

health information

cardiac surgery

a partnership between



calgary health region

This information is of a general nature and may vary according to your special circumstances. If you have specific questions, please contact your physician or appropriate health care professional.

This Cardiac Surgery booklet could not have been produced without the help of all members of the Cardiac Surgery Team and the Educational Services Department who contributed materials and supplied invaluable information and direction.

Our Cardiac Surgery Team includes all the nursing staff on Patient Care Units 91 and 94, the Cardiac Surgery Operating Room, the Pre-Admission Clinic, cardiac surgeons, cardiac anesthesiologists, social workers, physiotherapists, dietitians and occupational therapists.

We would also like to recognize the input of our patients in the reviewing of this booklet.

We are particularly appreciative of the financial assistance that we received from Shell Canada for the development of this material.

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▶ You can assist in your recovery if you have a good understanding about your surgery.

*It is important to start planning
for your discharge from hospital
even before you are admitted.*

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Path to Recovery

Each year many people undergo cardiac surgery. Everyone has their own questions and concerns about the surgery and how it will affect them. This booklet has been developed by our Cardiac Surgery Team (a team of nurses, doctors, physiotherapists, occupational therapists, dietitians and social workers) at the Foothills Medical Centre. It provides specific information on cardiac surgery, how to prepare for the operation and what to expect following your operation.

It is important to start planning for your discharge from hospital even before you are admitted for your surgery. You will be discharged from hospital anywhere from 4 to 7 days after your surgery. Your cardiac surgeon will decide when you are ready to go home.

You will be given instructions on how to take care of yourself after you go home and how you can help yourself in the recovery process.

Heart surgery is a major life event that affects patients and their families emotionally as well as physically. We want you to be as comfortable as possible during this time. Being informed and knowing what to expect will help you feel in control of your situation. This booklet is only one way of learning about your heart and the surgery.

We urge you to ask any questions you may have before you come to hospital and during your hospital stay. Use the note page near the end of this booklet to write down your questions.

We believe that you can assist in your recovery if you have a good understanding about your surgery.

▶ *Heart surgery is a significant life event that affects patients and their families emotionally as well as physically.*

We want you to be as comfortable as possible during this time.



Research Programs

The Cardiac Surgery Program at Foothills Medical Centre is part of the University of Calgary and the Calgary Health Region, and supports research projects that may improve patient care.

*Remember...we're here to
help you!*

Committees of experts for ethics, scientific merit, and patient safety have approved all of these projects. You may be asked if you wish to take part in some of the current studies. Your medical care is completely separate from these studies and taking part in these studies is voluntary. Your participation in any study is greatly appreciated but in no way will it change the care you receive as a patient. If you are interested in any of the studies, someone from the study group, usually a nurse or a doctor, will explain the details of giving informed consent to be a volunteer participant.

Waiting for Surgery

The Cardiac Surgery Wait List

Once the cardiac surgeon recommends surgery as an option and you have decided to have the surgery, your name is registered on the Cardiac Surgery Wait List. This registry allows us to keep track of all patients so that no one slips through the cracks. The security and confidentiality of all information in the registry is strictly protected.

The Cardiac Surgery Program of the Calgary Health Region has four categories of priority on the Wait List. The priority for surgery is based on the seriousness of the heart disease and the risks associated with waiting. The cardiologist and cardiac surgeon review each case and together decide into which priority a patient is placed on the wait list. The categories are:

▶ *The priority for surgery is based on the seriousness of the heart disease and the risks associated with waiting.*

- **Emergency:** surgery is done within 24 hours of the decision that surgery is needed.
- **Urgent–In:** these are patients who must stay in hospital to wait for their surgery due to their symptoms and seriousness of the disease.
- **Urgent–Out:** these patients have symptoms and disease that allow them to return to the community while awaiting surgery.
- **Planned:** the remaining group of patients has a set of circumstances that permit a longer wait than all the other categories.

The wait time for your surgery depends on a number of factors including:

- your date of referral to a cardiac surgeon
- your assigned priority
- the number of patients in each priority
- who your cardiac surgeon is
- your disease and your degree of symptoms



What To Do While You Are Waiting for Surgery

While you are waiting for surgery it is important to keep yourself as healthy as possible and to follow the treatment plan for your condition. Here are some guidelines to help you do this:

- Keep in touch with your family doctor. Your doctor is responsible for following your condition while you are waiting for surgery. **Do not stop taking a prescribed medication unless your family doctor agrees.**
- If you have recently stopped smoking—**congratulations!** If you are still smoking, think about the effects smoking can have on your health. Smoking makes your heart work harder and decreases the amount of oxygen in your blood. Smoking can also have a harmful effect on your breathing during surgery and make your recovery from surgery more difficult. **Quit!** Regardless of the number of years you have smoked, your lungs and heart will benefit if you quit smoking. If you need help to quit, we can recommend a number of programs to help you with this. The Calgary Health Region website also has information on tobacco reduction at: www.crha-health.ab.ca/hearthealth/index.htm
- To help you recover from surgery, it is important to keep your body well nourished. This means that you should eat balanced meals including foods from grain products, vegetables and fruits, milk products, and meat and alternatives.
- If you were advised to lose weight, continue to eat a healthy diet and eat smaller portions. **This is not the time to go on a crash diet.**
- Learn to pace yourself and know your limits. If you become tired, no matter what you are doing, stop and rest. If you begin to experience angina take your nitroglycerine as instructed. Ask your family doctor about ways to safely exercise while you are waiting for surgery.
- Try to get 7–8 hours of sleep every night. Rest during the day if you feel tired.

Regardless of the number of years you have smoked, your lungs and heart will benefit from you quitting smoking.

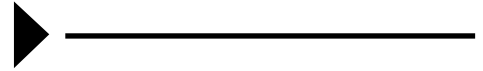
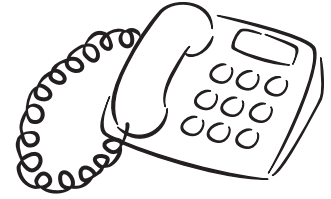
While waiting for surgery, learn to pace yourself and know your limits. Rest during the day if you feel tired.

Do not sit around and wait for the cardiac surgeon's office to call you. They will try more than once and will keep calling you until they contact you. If you are going on holidays or going out of town let your cardiac surgeon's office know. You can also give the cardiac surgeon's office the name and number of another person (not a member of your household) who knows how to get a hold of you.

When To Call Your Family Doctor While Waiting for Surgery

You should call your family doctor if you:

- have chest pain that you have never had before
- notice an increase in how often you have angina
- use more nitroglycerine to relieve your chest pain
- notice more angina with very little exertion or it wakes you up at night
- notice more shortness of breath at rest or on exertion
- have a faster heart rate than usual (palpitations) or an irregular heart rate that was regular before
- feel dizzy or faint
- notice swelling in your feet or hands, or your pants feel tighter around the waist
- have to increase the number of pillows on which you sleep
- generally feel your condition has changed since your last visit to your doctor



Your Emotions & Stress While Waiting for Surgery

While you are waiting for surgery, and during recovery, it is important that you learn how to deal with your feelings. For most people the heart is a symbol of both physical and emotional well-being. When the heart becomes damaged or diseased, people feel the threat of losing not only their body function, but also their potential for power, energy and emotions.

Normal emotional reactions before, during and after cardiac surgery include: fear of the unknown, uncertainty and anxiety related to when surgery will actually occur. The waiting period before your surgery can be especially stressful. It is common to feel frustrated with having to wait and live with the restrictions placed on you by your heart disease.

Mood swings, anxiety, depression, fatigue and the “blues” are common reactions for many patients.

You will be given support and reassurance that what you are experiencing is normal.

Other emotions and feelings come forth during hospitalization and can continue for weeks following surgery. Mood swings, anxiety, depression, fatigue and the “blues” are common reactions for many patients. These are normal reactions for your body and mind following cardiac surgery.

Patients and families cope better with these reactions when they know what to expect during this time. You and your family will be given information and ongoing education to help you remain in control of your situation. It is important for you and your family to talk about your feelings freely during the surgical experience. **You should not keep your emotions to yourself.**

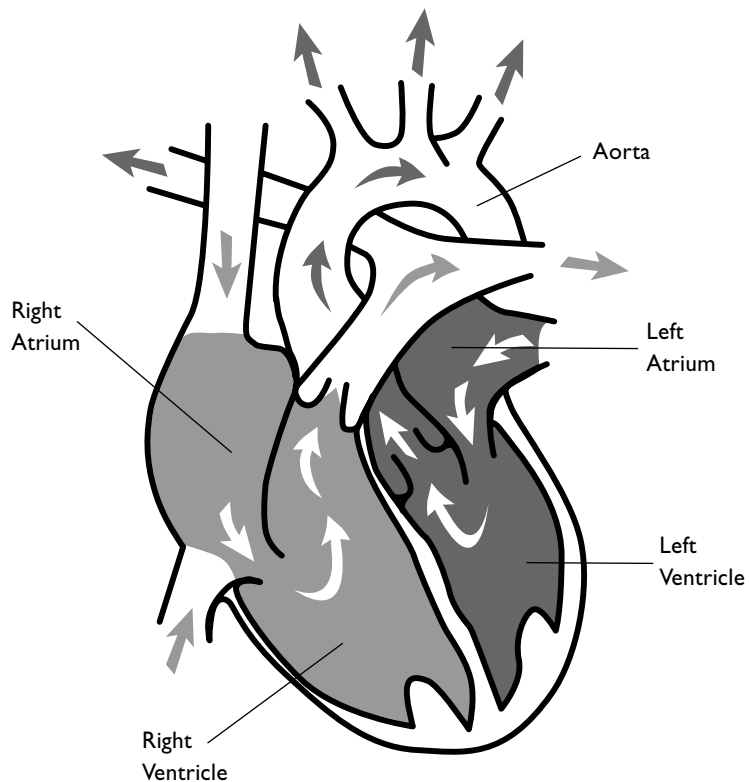
A social worker is available to help you and your family deal with any emotional issues you may be having. As well, services from the hospital’s Spiritual Care Department are available. A visit from the clergy of your denomination can be arranged. You and your family are welcome to use the chapel located on the main floor of Foothills Medical Centre.

About your Heart

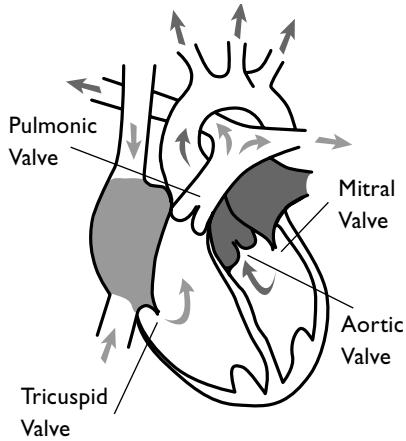
Your heart is a hollow, muscular organ that is about the size of a closed fist. It is located in the centre of the chest directly behind the breastbone (**sternum**). The heart beats non-stop to pump oxygen-rich blood and nutrients to all parts of the body. The heart and lungs work together.

How the Heart Works

- The heart has two sides with 4 chambers (2 chambers on the right and 2 on the left). The upper chambers are called **atria** and the lower chambers are called **ventricles**.
- The right side collects blood from your body that is low in oxygen. This blood is pumped into the lungs. In the lungs the blood gets rid of waste gas and picks up a fresh supply of oxygen. This oxygen-rich blood is returned to the left side of the heart and pumped to the rest of the body through the **aorta**. This pumping action is your heartbeat.



Heart Valves



- There are four chambers in the heart. Each chamber is separated by a valve.
- As blood is pumped from chamber to chamber in the heart, it passes through these valves.
- Each valve opens and closes like a door to keep the blood going forward and to prevent back-flow.

Coronary Arteries

Heart problems develop when the blood supply to the arteries is inadequate.

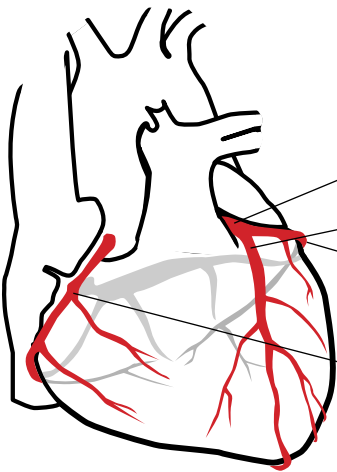
In order for the heart to work well, it needs a constant supply of oxygen. The heart receives its own blood supply from blood vessels called **coronary arteries**. These arteries supply oxygen and nutrients to the heart muscle.

The **main** coronary arteries divide into smaller vessels, so that the entire heart receives oxygen. **The main coronary arteries are:**

The **Left Main Artery** divides into two main branches:

- the **Left Anterior Descending Artery** which provides blood to the front of the heart and,
- the **Circumflex Artery** which wraps around and supplies the left side and back of the heart.

Right Coronary Artery which provides blood to the right side and back of the heart.



Cardiac Surgery

The most common cardiac surgery procedures are:

- **Coronary Artery Bypass Surgery** (sometimes called **CABG** or “**Cabbage**” Surgery)
- **Heart Valve Surgery**

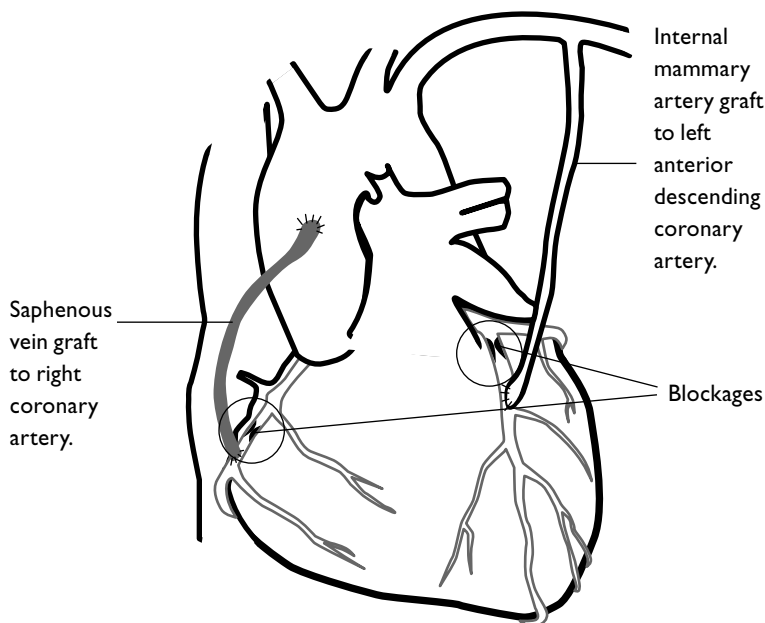
Other types of cardiac surgery procedures that are not as common include: repair of an **aneurysm** (bulging of heart muscle) or **congenital conditions** (conditions you were born with).

Coronary Artery Bypass Surgery

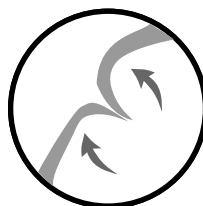
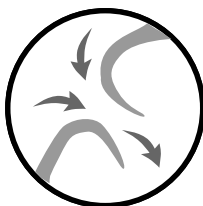
If your coronary arteries become narrow or blocked, less blood flows through the arteries and to the heart muscle. This may cause **angina** (heaviness, tightness, squeezing, aching, pressure or burning in your chest, throat, jaw, arms or between shoulder blades), shortness of breath and sometimes even a heart attack (**myocardial infarction**).

Coronary artery bypass surgery is done to bypass one or more blockages in the coronary arteries. The bypass increases blood flow to the heart muscle by rerouting blood around the blocked artery. This improves the circulation to the heart and relieves angina.

These bypasses may be arteries or veins. The artery behind the breast bone (**the internal thoracic artery**) is commonly used. Other arteries, including those in the wrist (**radial artery**) may also be used. Vein bypasses are taken from the leg.

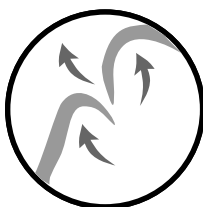


Normal Valves



When functioning properly, healthy valves open and close all the way.

Damaged Valves



Unhealthy or damaged valves do not open and close properly.

Heart Valve Surgery

Heart valves open and close to allow blood to flow forward through the heart chambers.

These valves may be damaged:

- by rheumatic fever or other infections
- by aging
- by a condition present at birth (**congenital defect**)
- in association with pump (**heart**) failure

Over time, damaged valves become scarred and narrowed (**stenosis**). With these changes the valves are harder to open or can't close properly. A damaged valve may also allow leakage of blood from one chamber to another (**regurgitation**). When valves do not open or close as they should less blood gets through. Pressure builds up in the chambers of your heart and causes the heart to work harder.

Some heart valves can be repaired, while others need replacing. If your valve needs replacing, you will receive either a mechanical valve or tissue valve. Your cardiac surgeon will discuss the differences and will recommend the best valve for you. If you need more information, please feel free to ask.

Mechanical Valves:

Mechanical valves are man-made valves and should last a long time. With this kind of valve, you will need to take an **anticoagulant** (blood thinning medication called *coumadin*) daily and have regular blood tests for the rest of your life.

Tissue Valves:

Tissue valves are made from human or animal tissue and usually do not last as long as mechanical valves. With a tissue valve, you might not need an anticoagulant, or you may need to be on an anticoagulant for a short period of time.

Getting Ready for Surgery

You will have many things done before surgery and will be seen by several members of the healthcare team.

The exact order of events may vary with each person and will depend on your situation. However, you can expect the following to occur while waiting for your surgery.

Pre-Admission Clinic (PAC)

For most patients, an appointment will be made by the cardiac surgeon's office to visit the Pre-Admission Clinic (PAC). This appointment will usually be a few days to a month before surgery. PAC is located at Foothills Medical Centre in the North Tower/Grace Women's Health Centre (next to the main hospital). The staff at the clinic will contact you by telephone to arrange your appointment (date/time) and give you more information about the clinic. Please park in the main hospital parking lot when you come to the clinic. A weekly or monthly parking pass can be purchased at the cashier's office (on the main floor directly behind the admitting department).

This clinic visit usually takes about 4 hours. You will be seen by members of the Cardiac Surgery Team.

Your visit to the clinic will include:

- lab tests, x-ray and an electrocardiogram
- an examination and assessment by a cardiac anesthesiologist
- an assessment by a nurse in the Pre-Admission Clinic
- a Pre-Operative Cardiac Surgery Education class with a nurse, social worker, dietitian, anesthesiologist and physiotherapist. This class covers all aspects of your care including what to expect before, during and after your operation.

▶ *If you are at home waiting for surgery, preparation will occur at the Pre-Admission Clinic.*

For those who have not attended the Pre-Admission Clinic, surgery preparation will occur once you are admitted to hospital.

We encourage a family member or friend to attend the Pre-admission Clinic with you as the information provided is very helpful for all concerned.

Choose a family member or friend who can learn the routines you need to follow while in hospital.

The physiotherapist will give you instructions about deep breathing and coughing, and how to move using a “**teddy**” to protect and support your chest incision. The physiotherapist may also give you a breathing device (**incentive spirometer**), to help you take big breaths.

A social worker will discuss your discharge plan with you. If you have concerns about your discharge, the social worker can provide you with information about community resources, such as: medication coverage, financial aid, accommodation lists for out-of-town patients and families, and caregiver support.

The cardiac anesthesiologist will discuss different ways to control pain after your surgery. These include pain killers (**narcotics**) given through your intravenous or through a very small needle inserted into your spinal fluid between the bones of your lower back. Depending on your situation, you and the cardiac anesthesiologist will decide which method is best for you.

As well as preparing you for surgery, the staff in the clinic will help answer any questions or concerns you may have about your surgery. You will also be able to talk to other people who are having similar surgery.

When you come to the clinic, please bring a list of your current medications, your Foothills Hospital card and any teaching materials you have been given. We encourage a family member or friend to attend this clinic with you, as the information provided is very helpful for all concerned. We ask that you choose a family member or friend who can learn the routines you need to follow while in hospital. This person can then pass on the information to other family members or friends.

If you do not speak English, please bring an interpreter with you.

Admission to Hospital

Depending on your surgeon, you will either be admitted to hospital the morning of surgery or at a time specifically scheduled for you. Your preparation for surgery will be completed at that time.

Note: You should arrange for someone to drive you both to and from the hospital. Make arrangements for someone to stay with you for at least a few days after you are discharged from hospital.

What to bring to the hospital:

- Foothills Hospital card (blue card).
- A list of all vitamins, herbs and medications you are currently taking.
- Comfortable clothes to go home in.
- For large-breasted women; a comfortable bra.
- Comfortable shoes with good grip, runners, or solid slippers that are slightly loose fitting and easy to walk in. It is normal for your feet to swell after surgery. This swelling usually only lasts for a few days.
- Personal toiletries (e.g. shampoo, toothbrush, denture cup).
- Personal belonging bag with everything you received at the Pre-Admission Clinic, including the “**incentive spirometer**”.
- All patient education materials you were given, including this booklet.

What not to bring to the hospital:

Any valuables, such as:

- Cellular phones or laptop computers.
- All jewellery and rings.
- Any other valuables or large sums of money.

▶ *You should arrange for someone to drive you both to **and** from the hospital.*

Make arrangements for someone to stay with you for at least a few days after you are discharged from hospital.

Preoperative Instructions

- Shower with a special soap, which will be given to you, to help remove germs from your skin. You must do this two times—once at bedtime the night before surgery and then again on the morning of your surgery. **If you are admitted the morning of your surgery, be sure that you have had both of your showers before you come to the hospital.**
- There are some restrictions on what you can eat or drink the night before and the day of your operation. Please follow the instructions about eating and drinking before surgery:
 - **Do not have any solid food or any milk products after midnight the night before your surgery.**
 - **Do not drink alcoholic beverages for 24 hours before surgery.**
 - Have a light supper on the evening before surgery.
 - You may drink clear fluids up to 3 hours before your scheduled surgery time. Clear fluids include milkless tea, coffee, apple juice, water and carbonated beverages. You may add a small amount of sugar to tea or coffee if you wish.

The nurse will check with you to make sure you have followed these instructions. Your stomach needs to be empty before surgery.

- If needed, take the medication you were given to help you sleep the night before your surgery.
- **Do not drive yourself to the hospital.** Have a family member or friend drive you.
- Please report to the **Admitting Department** at the time you were given.

The Surgery

The Day of Surgery

Immediate family or special friends can visit you until you are taken to the operating room. These visitors may choose to wait at the hospital during the surgery, or may prefer to return when your surgery is done. Your family should make sure that the Cardiac Surgery Intensive Care Unit has a contact number for them if they choose to wait outside the hospital. Your cardiac surgeon will want to talk to them, either in person or over the phone, after your surgery.

▶ *Immediate family or special friends can visit you right up until you are taken to the operating room.*

Before you go to the operating room:

- you will be given medication to help you relax
- you will be started on oxygen

You will be taken to the Cardiac Surgery Operating Room on a stretcher. Your belongings will be taken to the Cardiac Surgery Intensive Care Unit. We appreciate if your family can take the rest of your belongings home with them.

The Cardiac Surgery Operating Room

While in the Cardiac Surgery Operating Room, you will be under the care of the surgical team. This team includes your cardiac surgeon, anesthesiologist and their assistants, the perfusionist, (who operates the heart-lung machine) and the operating room nursing staff.

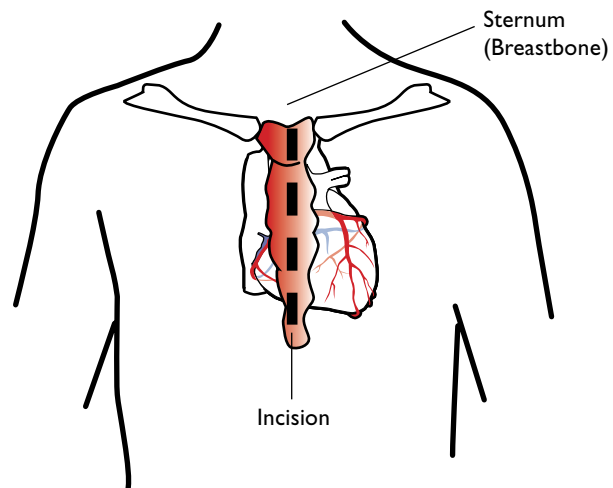
In the **Cardiac Surgery Operating Room**, a nurse will:

- check you and your hospital chart on arrival in the operating room
- give you a warm blanket, as the operating room is usually cool

You will be the centre of a lot of activity and attention, and you may find the next few minutes noisy and busy. If you feel unsure or uncomfortable let the team members know. You may also be drowsy from the pre-operative sedative and your anesthesiologist will give you more of the sedative if needed.

Once you are in the Operating Room:

- You will be asked to move from your stretcher to the operating table.
- Monitors will be attached to you to monitor your heart, blood pressure and the amount of oxygen in your blood.
- After “freezing” your skin (like a dentist freezing a tooth), your anesthesiologist will put in several intravenous lines. These include lines in your arms and usually one in the side of your neck.
- If you are to receive spinal medication, this may be given now.
- Your anesthesiologist will then give you the intravenous medications to make you sleep during the surgery.
- Once you are asleep, the anesthesiologist will place a breathing tube (**endotracheal tube**) in your windpipe.
- The surgery team will make sure you are positioned safely and comfortably, and will monitor your condition continuously while you sleep.
- Your surgeon will begin your surgery by opening your chest through the breastbone with a special saw. If you are having coronary artery bypass surgery, the arteries and veins needed for the grafts will be prepared.



- During surgery, your heart may be connected to the **heart-lung machine (cardiopulmonary bypass machine)**. While your surgeon works on your heart, the perfusionist uses the heart-lung machine to perform the usual functions of your heart and lungs. Once your heart is repaired, it is allowed to take over once again from the heart–lung machine. Depending on your surgeon’s preference, coronary artery bypass surgery is sometimes done without the heart lung machine. This is called **Off-Pump Coronary Artery Bypass Surgery**.
- The surgeon will close your breastbone using 6 or 7 thin stainless steel wires. These wires stay in permanently and do not usually cause any problems. The surgeon then closes all incisions and inserts drainage tubes into the chest (**chest tubes**). Wires for pacing your heart (**pacing wires**) will also be inserted into your heart, to be used if needed.
- All the incisions will be covered with sterile dressings.
- Your surgery is now completed and you are ready to be transferred to the **Cardiac Surgery Intensive Care Unit**.

After Surgery

The Cardiac Surgery Intensive Care Unit

Remember, you are not alone. ◀

Right after your surgery, you will be taken to the Cardiac Surgery Intensive Care Unit, also known as **Patient Care Unit 94 (PCU 94)**. You likely will be asleep or very sedated during this transfer and for the first hours after your surgery. You may not remember much about this time. As you awaken, you will hear many sounds, such as alarms or bubbling noises. **Remember you are not alone. A nurse will be watching you carefully and talking to you.**

You will be given medications through your intravenous lines for pain or discomfort.

Tubes and lines put in before your surgery are left in place until you do not need them anymore. These include:

- **Breathing Tube (endotracheal tube)** – a tube placed through your mouth into your throat and connected to a breathing machine. This machine will breathe for you. The breathing tube will come out when you are awake enough to breathe on your own. This usually happens within 4 to 24 hours. **You will not be able to speak, drink or eat while this tube is in place.** To help you communicate, the healthcare team will ask you questions to which you can nod your head.
- **Nasogastric Tube** – a small tube that is inserted through your nose or mouth into your stomach. This tube keeps your stomach empty immediately after surgery and is removed usually at the same time as the breathing tube.
- **Heart Monitor** – a monitor to record your heart rhythm.
- **Intravenous Lines** – small plastic tubes in your veins to give you fluids and medications.
- **Pacing Wires** – small temporary wires that are attached to the outside layer of the heart and come out through the chest wall. If needed, these wires can be used to pace your heart muscle to help the heart beat forcefully. These wires will be removed before you are discharged from hospital.
- **Pulmonary Artery Catheter** – a special catheter inserted through a vein in your neck which measures pressures in your heart. This catheter is removed before you leave PCU 94.
- **Chest Tubes** – 2 or 3 plastic tubes placed in your chest to drain fluid that collects in your chest. These tubes are usually removed within 24 to 48 hours of your surgery.
- **Urinary Catheter** – a small tube placed in your bladder to drain urine. This is usually left in for 2–3 days.

The intensive care doctor will decide when you are ready to have these lines and tubes removed and when you can be transferred to the **Step Down Unit on Patient Care Unit 91**. You may be ready to leave PCU 94 in 12 to 24 hours. Most of the lines and tubes will have been removed by the time you are transferred to the Step Down Unit.

Guidelines for Visiting in the PCU 94:

- Only immediate family members or designated visitors are allowed to visit while you are in PCU 94. Only 2 visitors are allowed to visit you at any one time. Short visits are recommended as it is important for you to rest.
- Visits are arranged through your nurse. Visiting is restricted during the change of shift from 7–8 a.m. and 7–8 p.m.
- Before entering PCU 94, visitors must call into the unit by using the telephone in the Cardiac Surgery Waiting Room. This waiting room is located outside of PCU 94.
- Space is limited in PCU 94, therefore no flowers are allowed.
- Visitors are asked to wash their hands before entering PCU 94.

Patient Care Unit 91 (PCU 91)

- The **Step Down Unit** is located on **PCU 91**. In the Step Down Unit you are still monitored, but not as closely as in PCU 94. Both men and women recover in the same room.
- You will probably still have an intravenous line for fluids and medications. You may still have a catheter in your bladder and chest tubes in place.
- During the the first few days of your recovery it is not uncommon to develop an irregular heartbeat known as **atrial fibrillation**. This usually only lasts for a few days after surgery but may need further monitoring and treatment.
- After 24 hours in the Step Down Unit you may be moved to a regular room on PCU 91 for the rest of your hospital stay.

Guidelines for Visiting in the Step Down Unit and Regular Room:

- In the Step Down Unit only immediate family or close friends are allowed to visit and **only 2 visitors at a time**. It is recommended that your visitors keep their visits short and be considerate of other patients in the room.
- Visiting hours are from 11:00 a.m. to 8:00 p.m. on PCU 91.
- **The Step Down Unit rest period is from 1:00 p.m. to 3:00 p.m. each day.** Visitors are not allowed during this time.

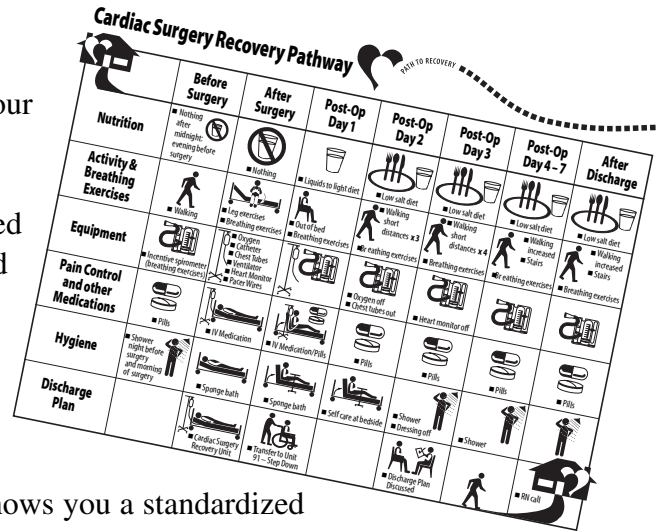
► *It is recommended that you keep your visits short in the Step Down Unit and be considerate of other patients in the room.*

Care After Surgery

There are day-to-day activities involved with your care throughout your hospital recovery and when you go home.

These activities are listed on a special sheet called the *Cardiac Surgery Recovery Pathway*.

This clinical pathway is found on page 45.



The clinical pathway shows you a standardized day-to-day plan of care. You can refer to it during your hospital stay to help you to know what to expect. Use it when you get home to give direction to help you take care of yourself during your recovery.

Pain Management:

Some pain is normal after surgery. However, the pain associated with heart surgery is often less than that following other procedures, such as abdominal or joint surgery. We do our best to control your pain following your surgery.

Your healthy recovery depends on 3 keys elements: deep breathing, coughing, and activity.

- For the first 48 hours after surgery, pain medication should be taken every 4 hours to control the pain. You need to be comfortable enough to move, deep breath and cough.
- Whatever the initial type of pain medication, most patients need only oral pain medication (e.g. Tylenol® with codeine) once they are taking sips of fluid.
- You may be asked to rank your pain on a **Pain Scale**. On the Pain Scale, **0** means no pain, and **10** is the worst pain you can imagine.

Rate your pain on a scale of 0 - 10 as shown here:										
0	1	2	3	4	5	6	7	8	9	10
No Pain					Moderate Pain					Worst Pain Possible

- A level of 3 usually allows patients to feel comfortable enough to be able to sleep.
- **Tell us if the pain isn't going away or isn't getting better.** Pain control is an important part of a healthy recovery.

Deep Breathing & Coughing:

- Deep breathing and coughing may cause you some discomfort but it is **important to** your recovery. Deep breathing, coughing, and getting up and moving shortly after surgery reduces the risk of pneumonia. Deep breathing and coughing will not harm your incisions or your heart. Ask your nurse for pain medication so that you will continue to breathe deeply, cough and move with more ease.
- When you are awake, take at least 10 slow, deep breaths every hour. This exercises your lungs and makes coughing more effective.
- **If you have been given an incentive spirometer (Voldyne), use it every hour to help you do your deep breathing exercises.**
- **After the deep breathing exercises, sit and hold your “teddy” pillow firmly over your chest incision for support. Take a deep breath and cough firmly. If you cough up some mucous, clear it into a tissue and repeat the cough until no more mucous is produced.**

▶ *Deep breathing and coughing will not harm your incisions or your heart and is essential for your recovery.*

Activity:

- **It is very important *not* to use your arms for any type of pushing or pulling in order that you don’t put extra pressure on your breastbone as it heals.** You will be shown by the physiotherapist how to move in ways that avoid putting undue stress on your breastbone. You will be reminded of this restriction often by all of the cardiac surgery team.
- Use the “**teddy**” only for supporting your incision when coughing and to remind you not to use your arms when moving from sitting to standing.
- Activity is very important because you will get stiff and sore if you don’t move. Your activity level will increase as tolerated. You will progress from sitting in the chair to walking in the hallway at least four times a day. At first you will need some help, but as you become stronger you will become more independent and will move about on your own. Remember, everyone’s progress is different.
- Pump your feet and ankles up and down 10 times an hour while sitting up or resting in bed. Avoid crossing your ankles or legs.
- We encourage patients to spend most of the day up in a chair rather than in bed.
- Before you are discharged home the physiotherapist will have instructed and helped you climb stairs.

▶ *Activity is very important because you will get stiff and sore if you don’t move*

As you become stronger, you will become more independent and will move about on your own.

Neck and Shoulder Exercises:

The exercises on the following pages will help to improve mobility, function and flexibility. These exercises will also help to reduce muscle aches and pains after surgery.

Important Points:

- You will start these exercises right after surgery. Continue to do them for 6 weeks from the day of your surgery.
- **Do these exercises 2 times a day, slowly and comfortably.**
- **At the beginning, do each exercise 3 times;** progress as is comfortable to a maximum of 10 repetitions. (eg. add one repetition every 2–3 days).
- **Never hold your breath, bear down or strain while you are doing these exercises.**
- You should not have any pain in your incision with these exercises. A gentle comfortable stretch is to be expected.

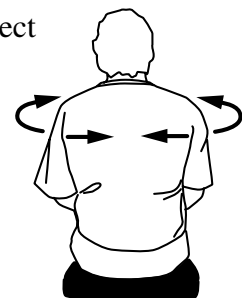
You should not have any pain in your incision with these exercises.

Exercise #1:

A) Hands in lap, shrug shoulders up and down.



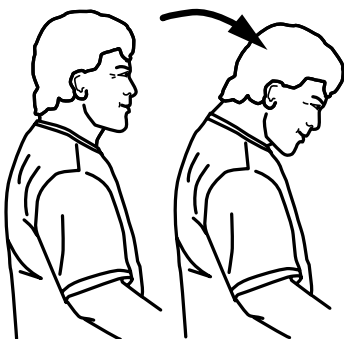
B) Bring shoulders forward, then pinch shoulder blades together at the back, keeping an erect posture.



Exercise #2:

A) Hands in lap, back straight; bend head forward, chin to chest.

▶ *Do not continue with neck exercises if they cause dizziness.*

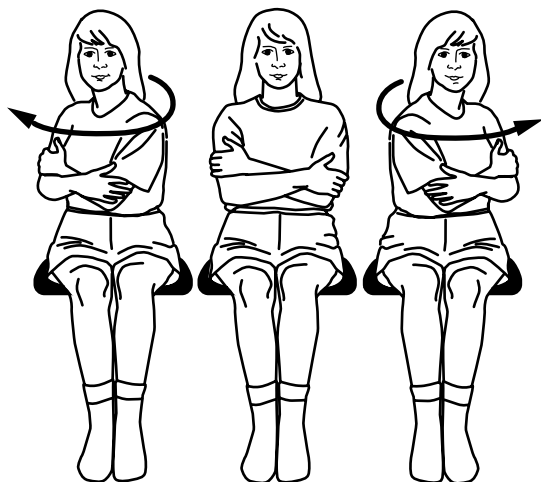


B) Turn head slowly to look over the right shoulder, then the left shoulder.



Exercise #3:

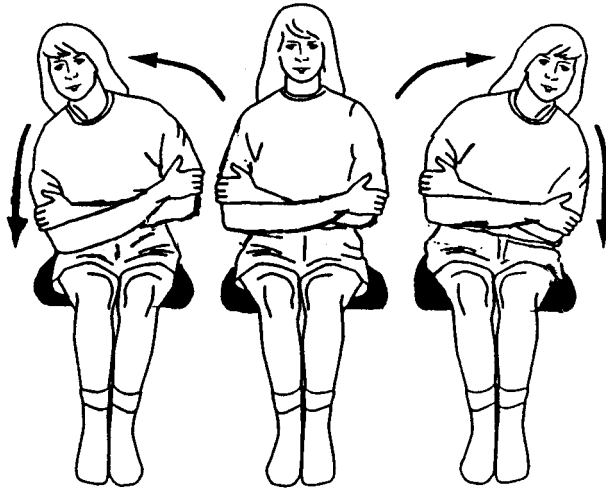
A) Arms across the chest, gently turn and rotate trunk first to one side and the other, in a small, pain-free range of motion.



Exercise #4:

You can stand for this exercise if your balance is good.

- A) Arms across chest, keeping back straight, bend at the waist, and lean to the right.



- B) Straighten up. Repeat on left side.

Exercise #5:

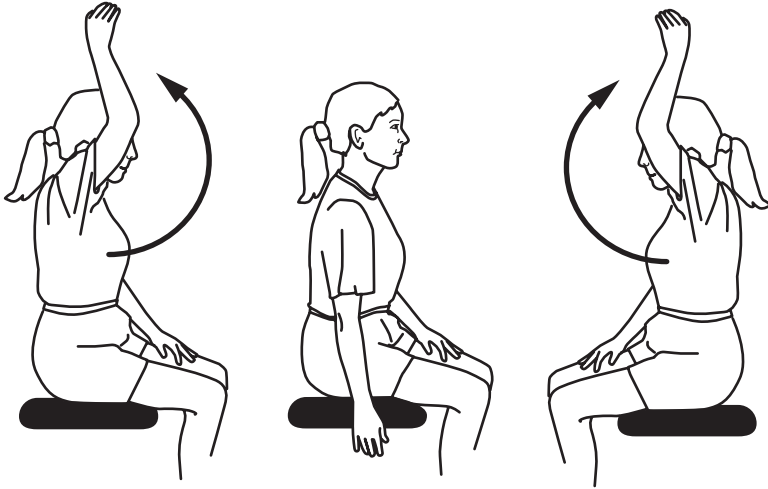
- A) Bring elbows up to shoulder height and then circle the elbows up and back.



Exercise #6:

A) Raise arm above your head, keeping it in line with your body.
Reach up toward the ceiling.

B) Lower arm to your side, repeat with other arm.



Nutrition:

Early nutrition helps you recover faster!

- You will feel very thirsty. You will be given ice chips and small amounts of water until you are able to pass gas rectally.
- After the breathing tube is removed, (usually by the next day) your diet will be increased depending on how you feel. If you find your appetite is poor, please tell the staff so that our dietitian can help you. Remember, proper nutrition will help you recover faster.
- After cardiac surgery it is normal to retain (hold) fluid for a few days. You will be weighed daily to keep track of this fluid gain. You will be on a salt restricted diet and may also be given a medication to help you get rid of this extra fluid.

Care of Incisions:

- You will have a chest incision down the middle of your breastbone (**sternum**). Depending on your surgery, you may also have an incision on your leg(s) and/or arm.
- Dressings are usually removed from your incisions 1 or 2 days after your operation.
- The nurse will cleanse your incisions daily until you are able to shower.
- It is normal for incisions to:
 - look slightly red
 - feel tender, uneven, bumpy, numb, tight and pulling and itchy
 - drain a small amount of clear or yellow fluid

Bathing:

- Once you are off the heart monitor, you will be able to have a shower. In the shower you can cleanse your incisions gently with a soft cloth and mild soap.

Bowels:

- Even though you have not eaten much, a few days after your surgery you may have a “full” feeling. All patients after surgery will get a stool softener and/or laxative to help the bowels move. If this does not work, tell your nurse.
- You need to have at least one bowel movement before being discharged from hospital.

Getting Ready to Go Home

Congratulation! Your recovery is well under way.

While you are on PCU 91 the team will help you and your family (or friends) prepare you for your discharge from the hospital. You may be discharged from hospital anywhere from 4 to 7 days after surgery. Some patients may have shorter or longer hospital stays. Your cardiac surgeon will decide when you are ready for discharge.

Cardiac Surgery Discharge Class:

The Cardiac Surgery Discharge Class is held on PCU 91. The class is taught by members of the health care team. **Family and friends are strongly urged to attend.** The class discusses care at home including: bathing, incision care, activity, exercises, diet, stairs and when to call the doctor.

Medications:

Before discharge, your nurse will discuss the medications your cardiac surgeon has prescribed for you to take at home. Some medications may be the same as the ones that you were on before surgery. You may also receive a prescription for pain medication.

Please remember:

- Take your medications as prescribed.
- If you forget to take a pill, **do not** take 2 the next time!
- **Do not** increase, decrease or stop medications unless told to do so by your doctor.
- Know your medications:
 - their names
 - how much to take
 - when and how to take it
 - side effects
- Try to use only one pharmacy for your prescriptions.
- If you need further explanations about your medications, ask your pharmacist when you have the prescriptions filled.
- **Keep medications away from children.**
- **Do not** let anyone else take your medications.
- If you are taking coumadin (a blood thinner) it is important for you to wear a medical alert bracelet and/or carry identification showing that you are taking anticoagulants.

Recovery at Home

Before your operation, your heart condition may have stopped you from enjoying a normal life-style.

After your operation and the recovery period, your heart will function better.

Before your operation, your heart condition may have stopped you from enjoying a normal life-style. After your operation and the recovery period, your heart will function better. You will need to gradually return to a normal life-style. Use the *Cardiac Surgery Home Recovery* clinical path on page 46 as a guide.

Remember, everyone recovers at their own pace. The time may vary, but is usually within 3 to 6 months. You should notice your strength gradually improving. Listen to your body and use a common sense approach as you progress through your recovery.

Incision Care:

- The incisions will be closed with either dissolvable stitches or staples. You may leave the hospital with staples still in your incision(s). Your nurse or cardiac surgeon will tell you when you should arrange to have these removed by your family doctor.
- You may also have small tapes left on your incision(s). These will fall off on their own within 5 to 7 days after you are discharged. If they do not fall off by this time, you will need to remove them yourself. To do this, lift up the edges with your fingers and pull forward to remove them.
- Your incisions can be cleaned gently with a soft cloth and mild soap and water. Gently pat dry your incisions—**do not rub**.
- Do **not** put any powders, lotions or creams (not even vitamin E) on your incisions.
- Check your incision every day for signs of infection. **You should call your family doctor if you have any of these signs:**
 - increased redness
 - yellow, pus-like drainage
 - incision feels warm to touch
 - swelling on or around the incision
 - tenderness or pain

Deep Breathing and Coughing:

- If you have been given an incentive spirometer, (*Voldyne*) keep using it until your follow-up visit with your cardiac surgeon at 6 to 8 weeks after discharge from hospital.
- Use the incentive spirometer (*Voldyne*) about 4 to 5 times a day, taking a total of at least 10 breaths, 2–3 slow, deep breaths at a time.

Exercise and Daily Physical Activities:

Walking program:

Just like in the hospital, walking is an important part of your recovery. Walking is the best exercise to keep your heart and lungs healthy.

► *It is very important to keep walking because it keeps your heart and lungs healthy!*

- Start with 2 short walks, 5 minutes each time.
- Gradually increase the length of your walking time; add 5 minutes or so every 2 to 3 days.
- Once you are able to walk 15 minutes at a time, walk only once a day, gradually working up to 30–40 minutes daily.
- Pace yourself—you should be able to walk and talk at the same time (**Talk Test**).
- It is important to pay attention to how the exercise makes you feel. The **Rating of Perceived Exertion (RPE)** scale is a way of describing this. You should aim for the 11 to 13 RPE area.

Rating of Perceived Exertion (RPE) Scale



Walk with a friend to keep motivated.

RPE Scale	Talk Test
6	(resting)
7 very, very light	
8	
9 very light	(would be able to sing)
10	
11 fairly light	(would be able to talk comfortably in full sentences)
12	
13 somewhat hard	
14	(talking more than 4 to 6 words may be difficult)
15 hard	
16	(talking more than 2 to 3 words may be difficult)
17 very hard	
18	(1 word may be difficult)
19 very, very hard	
20	(maximum effort)

Walking 30 to 40 minutes per day keeps your lungs and heart healthy.

- Walk in a mall or school gym if the weather is hot, humid, windy, cold, or if it is icy underfoot, or if you live in a hilly area.
- Make sure you wear comfortable clothes and shoes.
- Keep your own walking journal to monitor your progress.
- Once you have reached 40 minutes, you may increase the speed of walking, or add hills to your walk. **Remember to keep your RPE between 11 and 13.**

Stairs:

- You do not need to avoid stairs. You will climb up and down stairs before you go home.
- Take your time when climbing stairs and rest as needed.

Lifting:

- **Do not lift, push or pull anything over 5 to 10 pounds (2.2 to 5 kg) for the first 6 to 8 weeks after surgery.** Do not do any activity that strains your healing breastbone such as:
 - pushing or pulling a heavy door
 - opening a tight jar lid
 - opening a stuck window
- After 12 weeks you may resume full activity and lifting, as directed by your family doctor.

▶ Do not lift, push or pull anything over 5 to 10 pounds (2.2 to 5 kg) for the first 6 to 8 weeks after surgery.

Household Chores:

- Light work that you could do when you first get home include activities such as:
 - setting the table
 - drying the dishes
 - making **light** meals
 - doing **easy** handicrafts
- **Heavy work** that should be **avoided** for the first 12 weeks includes activities such as:
 - laundry
 - scrubbing floors
 - vacuuming
 - shovelling snow
 - chopping wood

Nutrition:

Good nutrition is very important after surgery in order to help you recover and heal quickly. **At first your appetite may be poor** and often takes a few weeks to return. **If so**, try to:

- eat small amounts of food often throughout the day
- eat foods that appeal to you
- have nutritious snacks such as homemade shakes, fruit and yogurt
- include high protein drinks such as: *Ensure*[®], *Boost*[®], *Essentials*[®], *Carnation Instant Breakfast*[®]
- start eating low fat, heart healthy meals and snacks 6 to 8 weeks following surgery when your appetite returns



▶ Good nutrition is very important after surgery in order to help you recover and heal quickly.

Bathing & Personal Hygiene:

- Showers are preferred to tub baths for the first 6 weeks after you are discharged from hospital. If you have difficulty standing to shower, try using a small chair or stool to sit on as getting in and out of a bathtub involves using your arms and should be avoided. Incisions should not be soaked as this interferes with healing.
- **Make sure you have a secure nonslip surface while showering to avoid a fall.**
- At first have someone close by to help you if needed.
- Do not use very hot water. It may cause you to feel dizzy or weak.

Sleep & Rest:

You may still tire easily. Remember, you need plenty of rest to help get your strength back; this will aid in a faster recovery!

- Try to get 8 hours of sleep every night. Taking pain medication just before bedtime may help you sleep more comfortably.
- It is all right for you to lie on either side.
- You may have bad dreams but these will pass. **Contact your family doctor if you are concerned.**
- Plan your day and rest between work or play. Rest once in the morning and once in the afternoon.
- Look at your progress one day at a time. It is normal that some days you may be able to do more than other days.
- Raise your legs when you are sitting to avoid your feet swelling. This will speed up the healing process.

Hobbies & Recreational Activities:

As you regain your strength you will gradually be able to enjoy many hobbies and activities.

As you regain your strength you will gradually be able to enjoy many hobbies and activities, such as:

- handicrafts
- playing cards
- indoor gardening
- puzzles

Choose a relaxed and comfortable pace for your recreational activities. Start back slowly. Remember you are using muscles that have not been exercised for a while. Until your family doctor permits you to do so, do not take part in sports such as:

- stationary bike or regular bicycle
- golfing
- swimming
- tennis
- horseback riding
- downhill or cross-country skiing
- any other strenuous activity

▶ You should check with your family doctor if you have any questions regarding specific activities.

Driving and Travelling:

- **You are not allowed to drive for the first 6 weeks after surgery.** Enjoy being a passenger in the car and let someone else do the driving for you. If you drove during this time against medical advice you would not be covered by insurance.
- Remember to securely fasten your safety belt at all times.
- On long journeys, stop every hour to stretch your legs. Arrange for overnight accommodation if you have to travel too far in one day.
- If you need to fly to your destination, ask your cardiac surgeon if flying is an option. For more information, ask for a copy of our pamphlet *Air Travel with a Heart Condition*.

Sexual Activity:

- After your surgery, you will be able to resume sexual activity anytime you and your partner feel ready.
- Sexual activity demands the same amount of energy from your heart as climbing 18 stairs at a normal pace.
- Until your sternum is fully healed, avoid putting pressure on your chest. This usually means taking a passive position during intercourse.
- Refrain from sexual activity after eating heavy meals and drinking alcohol. These times place a greater demand for energy on your heart.
- Certain drugs may decrease your desire for sex, while others may interfere with sexual response. If you have concerns about this talk to your family doctor.

▶ After your surgery, you will be able to resume sexual activity anytime you and your partner feel ready.

For complete information regarding sexual activity, ask a member of the health care team for a copy of the *Sexuality and Heart Disease* booklet.

Family, Friends & Visitors:

This may also be a difficult time for your family as they adjust to different roles and responsibilities after your surgery. During the time of your operation and hospital stay, your family, especially your partner, may have been under great stress. Frequent trips to the hospital and additional responsibilities can add to their fatigue. As you recover, your partner may tire easily and become run down.

Here are some helpful hints for your partner:

- Conserve your energy. Let housework and other projects wait.
- Schedule daily activities so that it is convenient for both of you.
- Plan occasional breaks away from the house with friends.
- Try to have at least 8 hours of sleep at night.
- Understand that it is normal for your partner to also have good days and bad days.
- Rest when your partner rests. Relax and enjoy your time together!

*Relax and enjoy your time
together!*

You may want to limit visitors the first few days after you arrive home until you have established a comfortable routine for yourself.

Your Emotions:

As you recover from your surgery you may feel overwhelmed and frustrated with the seemingly slow rate of recovery and progress. Some days you may feel more tired, other days you may feel more energetic. On other days you may feel “the blues”. Try to relax and remember this will improve with time.

Use of Alcohol:

Alcohol in moderation may be allowed **if it does not interfere with your medications**. You should not drink alcohol if you are taking the following medications:

- tranquilizers
- sleeping pills
- blood thinners (e.g. coumadin)

If you do choose to drink alcohol, we recommend that you limit your daily alcohol intake to:

- Hard liquor: 1 to 2 ounces (30 to 60 mls) or
- Wine: 4 to 8 ounces (120 to 240 mls) or
- Beer: 1 to 2 bottles or cans

Returning to Work:

Your family doctor will decide when you can return to work. The decision will depend upon how fast you recover from the surgery and the demands of your job. It is important to realize that the time to return to work varies for each person. Usually, patients return to work 6 to 8 weeks after discharge from hospital. You may need to be away longer if your work involves heavy work, long hours or working in high stress situations or environments.

▶ *It is important to realize that the time to return to work varies for each person.*

Follow-up Visits:

After discharge from hospital you will be asked to make follow-up appointments with your family doctor, cardiac surgeon and cardiologist. **Please make these appointments in the first couple of days after you are home.**

Family Doctor

- You will need to see your family doctor within the first week after your discharge from hospital. Your family doctor will then be able to follow your progress, answer your questions and be the contact person for you.

Cardiac Surgeon and Cardiologist

- After your discharge from hospital you will need to see both your cardiac surgeon and cardiologist within 6 to 8 weeks after discharge. If you live outside of Calgary, try to arrange for these appointments to be on the same day.

Lifestyle Changes:

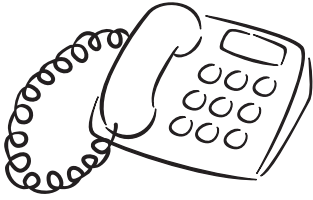
Remember that bypass surgery does not cure heart disease. Making changes in your lifestyle will be necessary. At first, these changes may be hard to cope with (and overwhelming). Try not to become discouraged; by being patient and persistent you will succeed.

▶ *Making changes in your lifestyle will be necessary.*

It is important to identify your risk factors. If you need assistance in dealing with any lifestyle changes you may have to or want to make, ask a member of the health care team for a copy of the *Coronary Artery Disease* booklet for more information.

▶ *We, the Cardiac Surgery Team, are here to help you and your family.*

- A **Cardiac Rehabilitation Program** may be of help in making lifestyle changes and keeping you on the path to recovery. There is a cardiac rehabilitation program located in Calgary, with satellite programs in many other areas. Please check under the section *Heart Resources* on page 37 of this booklet.



When to Call the Doctor

(Family Doctor)

Call your Family Doctor with any of the following Signs and Symptoms:

- An elevated temperature higher than 38.5 °C (102 °F).
- If your incision(s) are:
 - warm to touch, with a burning sensation
 - foul smelling
 - becoming more swollen or more tender
 - beginning to drain pus
- If you continue to feel weak, have flu-like symptoms or general aching of body muscles.
- Have chest discomfort that increases when you take a deep breath in.
- Feel that you have an irregular heart beat.
- Have increased shortness of breath.
- Increased amount of mucous or a change from clear to green or yellow.
- Have a weight gain of 2 to 3 pounds (1 to 1.5 kg) in 3–5 days and/or increased ankle swelling.
- Have numbness or weakness in arms or legs.
- Have increased blurred vision.
- Notice severe bruising and/or bleeding.
- Have angina symptoms like those you had before surgery. If you have angina, remember to rest, take your nitroglycerin as you were instructed before and contact your doctor.

If you experience angina, remember to rest, take your nitroglycerin as you were instructed previously and contact your doctor.

It is important that valve surgery patients and congenital surgery patients follow the instructions on this page.

Infective Endocarditis (Bacterial Endocarditis):

Heart valve surgery patients and patients with congenital heart conditions are at particular risk for **infective endocarditis** (often referred to as **bacterial endocarditis**). It is important for you to be aware of this potentially serious condition.

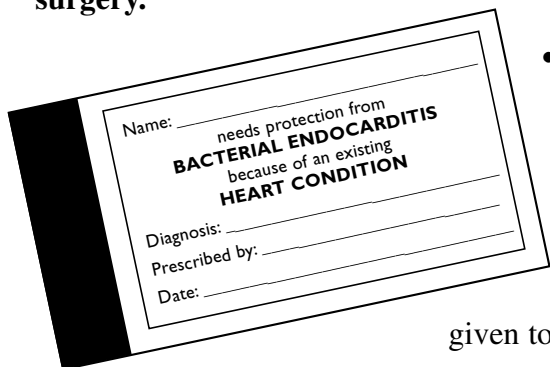
Infective endocarditis is an infection of the valves and/or lining of the heart and great vessels. Infective endocarditis can occur when bacteria or other infective micro-organisms enter the bloodstream during dental work or surgery and from infected cuts or punctures. Symptoms of infective endocarditis can be vague and it is often easy to confuse them with flu symptoms.

Unexplained fever, fatigue, rash, muscle aches and pains and symptoms of a stroke can be signs of infective endocarditis.

Prevention is the best treatment:

Important information for valve surgery patients and congenital surgery patients.

- If possible, avoid dental work for at least six months after heart surgery.



- Always carry your **Bacterial Endocarditis Wallet Card** with you and show this to your dentist, family doctor or any other doctor you may see. This card will be given to you in the hospital.

- Practice good oral hygiene.
- Remind your doctors and dentists that you have had valve surgery and/or have a structural heart abnormality, or a congenital heart defect. Ask if you need antibiotics before any procedure, because antibiotics will reduce your risk of infection.

Heart Health Resources

Cardiac Education Follow-Up Program

Following discharge you can return to the hospital to have questions answered by a multidisciplinary healthcare team. This program is held once a month. You will be given more information about the program at the time of your discharge from the hospital.

▶ *There are many resources available to you to help you on your "Path to Recovery".*

Cardiac Rehabilitation Programs

Cardiac Rehabilitation Programs are designed for someone with a diagnosis of heart disease who has had a cardiac event in the past. A doctor's referral is needed to enroll in the program.

Calgary Program:

Cardiac Wellness Institute..... (403) 571-6950

Southern Alberta Cardiac Rehabilitation Programs:

Brooks (403) 501-3202

Didsbury (Olds & Sundre) (403) 335-7217

Drumheller (403) 823-6500

Lethbridge (403) 382-6329

Medicine Hat (403) 528-5628

Red Deer (403) 343-4508

British Columbia & Saskatchewan Programs:

Please contact local Health Centres.

Information is just a phone call away!

Alberta / NWT Heart & Stroke Foundation

This foundation has a wide range of educational resources and a lending library.

For more information contact the Resources Centre at (403) 264-5549 or drop in to 1825 Park Road S.E., Calgary to preview the materials.

Women’s Health Resources

Educational courses and library available at the Grace Women’s Health Centre, Foothills Medical Centre.

For information call (403) 944-2270

Heart to Heart Support Society

The society is a support group for people whose lives have been impacted and changed by the effects of heart disease. There are various chapters throughout Alberta. Refer to the *Heart to Heart* brochure.

Branches of the society include:

Phoenix Club: A support group for men 49 years and younger.

Women’s Interest Group: A support group for women living with heart disease.

For further information call your local hospital or health unit to check if there is a group in your area.

Waiting for Open Heart Surgery An Information Session

This group meets to provide information and strategies to help you cope while you are waiting for cardiac surgery. The group meets monthly and is led by a social worker and nurse from the Heart Health Program at Foothills Medical Centre. A volunteer who has had cardiac surgery will also present his/her experiences.

For further information (403) 944-2397.

Health Connection Library

A lending library of health information is available at:

Foothills Medical Centre	(403) 944-4849
Rockyview General Hospital	(403) 943-3488
Peter Lougheed Centre	(403) 943-8736

Hypertension and Cholesterol Clinic

Lifestyle Class for Cardiovascular Risk Reduction:

This class is a half day group session for people with, at risk of, or concerned about cardiovascular disease. It is taught by a multidisciplinary team that includes a nurse, dietitian and psychologist from the Hypertension-Cholesterol Centre Region. There is a minimum charge for educational materials. Patients can self-refer.

Topics include:

- assessing and managing your cardiovascular risk
- heart healthy eating
- exercise for your health
- stress and cardiovascular disease: an overview

For information call: (403) 943-2660

Smoking Cessation Programs

Alberta Cancer Board (403) 944-1711
Alberta Lung Association 1-888-566 Lung
(5864)

Internet Addresses:

Calgary Health Region

www.calgaryhealthregion.ca (*August, 2004*)

Health Link Alberta

www.healthlinkalberta.ca (*August, 2004*)

Calgary Health Region – Heart Health

www.chra-health.ab.ca/hearthealth/index.htm

AADAC

www.aadac.com (*August, 2004*)

HeartPoint

www.heartpoint.com (*August, 2004*)

Multi-media site full of animated diagrams, recipes and more.

▶ Check the “Frequently Asked Questions” (FAQ) area offered on most websites for answers to many of your concerns.

Heart and Stroke Foundation of Canada

www.heartandstroke.ca (August, 2004)

General information on heart disease, stroke and programs of the Heart and Stroke Foundation.

B.C. Heart Health Website

www.heart-health.org

Information on statistics and heart health documents.

Mayo Clinic Health

www.mayohealth.org (August, 2004)

Healthy Heart Program

www.healthyheart.org (August, 2004)

Website of the Healthy Heart Program at St. Paul's Hospital with information on cardiac rehabilitation and prevention.

Canadian Diabetes Association

www.diabetes.ca (August, 2004)

Information on the control and care of diabetes.

BECCEL

www.becelcanada.com (August, 2004)

Information on heart health nutrition.

Canadian Lung Association (August, 2004)

www.lung.ca

Information on smoking cessation programs in your community.

Centre for Cardiovascular Education – New Providence, NJ

www.heartinfo.org (August, 2004)

General information on heart health, cardiac conditions and intervention.

American Heart Association

www.americanheart.org (August, 2004)

Comprehensive information on heart disease and stroke.

Canadian Cancer Society

www.cancer.ca (August, 2004)

Information on smoking cessation programs.

Health Canada

www.hc-sc.gc.ca/ (August, 2004)

Programs and publications from Health Canada.

Calgary Health Region Related Publications:

The following publications have been developed by the Heart Health Education Committee:

Coronary Heart Disease

Provides an overview of heart disease, the risk factors associated with heart disease and how to reduce your risk of a heart attack.

Coronary Angioplasty

Describes the procedure of coronary angioplasty and provides instructions on what to expect before and after the procedure.

Cardiac Catheterization/Coronary Angiogram

Describes what happens before, during and after the procedure and how to take care for yourself when you get home.

Cardiac Surgery: The Emotional Implications

Provides an overview of the normal emotional reactions that the patient and family have towards open-heart surgery.

The Heart Healthy Shopping Guide

Heart healthy eating begins at the grocery store. This booklet provides information to help you read food labels and choose the right foods when you shop.

Heart Healthy Eating

Based on Canada's Food Guide, this list helps you choose heart healthy foods in your daily diet.

Conserving Your Energy and Simplifying Your Work

Describes ways to do your work easier and conserve your energy as well as finding a balance between rest and work.

Sexuality and Heart Disease

Describes how sexual relations affect the heart and body, and provides general guidelines for resuming sexual activity and getting in touch with your feelings.

Air Travel with a Heart Condition

Provides general information and guidelines on air travel for patients with heart conditions.

Helpful Definitions

Analgesic: medication that reduces pain or discomfort.

Angina: a temporary feeling of chest discomfort, pain or a heaviness, tightening feeling in the chest, arms, jaw or neck. Angina is caused by a partial blockage of a coronary artery when not enough blood is going through the coronary arteries to the heart muscle.

Antibiotics: medication used to prevent or control infections caused by bacteria or other organisms.

Anticoagulant: a blood thinning medication (*e.g. coumadin , warfarin*).

Aneurysm: a bulging of heart muscle or wall of blood vessel

Atrial Fibrillation: an irregular, often fast, heartbeat.

Arterial Line: a small plastic tube that is placed into an artery (usually the wrist) to provide a constant measurement of the blood pressure. Blood samples can also be drawn from this tube.

Bacterial Endocarditis (*Infective Endocarditis*): an infection of the valves and/or inner heart lining.

Blood Pressure: the pressure exerted by the blood on the walls of the blood vessels or the force that keeps blood moving through the body.

Cardiac: having to do with the heart.

Cardiac (*Heart*) Monitor: a machine that records the electrical activity of the heart. It can also display blood pressure and pressures in the heart.

Chest Tubes (*Mediastinal or Pleural*): soft plastic tubes placed in the chest to drain blood, fluid or air that can collect in the chest cavity after surgery.

Clinical Pathway: a standardized day-to-day plan of care.

Congenital: a condition present at birth.

Coronary Artery Disease (*Coronary Heart Disease*): when the coronary arteries become narrow or blocked causing less blood to flow through the coronary arteries and to the heart muscle.

Culture: a sample of blood or other body fluids tested for bacteria and other organisms.

Diuretics: medications that cause the body to rid itself of extra fluid through the kidneys and bladder.

EKG (*ECG or Electrocardiogram*): a tracing of the electrical activity of the heart.

Endotracheal Tube (*ET Tube*): a plastic tube placed into the mouth and windpipe to deliver oxygen to the lungs. Intubation is the placement of an ET tube in the windpipe. Extubation is the removal of the ET tube.

Heart Attack (*Myocardial Infarction*): occurs when the blood flow is blocked in any of the arteries that feed the heart.

Heart Lung Machine (*Cardio Pulmonary Bypass Machine*): a machine that acts as a pump to circulate and oxygenate the blood during surgery.

Incentive Spirometer (*Voldyne*): a device used for breathing exercises and to measure the amount of air the patient takes into the lungs. This device may be used before and after surgery.

Infective Endocarditis (*Bacterial Endocarditis*): an infection of the valves and/or inner heart lining.

Internal Mammary Artery: artery in the chest used for bypass grafts.

Intravenous (*IV*): a small plastic tube that is placed in a vein to deliver glucose (sugar water), saline (salt water), blood or medications.

Myocardial Infarction (*MI*): the medical name for a heart attack.

Narcotics: potent pain medications.

Nasal Cannula or Prongs: a small plastic tube that is placed in the nostrils to deliver oxygen.

Nasogastric Tube (*NG Tube*): a plastic tube placed into the nose going into the stomach. This tube drains stomach secretions after surgery. Medications and fluids can also be given through this tube.

Open Heart Surgery: is a procedure of opening the chest wall to operate directly on the heart and heart vessels.

Pacemaker: a device that is used to control the rate and rhythm of the heart beat.

Pacing Wires: small wires that are attached to the heart after surgery. They are connected to the pacemaker to control the heart beat if necessary.

Palpitations: a fast heart rate that can feel like a pounding in the chest.

Pulmonary Artery Catheter: a long plastic tube that is placed into a large neck vein and into the heart. It is used to measure heart pressures during and after surgery.

Pneumonia: infection in the lung caused by bacteria or other organisms.

Radial Artery: artery in the arm that can be used for bypass grafts.

Regurgitation: leakage of blood through a heart valve that is not closing properly.

Rounds: visits by the doctors and nurses to discuss the patient's condition and plan for their care. Rounds are usually done in the morning, but may also occur at any time of the day.

Saphenous Vein: leg vein used for coronary artery bypass grafts.

Sedation: medication that is given to relax the patient.

Stenosis: heart valve that is scarred and narrowed and doesn't open properly.

Sternum: the breastbone.

Talk Test: you should be able to talk while exercising. If you are exercising and become too short of breath to talk, then you are probably working too hard.

Teddy: a folded sheet or small pillow that you hug up to your chest incision to protect and support it when moving.

Urinary Catheter: a flexible rubber tube that is placed in the bladder to drain urine.

Ventilator: a machine that helps the patient to breath. This breathing machine controls the rate and rhythm of breathing and the amount of oxygen given to the patient. Tubing connects the breathing machine to the endotracheal tube that is placed in the mouth.

Voldyne: a incentive spirometer device used for breathing exercise and to measure the amount of air the patient takes into the lungs. This device may be used before and after surgery.

Warming Blanket: a special blanket that is placed over the patient to increase the body's temperature.

Cardiac Surgery Recovery Pathway

	Before Surgery	After Surgery	Post-Op Day 1	Post-Op Day 2	Post-Op Day 3	Post-Op Day 4 – 7	After Discharge
Nutrition	<ul style="list-style-type: none"> Nothing after midnight: evening before surgery 	<ul style="list-style-type: none"> Nothing 	<ul style="list-style-type: none"> Liquids to light diet 	<ul style="list-style-type: none"> Low salt diet 	<ul style="list-style-type: none"> Low salt diet 	<ul style="list-style-type: none"> Low salt diet 	<ul style="list-style-type: none"> Low salt diet
Activity & Breathing Exercises	<ul style="list-style-type: none"> Walking 	<ul style="list-style-type: none"> Leg exercises Breathing exercises 	<ul style="list-style-type: none"> Out of bed Breathing exercises 	<ul style="list-style-type: none"> Walking short distances x 3 Breathing exercises 	<ul style="list-style-type: none"> Walking short distances x 4 Breathing exercises 	<ul style="list-style-type: none"> Walking increased distances Stairs Breathing exercises 	<ul style="list-style-type: none"> Walking increased distances Stairs Breathing exercises
Equipment	<ul style="list-style-type: none"> Incentive spirometer (breathing exercises) 	<ul style="list-style-type: none"> Oxygen Catheter Chest Tubes Ventilator Heart Monitor Pacer Wires 	<ul style="list-style-type: none"> Breathing exercises 	<ul style="list-style-type: none"> Breathing exercises Oxygen off Chest tubes out 	<ul style="list-style-type: none"> Breathing exercises Heart monitor off 	<ul style="list-style-type: none"> Breathing exercises 	<ul style="list-style-type: none"> Breathing exercises
Pain Control and other Medications	<ul style="list-style-type: none"> Pills 			<ul style="list-style-type: none"> Pills 	<ul style="list-style-type: none"> Pills 	<ul style="list-style-type: none"> Pills 	<ul style="list-style-type: none"> Pills
Hygiene	<ul style="list-style-type: none"> Shower night before surgery and morning of surgery 			<ul style="list-style-type: none"> Self-care at bedside 	<ul style="list-style-type: none"> Shower Dressing off 	<ul style="list-style-type: none"> Shower 	<ul style="list-style-type: none"> Shower
Discharge Plan					<ul style="list-style-type: none"> Discharge Plan Discussed 		<ul style="list-style-type: none"> RN call

Cardiac Surgery Home Recover:

Things to do at home for the first 4 to 6 weeks.

<p>Activity & Breathing Exercises: (See Cardiac Surgery booklet and Discharge Instruction sheet)</p>	<p>Stay active!</p> <ul style="list-style-type: none"> Get up and get dressed everyday! Shoulder exercises and walking program daily. 	<p>Breathing Exercises/ Incentive Spirometer:</p> <ul style="list-style-type: none"> 4 – 5 times during the day 10 breaths each time 	<p>Schedule a rest daily:</p> <ul style="list-style-type: none"> rest with your feet up
<p>Eating Healthy: (See Cardiac Surgery booklet and Heart Healthy Eating information)</p>	<p>Eat foods that appeal to you!</p> <ul style="list-style-type: none"> Try high protein drinks if you don't have much of an appetite (milkshakes, liquid supplements). Three small meals and snacks are easier than three large meals. 	<p>6 to 8 weeks after surgery, start eating low fat, heart healthy meals and snacks.</p>	
<p>Medications: (See Cardiac Surgery booklet, Discharge Instruction sheet and Medication sheets)</p>	<p>Take your medications on schedule.</p>	<p>Use your pain pills:</p> <ul style="list-style-type: none"> before activity at bedtime when needed <p>Don't "tough it out"</p>	<p>Follow-up Appointments:</p> <ul style="list-style-type: none"> Family Doctor in the first couple of days: _____ Cardiac Surgeon: _____ Cardiologist: _____
<p>Self-Care: (See Cardiac Surgery booklet and Discharge Instruction sheet)</p>	<p>Shower everyday:</p> <ul style="list-style-type: none"> check incisions <p>No lifting, pushing or pulling objects over 5 to 10 lbs. (2.2 to 5 Kg.) for 6 to 8 weeks after surgery such as:</p> <ul style="list-style-type: none"> pushing or pulling a heavy door opening a tight jar lid opening a stuck window 	<p>Limit visitors for several weeks.</p> <ul style="list-style-type: none"> 2 – 3 friends at a time. Short half-hour visits. Excuse yourself when you feel tired. 	
<p>Call & Report: Family Doctor or PCU 91: 944-1391 (for non-emergency questions)</p>	<p><input type="checkbox"/> Chills and fever over 38.5 °C (102 °F).</p> <p><input type="checkbox"/> Increase in phlegm; yellow or green colour.</p> <p><input type="checkbox"/> Unusual shortness of breath.</p> <p><input type="checkbox"/> No bowel movement in the first week.</p> <p><input type="checkbox"/> Weight gain of 2 to 3 lbs (1 to 1.5 Kg.) in 3 to 5 days.</p> <p><input type="checkbox"/> Increased puffiness or swelling in fingers or ankles.</p> <p><input type="checkbox"/> Incisions with: <input type="checkbox"/> redness <input type="checkbox"/> pus-like drainage <input type="checkbox"/> swelling</p> <p><input type="checkbox"/> Pain not helped with pills.</p>	<p>Any other questions or concerns!</p>	

