse four or five days after surgery.

Finally, the surgeons will close your chest using wire to hold your breastbone firmly together. These wires will stay in place for the rest of your life. The skin will be closed with stitches that dissolve as your wound heals.

See our website <https://svhhearthealth.com.au> for more information.

INTENSIVE CARE UNIT (ICU)

After the operation you will be moved from the operating theatre to the ICU while you are still asleep. Everyone having heart surgery will be kept asleep for at least four hours after the operation.

A ventilator is a special machine used to breathe for you while you are asleep. You will have a tube in your mouth that is attached to the ventilator. This tube makes it difficult for you to swallow and speak.

The ICU Nurses and Doctors will watch you carefully with the help of bedside monitors and other equipment.

As you wake up you will hear different noises like alarms and machinery. These are normal sounds made by the medical equipment around you.

You will also hear people speaking. They will tell you that your operation is over.

When the nurses or doctors need to talk to you they will call you by name and speak directly to you. You will be asked 'yes' and 'no' questions so that you can nod or shake your head to answer.

How will my family know my surgery is over?

When your operation is over, someone will telephone the person you chose to be called, letting them know that your surgery has finished.

Up to two visitors are allowed to see you at any time. It is best that you arrange for certain members of your family or very close friends come to visit you in ICU.

Special machines and equipment used in the operating theatre and in ICU

Endotracheal (ET) or Breathing tube – is put into your mouth and down your wind pipe. It is connected to a machine called a ventilator which breaths for you while you are asleep. You will not be able to speak while this tube is in place.

While the ventilator is breathing for you, your body has the chance to rest and get stronger before you wake up. You will need the ET tube whilst you are asleep and anaesthetised, i.e. during the whole operation and afterwards for about 4 – 6 hours.

The nurses and doctors give medications through your drip to keep you asleep after the operation. When your blood pressure, pulse and breathing start coming back to normal these medications will be turned down so that you can wake up.

The breathing tube in your throat may feel very uncomfortable, as though you cannot breathe. It will help if you relax and do not 'fight' the ventilator. Sometimes the nurse will need to remove any build-up of mucous or liquid in the endotracheal tube. This involves putting a small suction tube down the endotracheal tube, which can make you cough for a short time.

Central Venous Pressure (CVP) line – is a drip put into a vein in the side of your neck to give you fluid and medicines. It is usually removed two days after surgery.

Pulmonary Artery or Swan-Ganz catheter – is a small tube put in the side of your neck to measure the pressure in your heart and big blood vessels. It is usually removed the day after your surgery.

Arterial line – is a small tube put into an artery in your wrist to monitor your blood pressure and oxygen levels. It is usually removed a day after your operation.

Femoral Artery line – is a small tube put into the right groin so that fluids and medicines can be given straight into your blood stream - as a drip.

Urinary catheter – is a small tube passed up inside and into your bladder to drain your urine. Sometimes the tube can make you feel as though you want to pass urine (have a 'pee'). Try to relax, as this may help the feeling to go away. The catheter tube is usually taken out one day after your surgery.

Heart monitor - the monitor leads are connected to your chest by sticky pads to allow a continuous reading of your heart rhythm and rate. Sometimes when you move around in bed it can cause the machine's alarms to go off. Try not to let this worry you as there will be a nurse checking the alarms.

Temporary pacemaker - you may need to have pacemaker wires inserted during your operation. These wires are attached to a machine which assists your heart to beat regularly. The wires are usually removed on the fourth day after your operation.

Drainage tubes – during the operation two or three plastic tubes are put near your heart and pushed through your skin at the lower end of your chest. The tubes prevent a build-up of blood and fluid around the heart and lungs during and after the operation. The tubes are usually taken out the morning after surgery. It will feel uncomfortable when they come out, but a pain killer injection is given beforehand.

How will I feel when I wake-up?

You will feel some pain after surgery, although everyone is different. The first few days are usually the most uncomfortable. Your doctor will order pain-killers for you.

The pain killers are usually given continuously through a drip until the morning after your surgery. When you are able to eat and drink, you can have pain-killers as tablets.

It is very important to take your pain-killers when the doctor has ordered them for you. If you 'put up' with the pain you will not be able to move around and breathe deeply. Deep breathing and coughing exercises are important for a quick recovery.

As you become stronger after your operation you will not require such careful monitoring and care. The ICU nurses and doctors take off many of the drips and drains within the first 24 - 48hrs after your operation. You should be able to sit in a chair at the bedside and take a few steps on the first day after surgery.

Can anything go wrong?

As with all big operations, there is a chance of getting a few problems. These are some of the things you should know about.

Bleeding - this usually happens in the first 24hrs after surgery and you may need to have a blood transfusion through a drip. Sometimes the bleeding takes a long time to stop and you may need to be taken back to the operating theatre. The surgeon needs to find out exactly where the bleeding is coming from and stop it.

Cardiac tamponade - the heart sits in a sac called the pericardium. There is a small amount of fluid in this sac that stops the heart rubbing against it. Sometimes too much fluid collects in the sac and the heart gets squashed. This is called a cardiac tamponade. This fluid usually disappears over time but some people will need a small drainage tube put into the sac so that the fluid can come out. This type of tube will only need to stay in for 1 or 2 days.

Renal (kidney) injury – The kidneys make urine and can sometimes take a little time to start working after a big operation. If this happens the kidneys will be helped by a type of ‘dialysis’ called haemofiltration until they recover. This may only be needed for a few days.

Reperfusion injury - some patients can develop “leaky lungs” or reperfusion injury. This can be treated by using a special breathing mask called CPAP (Continuous Positive Airway Pressure). But in a few people, something called ECMO (Extra Corporeal Membranous Oxygenation) can be used. This treatment uses a pump to send the blood from your body through tubing to a man-made lung machine that adds oxygen and takes out carbon dioxide; then the blood is warmed to body temperature and pumped back into your body. This allows the heart and lungs to rest.

Mental effects - when people wake up after surgery they can be confused, irritated, grumpy or afraid. Other people see or hear things that are not happening. Others may feel a little suspicious or distrustful of their family. There is nothing you can do to stop these things so please try not to worry. It is due to the operation and you will be back to normal before you go home.

XAVIER 10 SOUTH WARD



Figure 12

When you no longer need intensive care treatment you will be moved in your bed up to **Xavier 10 South ward** (Figure 12).

This is usually on the first or second day after surgery.

Ward routine

06:00hrs - Nurse on night duty will need to wake you early to:

- weigh you
- take your temperature; heart rate; blood pressure; breathing rate
- give you any tablets you need before breakfast

07:00hrs – the Cardiothoracic Surgical Team sees all their patients. This Team will include doctors (Junior Residents and Registrars), medical students, the Nurse in Charge of the ward, and the Care Coordinator.

Although you may not see the Consultant Surgeon, the Registrar will keep them informed of your progress.

The doctors will:

- check your surgical wounds
- use a stethoscope to listen to your breathing
- ask if there is anything you may be worried about
- decide if you need a chest x-ray; blood tests; etc. to check how your lungs are recovering
- prescribe or change your tablets depending on your results
- discuss with you, the Nurse and the Care Coordinator how many more days you may need to stay in hospital

07:25hrs – Breakfast.

08:00hrs – Medications/tablets.

10:00hrs – Shower/wash; medical tests (e.g. x-rays, scans); Physiotherapy; Occupational Therapy.

12:15hrs – Lunch.

14:00hrs – Nursing shift change/handover.

15:00hrs - an afternoon nurse will take over from the morning nurse. The afternoon nurse will introduce themselves to you and find out what care you have been having and what you need to have done in the afternoon/evening. This 'hand-over' at your bedside gives you a chance to take part in the planning of your care. Ask questions or tell us if anything is bothering you.

VISITING TIMES

Only two visitors at one time can visit you as there is not enough space for more people at each bedside.

Visiting times are the same each day:

between **10:00 – 13:00hrs**

AND

between **15:00 – 20:00hrs.**

No visitors are allowed between 13:00 – 15:00hrs to let you catch up on your rest after the long operation.

17:30hrs - Dinner

Recovering in hospital

Wound Care - It is important to stop infections in the surgical wounds. The cuts made by the surgeon in the operation are kept covered for five days after the operation. Your nurse will check your wounds daily.

Ask your nurse before having a shower, as some wounds need to be covered by a waterproof dressing. You should be able to go to the bathroom and shower each day with the hospital's antiseptic soap.

Elastic socks (TEDS) - You will need to wear special elastic socks supplied by the hospital. These help the blood flow around your whole body and stop blood clots forming in the legs. The socks should be worn for at least 4 weeks after the operation.

Ask for help to put the socks on for the first two weeks. They are tight and the strain can be bad for your breast bone. Make sure there are no folds or wrinkles in the socks, as this causes a tight band that slows down the blood flow in that part of your body.

You may notice that, even with the help of the socks, you still have some swelling around your ankles and feet. To help stop this you should try to keep your legs up on a stool whenever you are sitting for a long time.

Try to remember not to cross your legs.

Bowel function - You may have trouble opening your bowels (having a 'poo') after a big operation. This is because you will not be walking around as much as usual, and the pain-killer medicines can cause constipation. Please let your nurse know if you are having any problems so that you can be given other medicine to help.

Temporary Pacing Wires and Stitches – These are left in the lower end of your sternal wound after surgery. They will be removed by your nurse on the fourth day after your operation. Make sure the nurse has taken the wires out before you leave hospital.

You will also have stitches at the bottom of your chest wound where the wound drainage tubes were. The stitches should be removed about 4 days after the drains came out – either in hospital or at your G.P./local medical centre.

Tightness of chest and shoulders - During surgery your chest is opened up, which may cause stiffness of your ribs, shoulders and back. Changing your position often and trying to keep a straight back will help you get better. Your nurse or physiotherapist will show you some arm and shoulder exercises that you must do.

Fever - Most people have a slight fever (high temperature) for a few days until the lungs are clear of sputum/phlegm. You may also sweat a lot at this time. This usually means your body is getting better. The medications/tablets for the pain can also make you to sweat more.

State of mind and emotions - You could get a bit confused and your thoughts may be muddled in the first few days after the operation. It can also be difficult remembering things. This may only last a few nights. It often helps to see your family and friends to talk about things that you will all remember, to help you think more clearly. Writing things down and keeping a diary might help.

People have different reactions to illness and operations. It is common to have up and down days, or mood changes during your recovery. You can feel weepy, grumpy or even depressed. It does not mean you are getting worse. It is usually part of the recovery.

Changes to normal sleep patterns and vivid dreams are also common. This is due to effects of the operation and the blood bypass machine. Sleeping times usually return to normal after a few weeks.

PHYSIOTHERAPY ROUTINE

Deep breathing exercises – Take a deep breath in as far as you can and keep your shoulders and neck relaxed. Breathe out quietly.

Inspiratory hold – Take a deep breath in, then hold your breath for 3 seconds.

Huff – After taking a medium-sized breath, keep your mouth open and rounded, then squeeze the air out of your lungs hard and fast, as if trying to fog a mirror.

Cough – Very important and is done with arms crossed over the chest for support.

Walking – Walking is very important after the operation and will be done with the physiotherapist. You will walk a bit further each day.

Activity in hospital – The level of activity you achieve in the first week will depend on many things. Your nurse and physiotherapist will work with you to find the level of activity that is right for you.

Looking after your sternum (breastbone)

It takes six to eight weeks for your sternum to heal. During this time you must be very careful with what you lift and how you use your arms.

Sternum Precautions Timeline

4 – 6 weeks after surgery
<ul style="list-style-type: none">• DO NOT lift >2kgs with both hands• DO NOT lift your arms above your shoulders, e.g. washing your hair• DO NOT push or pull with your arms, e.g. using your arms to push off the armrests of a chair• DO NOT reach backwards or put your arms behind your back, e.g. tucking in your shirt at the back• DO use both arms for exercises and activities• DO keep any item you are lifting close to your body
6 – 8 weeks after surgery
<ul style="list-style-type: none">• DO NOT put both arms behind you at the same time• DO NOT lift > 5kgs with both hands• DO use both arms for exercises and activities• DO keep any item you are lifting close to your body

Getting in and out of bed

This is a guide to stop you hurting your chest after the operation. If you have any questions speak to your Occupational Therapist or Physiotherapist.

Rolling in bed

When rolling in bed keep your entire body straight and keep your hands crossed over your chest.

Bend your knees and move to the other side of the bed to the way you want to roll, while still on your back (Figure 13).

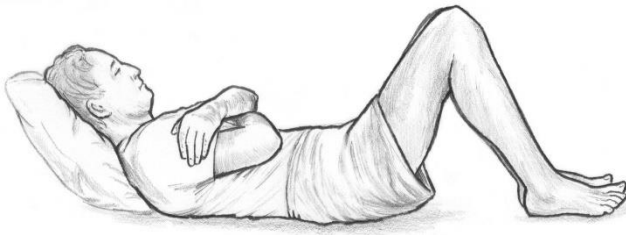


Figure 13

Keep your knees bent, push with your feet to help you to turn onto your side keeping your body straight (Figure 14).



Figure 14

If you need to sit up on the edge of the bed, use the uppermost arm and hand to *gently* push yourself up to sitting (Figure 15).



Figure 15

Moving yourself up the bed (Figure 16)

- Do not use your arms - keep them folded across your chest at all times
 - Use your legs - bend your knees up and use your feet to push across the bed
 - 'Walk' on your bottom to move up the bed
- Remember, do not use your hands and keep your arms folded across your chest.**



Figure 16

Be Careful

If you feel any clicking in your breastbone you must tell hospital staff.

Breathing and coughing are very important after the operation. Walking and moving your arms and legs is also very important. This will help with your recovery as well as preventing thrombosis (blood clots).

If you are in pain ask your nurse for medication to help the pain. This will make it easier for you to do your deep breathing, your coughing and walking.

Education Sessions – are held on the ward each week. You can find out about breastbone precautions, exercise and when to start getting back to normal. Ask your nurse when the Occupational Therapist will have an education session. You can ask a family member or friend to come too.

PLANNING FOR LEAVING HOSPITAL

When will I be well enough to go home?

Most people go straight home after cardiac surgery. Before you can go home you will need to be able to do certain things by yourself without causing harm to your surgical wound or feeling too short of breath, e.g.

- get out of bed from a lying position in a flat bed without using your hands
- stand up from a chair
- walk around the ward
- have a shower
- get dressed
- walk up and down a flight of stairs with the Physiotherapist

If you are not strong enough to do all of these things but do not need specialist care at St Vincent's Hospital, we can talk to you about going to a hospital nearer your own home. This will depend on what care/treatment you need and what the other hospital can provide. It also depends on the other hospital having an empty bed. If this happens we can book hospital transport (car or ambulance) to take you to the other hospital.

You will feel more tired than usual after leaving hospital, so it is important that you have made plans for your journey home and for help when you get there.

What help will I need when I go home?

You will need someone to stay with you for the first 7 – 10 days after leaving hospital. You may choose to stay with a friend or family member until you are well enough to return to your own home.

Start planning early for who can help you with:

- shopping
- cooking
- housework
- laundry
- changing the bed sheets
- driving you to appointments

If you think you may have problems, there may be some Community Services in your area that can give support.

With the help of the Care Coordinator, Occupational Therapist and Social Worker at St Vincent's Hospital you can work out which services would be best for you. It may depend on your own situation and what services are available in the area where your home is.

Some Community Services can provide help for up to 6 weeks after you have left hospital.

What is the best way to travel home?

Car - Most people can be driven home by family or a friend. Getting in/out of the car is easiest from the front seat. Do not try to climb up into high vehicles, e.g. large 4 Wheel Drives. You have to wear the seatbelt by law.

We understand that you may live far away, in regional areas, but do not sit in the car for more than 1 ½ hrs at a time. The driver must stop and allow you to get out, walk around and stretch your legs before continuing the journey.

Use this time to go to the toilet or have a cool drink. Having stops along in the trip is better than sitting in one position for a long time and helps your blood move more easily around your body. It also helps you to breathe more deeply and get more oxygen into your lungs.

Flying - You may not be allowed to fly straight after heart surgery. Always check with the airlines (website or telephone) before booking a flight home. Some insurance companies may not provide full cover for you to travel.

Check the airline websites for more details. Every airline needs approval from a doctor to say you are fit to fly at the time of booking. Virgin and Qantas airlines may only accept passengers 10 days after their cardiothoracic surgery. REX Airlines will usually accept passengers from day 5 after heart surgery.

We do not recommend bus or train because of the unsteady movement during travel – if you need to walk to the toilet while the bus or train is moving you might hurt your chest wound.

Remember not to lift anything more than 2 - 5kgs, have someone else lift your bags throughout the journey and into your home.

Make sure you wear the elastic socks during the journey.

What time will I be discharged from hospital?

If possible, we will aim to have everything ready for you to leave by 11:00hrs. If you haven't received your discharge medication/tablets by this time, there is a waiting area on the ward. This enables us to bring in new patients from the intensive care unit and new admissions from the Emergency Department.

DAY OF DISCHARGE CHECKLIST

All stitches/pacing wires removed	
Own x-rays/scans	
Own money/valuables	
'Discharge Summary' letter for my own Doctor	
Medicines/tablets to take home	
List of medicines/tablets with instructions	
IPTAAS (Isolated Patients Travel Accommodation Assistance) Form (if appropriate)	
Medical Approval form for airline for flight home (if appropriate)	
Medical Certificate for work (if appropriate)	

Which doctors must I see after I leave hospital?

You must make your own appointments to see your:

	Name	Date/Time
GP/local doctor (4 days)		
Cardiologist (4 weeks)		
Cardiothoracic Surgeon (6 weeks)		

- GP/local doctor within 4 days. If you are staying with family/friends before going back to your own home, you should book in to see a G.P. near your family/friends. Make sure you take the letters from St Vincent's Hospital, including the list of medicines we give you.
- Cardiologist – at 4 weeks after leaving hospital
- Cardiothoracic Surgeon – at 6 weeks after leaving hospital.

MEDICATIONS/TABLETS TO TAKE HOME

The hospital will supply you with enough medication to last **only 4 days** (unless otherwise indicated). The nursing staff and/or pharmacist will explain your medications and how often you must take them. It is very important that your G.P./local doctor reviews your medications when you visit him/her for your check-up.

If you are taking **Warfarin**, please make sure you know how much to take.

Pain Management

You will probably have some pain along the cuts in your skin at the time of surgery. The muscles and nerves will take a while to heal and recover. You may have some ongoing pain for a few weeks, everyone is different.

Any pain will gradually decrease allowing you to do more each day. If the pain persists please visit your local doctor. A pain medication plan will be given to you when you leave hospital and may include:

- Paracetamol regularly
- Anti-inflammatory drugs, e.g. Ibuprofen for a short time
- Paracetamol + Codeine (*Panadeine Forte*, *Codapane*), Oxycodone (*Endone*), Targin, Oxycontin.

THINGS TO REMEMBER WHEN I GET HOME

Medical follow-up

It is important that you see your local GP/Doctor within 4 days of leaving hospital. If you are worried about your recovery always ask your GP.

How should I look after the surgical wounds/cuts?

The wounds do not usually need to have a bandage on them. They will dry and heal more quickly. If you need a bandage to cover any wounds, the ward nurse will explain the best way to put them on and how to keep your skin clean.

Most people do not need any special care by nurses when they return home.

- Shower daily, letting the soapy water run over the wounds. If you want to carry on using the Chlorhexidine liquid soap, you can buy it at your local pharmacy. Dry the cuts gently with a clean towel
- Do not rub soap or cream onto the wounds until they have finished healing (after at least 6 weeks)
- Do not use talcum powder on or near the wound
- Wear clean clothes next to the surgical wounds
- Do not let your surgical wounds get in the sun as it will burn the cut areas. Do not use any sun cream either.

Some swelling and redness is normal. If you notice an increase in redness, swelling, soreness or if fluid or blood oozes from the wound, contact your GP/local doctor. It is normal for the skin on either side of your leg or chest wounds to feel slightly numb.

When you see your local doctor after going home, ask them to check all the wounds/surgical cuts. These wounds will heal completely in a couple of months.

CARDIAC REHABILITATION PROGRAM

After you leave hospital we recommend you go to a Cardiac Rehabilitation Program near your home. Cardiac Rehabilitation Programs are for people who have had a heart attack and/or heart surgery. The Programs include two main parts:

- Supervised exercise classes *and*
- Education sessions

The aims of the program are to help you get back to normal, to improve your confidence and improve your fitness. You will be given advice to work out the best ways to keep your heart as healthy as possible. There might be other people at the program who may have had the same operation. Talking to others in the program is often a good thing to give you more confidence.

A Cardiac Rehabilitation Nurse Consultant will visit you during your hospital stay to explain the Rehabilitation Program and how it will help your recovery.

There is a Cardiac Rehabilitation Service near you wherever you live in Australia. Cardiac Rehabilitation can be run from Hospitals, Community Health Centres or your local doctors' surgery. Some may include telephone calls to you or a home visit from a health professional. Others may require you to attend sessions.

Please telephone the Cardiac Rehabilitation nearest you to book-in within 1-2 days of returning home from hospital. Remember, if you are experiencing problems you should contact your GP/local doctor, or your Cardiologist/Physician.

You can also contact the Clinical Nurse Consultant St Vincent's Hospital Cardiac Rehabilitation Program via telephone: **(02) 8382 2321**. If the office is unattended call the switchboard on **(02) 8382 1111** and ask to be put through to the cardiac rehabilitation mobile.

How much can I do when I get home?

Do not do much on the day you get home – the journey will be enough. Exercise regularly from the next day.

Reasons to exercise:

- Improves your fitness
- Helps to reduce your blood pressure, weight and cholesterol level
- Helps any cuts/wounds on your legs to heal
- Helps you relax

Walking Program

Walk as much as you like for as long as you feel comfortable. The table below (Table 5) is a guide to exercising after heart surgery.

Week	Minutes	Times per day	Pace
1	5 - 10	2	Stroll
2	10 - 15	2	Comfortable
3	15 - 20	2	Comfortable
4	20 – 25	1 - 2	Comfortable/stride-out
5	25 – 30	1 - 2	Comfortable/stride-out
6 onwards	30	1 – 2	Comfortable/stride-out

Table 5

If you have any questions about exercise, ask at your Cardiac Rehabilitation Department.

Have a break from the walking, if you experience any of the following:

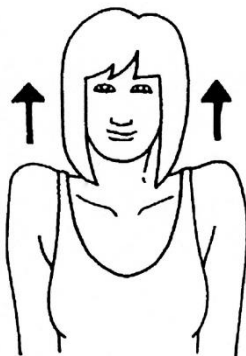
- shortness of breath
- sick
- headache
- very tired
- muscle cramps

Let your doctor or physiotherapist know if you notice any 'clicking' along the chest wound.

The following exercises should be done every morning and afternoon.

Shoulder Exercises (Figure 17)

Shoulder shrugging up and down, forward and backwards



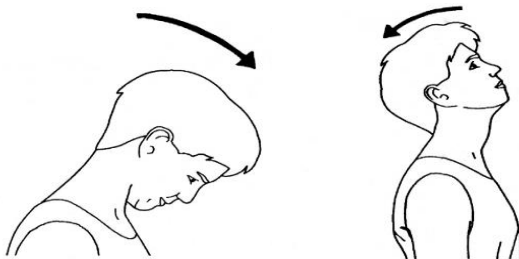
Shoulder circling backwards and forwards with or without your hands on your shoulders



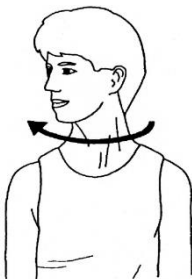
Figure 17

Neck Exercises (Figure 18)

Flexion and extension: put your chin to your chest, then look up to the ceiling. Five times, morning and afternoon



Rotation: turn your head to the left, then right



Neck side flexion: ear to your shoulder, left and right



Figure 18

Trunk Exercises (Figure 19).

Trunk rotation: with your arms crossed turn your body as far as possible to both sides.

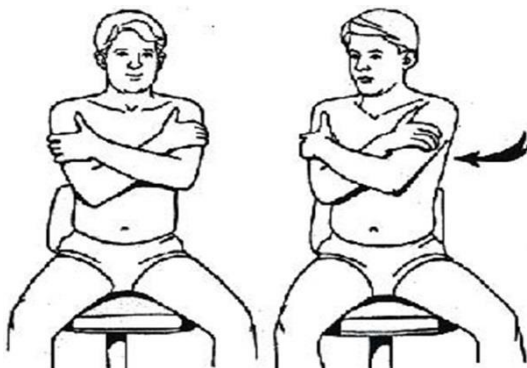


Figure 19

Posture (Figure 20)

Make sure you keep a good posture when standing and sitting. Don't slouch/stoop as this leads to a stiff and painful upper back

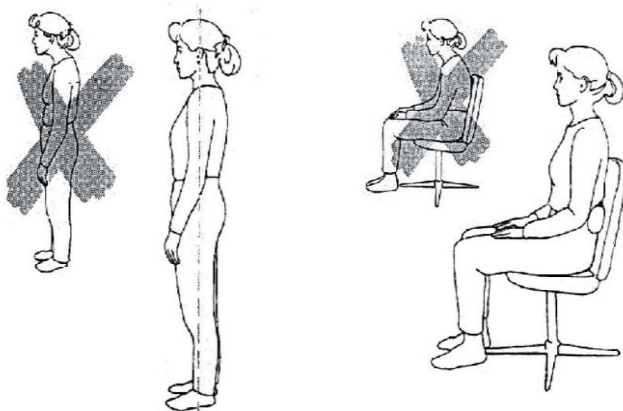


Figure 20

What should I do if I feel unwell at home?

Problems after surgery are not expected, but go to your GP/local doctor if you have any of the following problems:

- Pain in your chest - which is not along the wound/cut. (Angina pain is rare, but possible)
- Irregular heartbeat or palpitations
- A fever (temperature) over 38 degrees celsius
- Chills
- A 2kg change in your body weight in 24 hours
- Dizziness or fainting
- Feeling very tired or weak
- Sudden trouble breathing which gets worse
- Nausea and vomiting
- Infection in the surgical wound e.g. ooze of fluid or blood, redness or swelling
- Not feeling like eating
- A cold or sore throat
- High blood sugar levels ($>10\text{mmol/L}$) if you have diabetes.

Looking after your teeth and gums after Heart Valve surgery

Infection can lead to problems of the valves and other parts of the heart. Infection can enter the body in a number of different ways:

- Some dental work may allow bacteria and infection to get into the gums
- Damage to the skin or muscle at the time of an operation or other injury

Keep regular appointments with your dentist and doctor. Always remember to tell them if you have had heart valve surgery. Antibiotics may need to be prescribed before any dental or surgical treatment.

Brush your teeth and gums with a soft bristled toothbrush to protect your mouth and gums.

GETTING BACK TO NORMAL

When can I start hobbies and social activities?

Before starting an activity or exercise it is important to think about lifting, straining and the amount of energy required. The best thing is to keep the task short and simple when you start and then upgrade slowly as you recover. The Occupational Therapist will discuss your return to normal activity during the ward education session or individually.

Golf – Keep it simple to start with. Putting practice at home from 4 weeks, chipping at 6 weeks and full swings at about 8 weeks. A 9-hole game at 10 weeks and by 12 weeks (three months) a full competitive 18-hole game should be possible.

Bowls – Practice swinging the ball at 6 weeks, at 8 weeks you could attend a ‘roll up’, and by three months you should be back to a full competitive game.

Tennis – Begin practice with hitting a ball at 6 weeks. A quiet game of doubles is O.K. at 8-10 weeks and a full competitive game in about three months.

Driving – The RMS (Roads and Maritime Services) does not allow you to drive for 4-6 weeks, except on the advice of your doctor. Concentration, reflex time and eyesight are often affected for 6 weeks. All of these things are vital for safe driving.

Sexual activity – Sex with your regular partner could be started as soon as you feel well enough. Try not to use too much effort, at first. If you start feeling too breathless (more breathless than during you walk), or you get palpitations (you can feel your heart beating more strongly), or you get chest pain, you should tell the staff at cardiac rehabilitation or your cardiologist before trying again.

Work – You can go back to work related activities as soon as your mind and concentration feel OK. Make sure you feel confident and strong enough. Most people can do office/desk type-work in about six weeks. If your job involves heavy work (e.g. lifting bricks, machinery, etc.), wait for three months. You may be able to go back earlier if you cut down your work hours and only do light duties.

It is always a good idea to make the first few days back at work as easy as possible. This might mean working at home on a computer file or job, away from the usual busy surroundings at work. Build up your working hours slowly: a gradual return will allow you to be more successful and get your confidence back.

All jobs are different and the Occupational Therapist will be pleased to discuss your individual plans for going back to work before you leave hospital. Some jobs may require medical advice and clearance, and the coordination of a 'return to work' program.

Gardening – If you feel strong enough, you could start getting back to gardening as follows:

- Hosing the garden is OK at week two. Avoid pulling the hose and lifting over 2kgs. A few minutes of light weeding and pruning with hand held clippers can be done in week 3.
- Digging soft soil can commence in week 6.
- Trimming edges can begin at week 8.

Mowing the lawn is quite hard work and should be left for at least three months.

Housework – Making the most of your energy includes starting with the activities that you like to do the most. If you enjoy cooking, start with some meal preparation in the first week you get home. Keep it simple and sit down whenever possible.

Tidying up, dusting, washing dishes and clothes washing can all be started early. But, for the first 6 weeks remember to ask someone else to do the heavier jobs, like vacuuming.

A roster or weekly plan can save you having to give constant reminders to others that:

- someone else will need to hang out your washing on a clothesline to dry in the first 6 weeks
- floors need vacuuming or sweeping
- the bathroom needs cleaning
- bed linen needs changing

After 6 weeks you can slowly start to do your normal day to day jobs.

For example, the first 4 – 6 weeks at home may look like this:

Week 1

- Walk around the same as you did when you were in hospital
- Do not lift anything more than 2kg
- Do not have too many visitors
- Rest on your bed for about 1 hour after lunch
- You can go up and down stairs if you go slowly and have a rest
- You can use a desktop computer or handheld tablet

Week 2

Increase what you did in week 1. For example:

- Cooking a small meal and watering the garden with a hose
- Two 5 - 10 minute walks per day
- If you go out with family/friends, 2 hours will be enough
- An afternoon rest may still be needed

Week 3

Do a little more than in week 2

- Bend and straighten your arms
- Bend and straighten your body from the waist in small movements
- Two 15 - 20 minute walks per day
- You may be able to go out with friends/family for up to half a day. E.g. cinema or restaurant
- Little weeding in the garden, or some golf putting practice
- You can start having sex at this time, but be careful not to push too much with your arms

Week 4-5

- Try a whole day of activity, with an afternoon rest if needed. E.g. picnic
- Two 20 - 25 minute walks every day
- You can now drive your car

Week 6

- Start doing stronger activities, such as shopping, sweeping, vacuuming, raking leaves
- If your job is not too energetic, you could go back to work
- If you have a heavy job, you must only go back to light work for 3 – 4 hours a day. Ask your Cardiac Rehabilitation Staff when it is safe to start back as usual

By Week 12 you should be back to your normal day to day life. It is OK to try a full game of tennis or golf and start mowing the lawn. However, it may be six months before you feel the full benefits of surgery.

MEDICATIONS



If you have any questions about any tablets/medication you are taking, please ask to see the ward pharmacist.

After cardiac surgery, many of the medications you were taking before may have changed.

Always ask your doctor before starting or stopping any of your own medication

Aspirin – All patients who have had Coronary Artery Bypass Surgery will need to take a small dose of Aspirin every day, unless you are allergic to it. Aspirin helps to stop blood clots forming in the smaller arteries affected by heart disease. This gives you less chance of a heart attack or a stroke.

The dose of Aspirin is either 100mg or 150mg daily. It should be taken **with or after food**.

There are many sorts of Aspirin. Ask your doctor or pharmacist to choose the best type of Aspirin for you. *Enteric Coated Aspirin* is best for people who have problems with stomach ulcers, hiatus hernia, heartburn or reflux in the past.

Do not take extra aspirin tablets or anti-inflammatory medicines. If you need some medicine or tablets for pain or fever (high temperature), use something like Paracetamol (e.g. *Panadol®*, *Dymadon®*, *Panamax®*).

If you notice any signs of bleeding (e.g. nose bleeds, bruises, dark red urine or blood in your 'poo'), please see your doctor as soon as possible.

Warfarin – You may need to take Warfarin to make blood less 'sticky'. Some patients will need to take Warfarin for the rest of their life, while others only need to take it for a few weeks after their operation.

Before you leave St Vincent's Hospital, you will be given an information booklet '*Warfarin – Important instructions for patients*'. For further information please go to svhhearthealth.com.au

Lipid Lowering Medications – Patients are often required to take medications known as statins to control the blood levels of cholesterol. Important research and studies have shown that statins can reduce your chance of blood vessel diseases, heart attacks and stroke. The benefits of statins may not be seen straight away. You must keep taking it to make sure you get the full effects.

Different statin products:

- Atorvastatin (*Lipitor®*)
- Fluvastatin (*Lescol®*)
- Rosuvastatin (*Crestor®*)
- Simvastatin (*Zocor®*, *Lipex®*, *Simvar®*, *Zimstat®*)
- Pravastatin (*Pravachol®*, *Lipostat®*)

Blood Pressure Mediation – After cardiac surgery, patients who already had a heart condition (e.g. high blood pressure, heart attack or heart failure) will be started on either or both of the following medications:

Beta Blockers: slow your heart down so that it does not beat as forcefully, and lowers your blood pressure. Because the heart is not working as hard, it needs less oxygen. There are many types of Beta blockers, including:

- Atenolol (*Tenormin®*, *Noten®*)
- Bisoprolol (*Bicor®*)
- Carvedilol (*Dilatrend®*)
- Metoprolol (*Betaloc®*, *Minax®*, *Metohexal®*)

ACE Inhibitors lower your blood pressure and keep your blood vessels from becoming narrower, helping the heart to pump more effectively. Different types of ACE inhibitors include:

- Captopril (*Capoten®*, *Acenorm®*, *Coptohexal®*, *Enzace®*, *Topace®*)
- Enalapril (*Renitec®*, *Amprace®*, *Auspril®*, *Alphapril®*, *Enahexal®*)
- Lisinopril (*Zestril®*, *Prinivil®*, *Lisodur®*, *Fibsol®*)
- Perindopril (*Coversyl®*)
- Quinapril (*Accupril®* *Asig®*)
- Ramipril (*Tritace®*, *Ramace®*)
- Trandalopril (*Gopten®*, *Odrik®*)

These medications not only help control high blood pressure, but also prevent the chance of angina and heart attacks.

Anti-angina Medications – You may no longer require any medication that was being used before to prevent angina or chest pain after surgery. Some of these medications may include:

Nitrates:

- Isosorbide mononitrate (*Imdur®*, *Duride®*, *Monodur®*)
- Isosorbide dinitrate (*Isordil®*)
- Glyceryl trinitrate patch (*Transiderm Nitro®*, *Nitro-Dur®*)

Calcium Channel Blockers:

- Nifedipine (*Adalat Oros®*)
- Diltiazem (*Cardizem®*)
- Verapamil

Other Anti-angina Medication:

- Nicorandil (*Ikorel®*)

STAYING HEALTHY AFTER CARDIAC SURGERY

Heart surgery is not a cure, just a second chance at an active life. Maintaining a healthy lifestyle and reducing your risk factors will limit the possibility of you needing further heart surgery.

The risk factors that you can change:

Smoking - Did you know that your health begins to improve from the moment you quit smoking?

From that time on, your body undergoes many positive changes that will continue for some years to come.

Ask your treating medical team about getting some nicotine replacement therapy (NRT). NRT can relieve cravings and discomfort while you are in hospital and after your discharge. You can link with the Quitline during your hospital admission or when you go home. The Quitline can provide information about managing nicotine withdrawal symptoms including intense cravings for cigarettes.

Quitline counsellors can help you with preparing to quit, avoiding slip-ups, and staying smoke-free.

QUITLINE: 13 78 48

The NSW Quitline counsellors (including Aboriginal and multilingual services) are available at the following times:

Monday – Friday 7am - 10.30pm.

Saturday, Sunday and public holidays 9am-5pm

You can also contact your GP about prescriptions for NRT of other quit smoking medications.

High Blood Pressure (Hypertension) – can speed up the process of Coronary Artery Disease. High blood pressure is ‘silent’ that is, it do not always get warning signs, therefore have your blood pressure checked regularly by your local doctor. High blood pressure can be controlled through lifestyle changes. Medications may also be needed and in some instances a number of medications may be required long term. Other lifestyle changes to help bring down your blood pressure include: exercising, lowering the amount of salt you have in your food, and not drinking many alcoholic drinks.

Recommended Blood Pressure

Systolic (Top reading)	130
Diastolic (Lower reading)	85

High Cholesterol – The higher your blood cholesterol level, the higher your risk of Coronary Heart Disease. High blood cholesterol can gradually clog the blood vessels supplying the heart and other parts of the body. This can reduce the blood flow to the heart and lead to a heart attack. It is important to have your blood cholesterol checked regularly by your local doctor.

Healthy blood cholesterol / Lipid levels

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

Lack of regular Exercise / Inactivity – To fully benefit from your surgery you should follow the exercise program the physiotherapist has given you and continue it for life as it helps to control other risk factors such as high blood pressure, cholesterol and being overweight. The heart foundation recommends 30mins of moderate intensity physical activity (brisk walking) on most, if not all days of the week.

Increase Weight / Obesity – Being overweight and carrying too much weight around the waist are direct risk factors for Coronary Artery Disease and Diabetes. Try to lose weight by eating a well-controlled, balanced diet. If you are having trouble, consult a dietitian.

Waist measurement

Men:	Less than 94cm
Women:	Less than 80cm

Diabetes – Good blood glucose control is important before and after surgery to help wound healing, stop wound infections and improve your recovery. If your blood glucose levels are always high or low, you are more likely to get health problems e.g. blocked heart vessels, stroke, poor circulation in the legs, nerve damage, kidney disease and eye disease.

Ask your G.P./local doctor what blood glucose levels you should aim for. Everyone is different, but as a general guide your blood glucose levels should be between 6 and 8 before meals¹. Take your diabetes medications as your doctor/specialist prescribed. If your blood glucose levels are higher or lower than your recommend target, see your G.P, Endocrinologist or Diabetes Educator, as soon as possible for advice.

Healthy lifestyle choices help you to get your blood glucose under control. Attending a Cardiac Rehabilitation Program after your surgery will help you understand the best way to keep a healthy. For more diabetes information, ask your GP to refer you to a diabetes educator, and/ or a dietitian in your local area.

‘Cardiac Blues’

Many people experience changes in mood and emotions after a cardiac event. Some people feel angry and irritable. Some feel sad and tearful. Some feel moody and ‘up and down’. Some people worry about whether they will ever get ‘back to normal’.

These feelings are all common and normal, especially in the first few weeks or months after you’ve left hospital. Common symptoms that accompany these emotions are:

- Loss of interest in usual activities
- Withdrawal from others
- Getting tearful and crying easily
- Being ‘short tempered’
- Sleep problems
- Change in appetite
- Change in sex drive
- Confusion and forgetfulness
- Inability to concentrate
- Bad dreams and nightmares
- Worry about another heart event
- Thoughts about death

For most people these worries and problems go away in the first few months after their heart surgery.

When do these feelings and symptoms become a problem?

These common emotional reactions can become a problem for some people. If you find that your mood is not getting better over time, you might be experiencing depression. Ongoing low mood means that you may be depressed.

Depression includes:

- A strong feeling of sadness most of the time.
- Lack of interest or enjoyment in most activities you have previously enjoyed.

What can I do to prevent and reduce depression?

- Spend time with people you like
- Attend a cardiac rehabilitation program
- Do things that you enjoy
- Make time for relaxation
- Talk with your doctor about how you feel

Where can I get help?

Your local doctor can provide help and support or ask the Cardiac Rehabilitation Nurse.

HEARTLINE is the Heart Foundation's information service.
Tel: 1300 36 27 www.heartfoundation.org.au

Beyond Blue is the national depression initiative.
www.beyondblue.org.au

A healthy diet is important for you to heal and for reducing the risk of further heart disease. Choosing from a wide variety of nutritious foods will ensure you are eating healthily.

You will be given further education about a healthy diet during cardiac rehabilitation. Otherwise, for more information visit:

www.svhhearthealth.com.au
www.heartfoundation.org.au
www.eatforhealth.gov.au
www.daa.asn

References:

[http://cardiac.surgery.ucsf.edu/conditions--procedures/extracorporeal-membrane-oxygenation-\(ecmo\).aspx](http://cardiac.surgery.ucsf.edu/conditions--procedures/extracorporeal-membrane-oxygenation-(ecmo).aspx)

<https://doi.org/10.1186/s13063-017-1974-8>

Blood glucose targets are as recommended by the NHMRC, Blood Glucose Control in Type 2 Diabetes, (2009).

Notes:

