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# Pre-operative Guide for Patients and Families

*For*

*Cardiovascular Surgery Patients  
and Substitute Decision Makers*



***Notes:*** 🍃



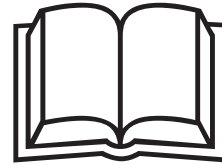
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**Toronto Cardiac Rehabilitation Centre**  
 ☎ (416) 425-1117

The Toronto Cardiac Rehabilitation Centre is the regional rehabilitation exercise centre for Metropolitan Toronto. Many patients having heart surgery may be referred to this centre which is located behind Sunnybrook Health Sciences Centre.

Many patients find the rehabilitation centre helpful when recovering after their surgery. Here a well-trained staff of physicians, nurses, physical educators, physiologists, and cardiopulmonary technicians will help you to return to your preoperative state of health or better!

**Reference Reading**



**So You're Having Heart Surgery**

By Dr. B. Goldman,  
 Suzette Turner MSN

**Take Heart**

By Dr. Terrence Kavanagh  
 (Key Porter Books Ltd, 1992)

**Heartmates**

By Rhoda F. Levin  
 A survival guide for the cardiac spouse  
 (Minerva press, 1997)

**A Change of Heart, Recovering from Heart Disease in Body and Mind**

(Random House Canada, 1998)

**Thriving Heart Disease**

(Free Press, 2003)

**The New Lighthearted Cookbook: Recipes for Heart Healthy Cooking**

By Anne Lindsay  
 (Key Porter Books, 2005)

**Heart Smart**

By Bonnie Stern  
 (Random House of Canada, 2006)

**Reference Websites**

**Dietitians of Canada**  
 www.dietitians.ca

**Health Check™**

A non-for-profit program (offered by the Heart and Stroke Program) that helps you make heart healthy choices when buying groceries.  
 www.healthcheck.org

**Becel Heart Health Information Bureau**  
 www.becelcanada.ca

**Senior's Canada Online**

This is a helpful website for seniors, families and caregivers  
 www.seniors.gc.ca

**Accommodations within the Sunnybrook Health Sciences Centre Area**

**Radisson – Don Valley**  
 1250 Eglinton Ave. E., Toronto  
 (416) 449-4111

**Roehampton Hotel**  
 808 Mt. Pleasant, Toronto  
 (416) 487-5101



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## Introduction

At Sunnybrook Health Sciences Centre, we realize that the waiting period prior to heart surgery is a very stressful time for patients and their families. Anxiety and emotional changes are normal during this period. It is important to discuss your feelings with family members or friends to help you deal with these emotions. To help ease some of your stress and answer some of the questions that you may have about your upcoming surgery, we developed this booklet with your needs in mind. Previous patient experiences and numerous members of our health care team helped us develop this.

It will give you information about what you can expect in the hospital prior to, during and immediately following surgery. If you have any questions about the material in this booklet, please contact one of the Cardiovascular Coordinators at (416) 480-6078.

## Your Heart

Your heart is a muscle which pumps blood carrying oxygen and nutrients to all parts of the body. It must also provide its own blood supply. The heart is located in the centre of the chest, slightly to the left and is protected by the breastbone (sternum) and ribcage.

The heart contains four chambers:

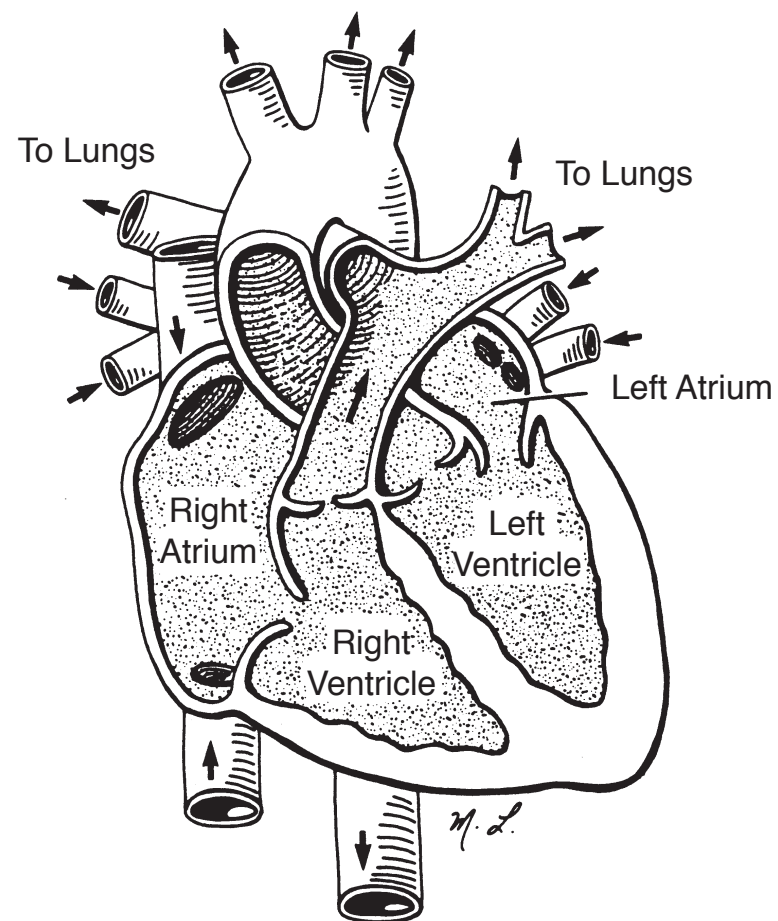
1. Right Atrium
2. Right Ventricle
3. Left Atrium
4. Left Ventricle

Two upper chambers (atria) receive blood from veins. The two lower chambers (ventricles) pump blood out of the heart through arteries. The main pump of the heart is the left ventricle.

The heart also contains four valves:

1. Tricuspid Valve (T)
2. Mitral Valve (M)
3. Pulmonic Valve (P)
4. Aortic Valve (A)

In a way, your heart can be compared to four rooms of a house. The valves act as a doorway that only lets blood through in one direction from one part of the heart to the next.



### **Nicotine Anonymous:**

Support Group for People who want to quit smoking.

☎ (416) 487-8988

12-Step Programs. Groups across Canada

### **Centre for Addiction and Mental Health**

Provides weekly smoking clinic; as well as follow up with a doctor and counseling with a therapist.

☎ (416) 535-8501 Ext. 6336

### **Smoke Enders**

Provides seminars and individual support for quitting smoking.

☎ 1-800-828-4357

**You may also speak with a community pharmacist.**

### **Stress Management Resources:**

#### **Black Creek Community Health Centre**

2202 Jane St. Toronto, Ontario M3M 1A4

☎ (416) 249-8000

Women's Stress Group

8 weeks, prior registration required.

Self-referral

#### **Bloor Jewish Community Centre**

750 Spadina Ave. Toronto, Ontario M5S 2J2

☎ (416) 924-6211

Health and Wellness Centre

Self-Referral

#### **Catholic Family Services**

1155 Yonge St. Toronto, Ontario

☎ (416) 921-1163

Lifestyle Management Program

6 sessions, \$15.00 per session

Self-referral

#### **Dorothy Madget Clinic**

123 Edward St. Toronto, Ontario M5G 1E2

☎ (416) 340 7070

### **Stress Management Classes**

Doctor's Referral

Toronto General Hospital

200 Elizabeth St. Toronto, Ontario M5G 2C4

☎ (416) 340-4452

Mindfulness-Based Stress Reduction Clinic

9 week classes \$40.00 for materials

Self-referral

### **Heart and Stroke Foundation of Ontario**

(416) 489-7111

www.heartandstroke.ca

The Heart and Stroke Foundation is a non-profit organization whose mission is to improve the health of Canadians by preventing and reducing disability and death from heart disease and stroke through research, health promotion and advocacy. Programs and services that are offered include consumer literature and community presentations. Written materials on heart disease, stroke, and various risk factors can be ordered for free directly from the Foundation.

### **Canadian Diabetes Association**

☎ 1-800 BANTING (1-800-226-8464)

www.diabetes.ca

The Canadian Diabetes Association is a non-profit organization that promotes the health of Canadians through diabetes research, education, service and advocacy. Programs and services that are offered include consumer literature, information sessions and forums, resource centres and libraries, cooking programs and grocery store tours, and peer support groups.

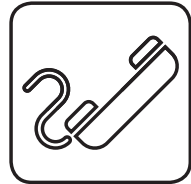
### **Home Care Program**

A few patients may require assistance in the home. Visiting services are provided by both professional and support personnel, for patients referred by their Cardiovascular Health Team. Please discuss this with your nurse or social worker if you have a concern.

It is important to maintain a healthy lifestyle to bring about the best health possible for you in the future. Continue to reduce your heart risk factors!

If you have any questions that you wish to discuss with any of the team members once you have gone home, you may telephone.

## Telephone Number Directory



Sunnybrook Health Sciences Centre  
(416) 480-6100

Dr. S.E. Fremes	Ext. 6073
Dr. G.T. Christakis	Ext. 6080
Dr. F. Moussa	Ext. 6084
Dr. G. Cohen	Ext. 6077
Cardiovascular Coordinators	Ext. 6078
Cardiovascular Ward (D3)	Ext. 4949
Cardiovascular Intensive Care Unit (CVICU)	Ext. 6090
Nurse Practitioners	Ext. 4949
Clinical Dietitian	Ext. 4456
Pharmacist	Ext. 2529
Physiotherapist	Ext. 4949 or Ext. 82367
Social Worker	Ext. 3913
Occupational Therapist	Ext. 4949

## Community Resources

### 211Toronto:

This is a 24-hour a day referral line for community resources in the GTA area. Just dial 211. If you are outside the 416 and 647 area, dial (416) 937-4636. [www.211toronto.ca](http://www.211toronto.ca)

### Telehealth Ontario:

1-866-797-0000

### Smoking Cessation Resources:

#### Canadian Lung Association

☎ 1-888-566-5864  
[www.lung.ca](http://www.lung.ca)

The Lung Association provides free information and support on smoking cessation and prevention.

1. "Get on Track" – a self-help manual that offers advice on how to get ready to quit smoking, what to do when you're quitting, and how to stay a non-smoker after you've quit.

If you are interested in this program, contact the Lung Association and ask for the number of the Association office nearest to you.

#### Smoker's Helpline (Canadian Cancer Society)

☎ 1-877-513-5333  
[www.smokershelpline.ca](http://www.smokershelpline.ca)

This helpline offers free, confidential one-to-one information, advice and support on smoking cessation. Service is available in English and French. The helpline operates Monday through Thursday 8:00am – 9:00pm and Friday 8:00am – 5:00pm.

#### YMCA: Y-Smoke

☎ (416) 928-9622 Ext. 454



## Coronary Arteries

The coronary arteries supply blood rich in oxygen to the heart muscle. They lie on the surface of the heart. There are two major coronary arteries.

### 1. The Right Coronary Artery

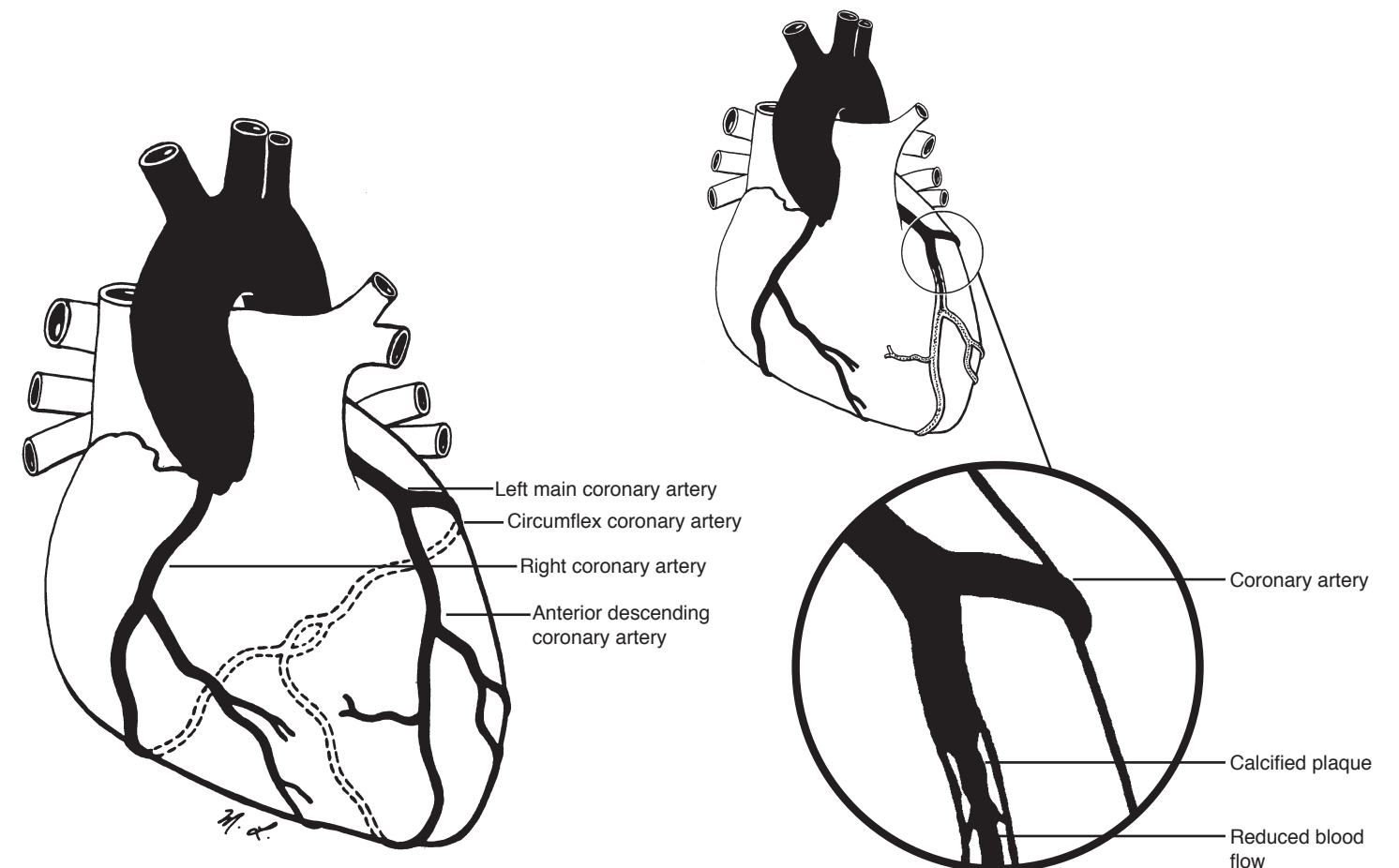
The right coronary artery nourishes the right side and under surface of the heart.

### 2. The Left Coronary Artery

The left coronary artery nourishes the left side and the upper surface of the heart. It has a short beginning branch called the Left Main Coronary Artery before it divides into two main branches.

The Anterior Descending Coronary Artery nourishes the front of the left side of the heart.

The Circumflex Coronary Artery nourishes the back of the left side of the heart.



## Coronary Artery Disease

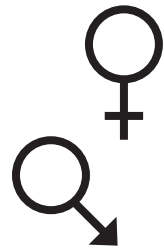
The coronary arteries may be affected by atherosclerosis (hardening of the arteries). This is a progressive disease where the inner lining of the artery becomes thickened and narrowed with cholesterol and plaque. When this happens there is a decrease in oxygen rich blood carried to the heart muscle.

### Angina

When the arteries become partially or completely blocked, by plaque or a blood clot, the blood flow is reduced so much that the cells of the heart may become stressed or permanently damaged. Angina (chest pain) is a warning sign that the heart is stressed from a lack of oxygen. Angina is usually a tight constriction or heaviness in the chest, occasionally an ache or pain in the jaw or arm, or heavy breathing. Blood flow to the heart may be impaired, without angina symptoms, but other evidence may be seen on EKG or with stress testing (silent angina).

### Sensations that may indicate angina

- Indigestion
- Fullness
- Numbness or tingling in any part of the arm
- Discomfort in the neck, or back, between the shoulder blades
- Pressure, squeezing, aching, burning, or cramping pain in the chest or neck
- Tightness
- Choking
- Pain in the jaw
- Shortness of breath



Women and men may exhibit very different types of angina pain or symptoms. Not everyone has the same symptoms, or some people have none. For example, many women often describe angina as a sore throat, indigestion, arm heaviness or back pain.

### Angina pains can occur when the work of the heart is increased by:

- Exertion
- Exercise
- Excitement
- Anxiety
- Eating a large meal
- Weather (cold or humidity)

When angina cannot be controlled with medical therapy or other non-surgical procedures, bypass surgery may be indicated.

### Risk Factors for Coronary Artery Disease

It is not understood why a person develops coronary artery disease or why atherosclerosis develops. There seems to be certain risk factors that make people more likely to develop coronary artery disease. Some of these factors are controllable, while others are uncontrollable. There is no cure for atherosclerosis, but you can help slow down its progress.

### Uncontrollable risk factors

- Age (male 45 or older; female 55 or older)
- Diabetes
- Gender (sex)
- Family history of early heart disease (males before age 55, females before age 65)

### Controllable risk factors

- Cigarette smoking
- Excess weight
- High blood pressure
- Stress
- Poor food choices
- Inactivity
- High levels of lipids (cholesterol) in the blood

### Reduce Your Risk Factors!

There are specific things you can do to help slow the process of atherosclerosis even though there is no cure.

#### 1. Quit Smoking

It is very important to stop smoking now!

Did you know that smoking:

- Narrows your coronary arteries
- Reduces oxygen in your blood and smaller blood vessels, and therefore raises blood pressure
- Makes your heart beat faster
- Makes more mucus in your lungs



If you would like information about smoking cessation programs, you can call your local lung association (see numbers at back) Your Family Doctor can also provide support by recommending smoking cessation aids such as Zyban®, or Bupropion, a nicotine patch, gum, or inhaler, which can double your chances of quitting.

Many patients experience decreased appetite, nausea, and change in taste after surgery. If this is the case, it usually resolves in a few days. The dietitian can work with you to optimize your nutrition intake by meeting your food preferences, minimizing any food restrictions, and providing nutritional supplements as necessary.

The dietitian teaches group classes on nutrition three times a week, which you can attend before you go home. Topics that will be discussed include:

- Food choices for heart healthy eating and diabetes
- Heart healthy portion sizes
- Tips for heart healthy shopping and eating out

Written information will be provided, and the dietitian can be contacted by telephone after hospital discharge if you have further questions. The dietitian is also available to provide individual bedside teaching upon your request. Ask the nurse if you wish to speak with the dietitian during your hospital stay.

### Emotional Changes (The Blues)

It is not uncommon to get the blues and become emotionally upset easily after any major surgery. It is related to:

- Anaesthesia
- Medications
- Lack or loss of sleep
- Stress of surgery

These feelings may come and go over a period of time and blues normally pass by the end of the usual recovery period (6-12 weeks).

Do not be ashamed.

When you get your strength back you will find you are feeling better emotionally as each day passes.



### To Prepare For Your Discharge

Discharge teaching is available in the form of counseling, a class with the physiotherapist and dietitian, and also written material to take home as references. You may be referred to the Toronto Rehabilitation Centre or given information about a centre close to your home for cardiac rehabilitation.

Before you leave the hospital someone will talk with you about what you should do in your first weeks at home. It is a good time to:

- Take frequent naps
- Build up your strength slowly
- Plan what you can do one day at a time

It is important to follow your doctors' instructions when taking your medications. Any medication not prescribed for you upon your discharge should be stopped unless you have been told otherwise by your doctor. If you are having side effects from your medication contact your family doctor.

Before discharge, ensure you have your doctor's letter, appointment cards, and prescriptions.

### Follow-Up Appointments

Your next appointment is scheduled for:	Your next appointment is scheduled for:
Date: _____	Date: _____ Time: _____

You will be given appointment cards but you must call for your own appointments!

- Family doctor – 1 week after your discharge
- Cardiologist – 4-6 weeks after discharge
- Surgeon – as instructed at discharge
- The Cardiovascular Service also runs follow-up programs to assess the results of your surgery. You will be contacted by the Cardiovascular Database Manager or the Prosthetic Valve registry concerning follow-up appointments.

A normal recovery period when you are home is 6-12 weeks. You may experience a dramatic relief from angina and therefore feel like doing your usual activities. Relax. Do not rush.

Breathe in deeply through your nose, continuing until your lungs feel full of air. Holding the air in your lungs, take two sniffs in – as if to smell some flowers. Do not let any air out between sniffs. Hold the air in for one second. Gently breathe out through your mouth.

To improve movement of air to all parts of your lungs, and to promote drainage of secretions, the nurses help you and encourage you to turn every two hours. With time, you will be turning on your own. The physiotherapist may make suggestions to you or your nurse regarding which positions are better for you, and for how long.

### **Coughing**

After your breathing exercises, hug the pillow to your chest and have tissues ready. Take a deep breath in and huff it out. (A huff is like pretending to create a mist on a pane of glass). Repeat this up to three times, then take a deep breath, support your chest, and cough strongly.

Feel free to ask for pain medication if discomfort begins to interfere with effective coughing. Strong coughing will not cause any damage to the breastbone or affect the surgery.

### **Bed Exercises**

1. While lying in bed, reach for the ceiling with one arm up over your head at a time. Without holding it in the air, return it to your side.
2. Shrug your shoulders and let them drop back down. Make gentle circular motions with your shoulders, forwards and backwards.
3. Slide your heel along the bed, bending your hip and knee, and straighten. Repeat with the other leg.
4. Ankle Pumping – To aid circulation and help decrease knee swelling, pump your feet up and down and make ankle circles. Pull your foot up toward you and then push down like on a gas pedal.

## ***Moving After Your Surgery***

You will be sitting over the edge of the bed shortly after your surgery. Your nurse and/or physiotherapist will help you to move from lying to sitting safely and comfortably.

Sitting in a chair usually begins the first day after surgery. Walking usually begins the second day. Initially you will require some support or assistance, in some cases using a walker and/or portable oxygen. By the third day, most people are able to walk with minimal assistance, for short distances in the hall close to their room. At this time, walks last 3-4 minutes and are done approximately three times a day, at a slow relaxed pace. Most patients feel remarkably better after one or two days back on the ward.

Due to your surgery your chest and leg may be sore. If your incision is sore:

- Relax
- Change positions regularly
- Take pain medication as needed and use a pillow to support your chest incision when coughing

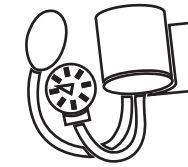
## ***Nutrition After Your Surgery***

Good nutrition is important for your recovery after surgery. After your surgery, it is important to avoid any weight loss until you have fully recovered from your surgery and your incisions have healed.

After your surgery, you will be able to start taking sips of water when the breathing tube has been removed from your mouth in the CVICU. You will then start receiving Clear Fluids (broth, juice, Jello). Over the next couple of days, you will progress to Full Fluids (porridge, milk, pudding), and finally to Heart Healthy meals (Low fat, Low cholesterol, No Added Salt).

### **2. Control Your Blood Pressure**

High blood pressure puts a strain on your heart and increases the speed that atherosclerosis develops.



Make sure you:

- Have your blood pressure checked every 6 months
- Take medication as directed for your high blood pressure (if your doctor has prescribed any)
- Minimize sodium (salt) intake
- Exercise regularly
- Practice regulation techniques

### **3. Exercise Regularly**

You can strengthen your heart muscle and increase its ability to use oxygen by:

- Jogging
- Swimming
- Walking at a moderate pace
- Bicycling

Please consult with your family doctor prior to starting a new exercise program.

### **4. Make Heart Healthy Food Choices**

Some of the risk factors (high blood pressure, high blood lipids, excess weight, and diabetes) are affected by your food choices and eating habits. It's never too late to make a change for the best. Enjoying balanced meals with a variety of low fat, high fibre, and low sodium foods can help to reduce some of your risk factors and provide good nutrition for your heart.

#### **General tips for heart healthy eating:**

- Emphasize whole grain cereals, breads, and other whole grain products
- Choose colourful, high fibre vegetables and fruits
- Choose lean meats, low fat dairy products, and foods prepared with little or no fat
- Limit salt and sugar
- Limit alcohol and caffeine



A Registered Dietitian is available in the hospital to provide additional information on heart healthy eating after your surgery.

## ***Types of Heart Surgery***

### **Coronary Artery Bypass Surgery**

Bypass surgery alleviates angina that results from the decrease in oxygen to the heart. After the bypass surgery more oxygen will be supplied to your heart muscle by increased coronary blood flow.

Although the majority of patients are completely free of angina after bypass surgery, bypass surgery does not cure coronary artery disease! Your angina may reoccur. You will need to modify your lifestyle to slow the progression of coronary artery disease.

### **Common and Temporary Side Effects of Coronary Artery Bypass Surgery**

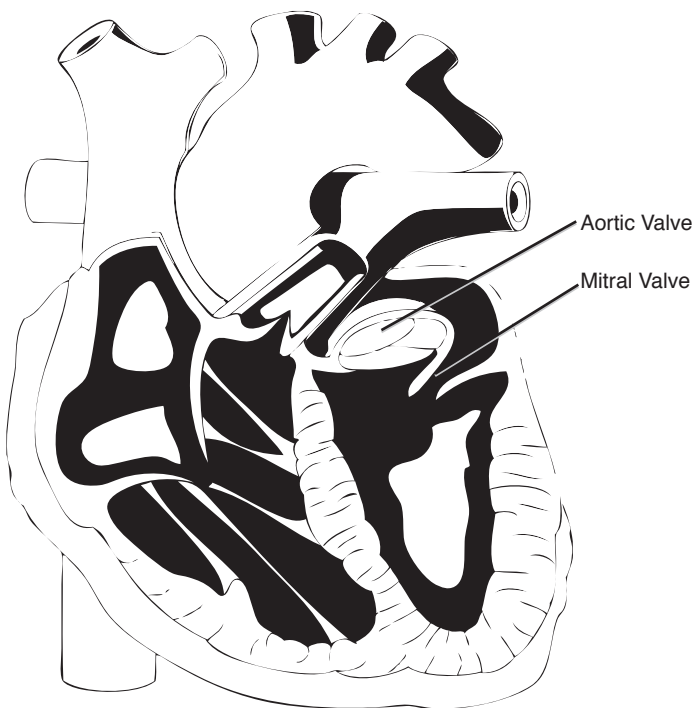
- Numbness and pain along the incisions
- Swelling of the ankle and foot where the vein was removed
- Fatigue (tiredness)
- Irregular heart beating for a short period of time (common, usually short lived and corrected before discharge)
- Emotional changes
- Occasional confusion
- Numbness and tingling of the left breast area, (when the internal mammary artery has been used), and fingers, (when the radial artery has been used), for the bypass.
- Poor appetite

## Valvular Heart Disease

Heart valves direct the blood flow through the heart's chambers. Your heart has four valves:

1. **Tricuspid Valve:**  
located between the right atrium and right ventricle
2. **Mitral Valve:**  
located between the left atrium and left ventricle
3. **Pulmonic Valve:**  
located between the right ventricle and pulmonary artery
4. **Aortic Valve:**  
located between the left ventricle and aorta

Valves act like one way doors. They let blood in and out of the heart's chambers each time it beats. Problems are more severe if the defective valves are on the left side of the heart (aortic and mitral valves). These valves regulate blood flow through the main pumping chamber.



### **Damage to Heart Valves can occur from:**

- Birth defects
- Infection
- Rheumatic fever (or scarlet fever)
- Heart muscle damage

### **Damage to the Heart Valves can result in:**

- Stenosis (narrowing of the valve opening which makes it difficult to open)
- Insufficiency (the valve does not close properly, also known as regurgitation)

Damage to the valves makes your heart work harder to pump blood to the body and after a number of years may result in heart strain or failure. A damaged heart valve may allow blood to flow in the wrong direction. Although medications may improve the work of the heart and relieve the strain or failure, often surgery to improve the valve disease may be necessary.

### **Heart Valve Surgery**

Heart valve surgery repairs or replaces damaged heart valves. When repair is not possible it is necessary to replace the valve with an artificial valve. Some valves are made of animal material and others are mechanical and have man-made parts.

### **Common Risks of Heart Valve Surgery**

The risks of developing complications after heart valve surgery depend upon:

- Age
- The condition of the heart muscle
- How many valves need to be repaired or replaced

Patients having coronary artery bypass surgery at the same time as a valve operation are at a slightly higher risk of developing complications. There are additional complications associated with an artificial valve. These may include

- Stroke
- Infection
- Heartbeat disturbance (requiring the implanting of a permanent pacemaker)

### **4. Chest Tubes**

Chest tubes are placed under your incision during surgery. These tubes drain blood and fluid that collect in your chest after surgery. The chest tubes are normally removed 12-24 hours after surgery when drainage slows/stops.

### **5. Bladder Catheter**

The bladder catheter is put in when you are asleep, during your operation. It is a small tube placed in your bladder to drain urine. The bladder catheter is normally removed when you are able to get up to walk to the bathroom with assistance.

### **6. Pacemaker**

All patients having heart surgery have temporary pacemaker wires inserted during surgery. They may be temporarily attached to a small pacemaker box outside of your body. Swelling and irritability of the heart muscle tissue occurs during surgery. Your heart may need temporary assistance with a pacemaker while the healing of this tissue is taking place. Pacemaker wires are removed before you go home.

## Pain Management Following Cardiovascular Surgery

After your surgery, you may feel pain and discomfort in the chest area and wound sites. Decreasing the amount of pain will help with your recovery. You will be given pain medications by mouth or injection. You may also be given a PCA pump (PATIENT CONTROLLED ANALGESIA), which will let you give yourself pain medication when you need it. Receiving regularly scheduled pain medication will decrease the severity of any pain you may have.

Several types of pain medications may be prescribed for you, such as Tylenol®, anti-inflammatories (like Advil® or ketoprofen) and narcotics (like codeine, hydromorphone or oxycodone). Gabapentin, a drug used to treat nerve-related pain may also be prescribed for you.

For the first two days after surgery these will be given regularly. As the days go by, your pain or discomfort should begin to decrease. Staff will routinely ask you about your pain (scale 0-10) and you will receive pain medications only when you ask for them. If you are having pain and need narcotics to control it, there is very little risk of becoming addicted to these, so do not hesitate to ask for them. Good pain control will lead to an easier and maybe faster recovery.

## Physiotherapy Routines Following Cardiovascular Surgery

We encourage you to make yourself familiar with the following exercises before you are admitted into hospital.

### Why exercise?

#### **Exercises done soon after your surgery:**

Help prevent some common complications following general anesthetic and prolonged bed rest; such as, pneumonia, partial lung collapse, blood clots in the legs, and muscle weakness and stiffness.



### When to Begin?

A physiotherapist will assist you with your exercises the first day after surgery. You may feel quite tired during these first few days. However, physiotherapy in the early postoperative phase is very important to your overall recovery.

### What to do?

#### **Deep Breathing Exercises**

Breathing deeply gets air down to the bases (bottom portions) of the lungs. The movement of air deep into the lungs helps to open up the air passages, and move the secretions out. This also makes coughing easier. Remember to practice these breathing exercises every hour on your own.



4. Visiting hours are unrestricted, however your visits may be limited:
  - During shift change (7:00am - 8:00am & 7:00pm - 8:00)
  - For patient rest & privacy
5. We recommend:
  - Designate one family member to be the primary contact and to obtain information on your progress (Others will be referred to that person for information).
  - Keep unit visits short (5-10min) to accommodate your rest & recovery
  - Family members return home in the evening to rest. Information on your progress may be obtained at anytime day or night by having your designated contact person telephone the CVICU (416) 480-6090.

Once you are moved to the Cardiovascular ward, D3, visiting hours begin at 11:00am and end at 8:30 pm, with a quiet time recommended between 2:00-4:00pm for the patients to rest. We try to limit activity during this time as the patients may be tired from the activities required to prepare them to go home. Radios, TV's, flowers, clothing, food or other gifts are not permitted in the CVICU.

*What can my family expect on their first visit?*

- There will be a lot of special monitoring equipment.
- Your eyes will be closed at first, until you wake up
- You will look pale and feel cool to touch
- Your face will look swollen
- You may shiver
- Your family can expect to see an improvement within hours following the surgery

## ***What to Expect in the CVICU***

You will be attached to many different machines which will help your nurse give you the special care you need. When you wake up, you may hear alarms and bubbling noises from the equipment. Please do not be concerned with this as your nurse will be tending to you and the equipment.

## **Specialized Equipment Used in the CVICU**

### **1. Breathing Tube (Endotracheal tube, ETT)**

The doctors will put this tube in your mouth while you are asleep. The breathing tube passes down your windpipe and is attached to a machine (ventilator) which will help your breathing. You will not be able to speak. This is only temporary while the tube is in place. This tube will be secured with tape on your cheeks. You will not be able to talk, eat or drink until the tube is removed. When the nurse asks you questions you will be able to communicate with her by nodding yes or no.

The removal of the breathing tube occurs as soon as you are awake enough and strong enough to breathe on your own after surgery. After the tube is removed your voice will be a little hoarse and your throat may be a little sore. This is only temporary.

### **2. Intravenous Catheters (I.V.)**

An intravenous (I.V.) catheter is a small tube that is put in your arm before you are asleep in the operating room. It allows us to give you fluid and medication. The I.V. stays in for approximately 3-4 days.



### **Arterial Line**

An arterial line is a small tube that will be put in your wrist. It is used to monitor your blood pressure continuously, and allows for blood samples to be taken easily. This line is removed before you are transferred to the ward.

### **Swan-Ganz Catheter**

A Swan-Ganz catheter is a small tube placed in your neck vein to measure the pressures in your heart. It is removed the morning after surgery.

### **3. Heart Monitor**

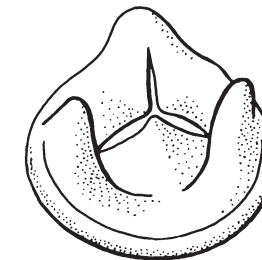
A heart monitor consists of electrodes (sticky round pads) placed on your chest, which are connected to a monitor. It shows your heart rate and rhythm constantly. Alarms may go off when you move. Don't worry about these alarms. Your nurse will be checking you constantly.

## **Tissue and Mechanical Valves**

### ***Tissue Valves***

#### Advantages:

Drugs that thin the blood (anticoagulants) are normally not necessary after the first three months following valve surgery.



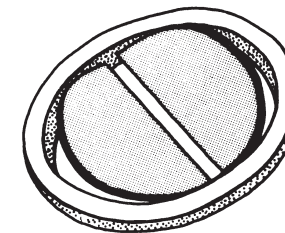
#### Disadvantages:

Normally do not last as long as mechanical valves. Further surgery may be required.

### ***Mechanical Valves***

#### Advantages:

These valves are man made and very durable, therefore they last longer than tissue valves (often several decades)



#### Disadvantages:

The patients must take blood thinners (anticoagulants) for the rest of their life.

## ***Other Types of Heart Surgery***

### ***Atrial Septal Defect (ASD)***

An atrial septal defect is congenital (occurs before birth). It is an abnormal opening in the wall between the two upper chambers (atria) of the heart. This opening allows blood flow between these chambers. The work of the heart may increase because the opening allows extra blood to go to the lungs.

Individuals with an ASD may experience:

- Respiratory infections (colds)
- Fatigue (tiredness)
- Shortness of breath on exertion
- Irregular heart beat
- Or there may be no symptoms

Surgery is usually recommended to avoid increasing the workload on the heart. During surgery the opening is sewn together or patched with synthetic material or tissue from around the heart. After this surgery blood follows the normal pathway through the heart chambers.

## ***Aneurysm***

The heart may widen causing a bulging (ballooning) of the muscle. This is called an aneurysm of the heart. An aneurysm may also occur on the arch of blood vessel which leaves the heart. This is called an aneurysm of the aorta.

### **Symptoms may be:**

- Shortness of breath
- Pain
- Irregular heartbeats

During surgery the aneurysm is either removed or patched.

### ***Minimally Invasive Surgery***

Some people may be suitable to have their surgery through a small incision on the left side of the chest without the use of the heart lung bypass machine. This type of surgery will be decided by the surgeon.

### ***Maze Procedure***

The MAZE procedure is an operation being performed to treat an irregular heartbeat called "Atrial Fibrillation". This arrhythmia causes the heart to beat very fast and irregular, making it work less efficiently and sometimes causing unpleasant side effects.

During the operation a long cable, (known as an ablation catheter), is threaded around the part of the heart thought to be causing atrial fibrillation, and microwave energy is applied to the heart tissue. The resulting scar should interrupt the electrical impulses that cause atrial fibrillation.

The MAZE procedure may be performed at the same time as bypass or valve surgery. The "Modified Maze" is when the operation is done through a number of small incisions made in each side of the chest. Because there is no large incision in the chest wall and the breast-bone is not opened, many risks can be avoided and patients usually go home in 3-4 days.

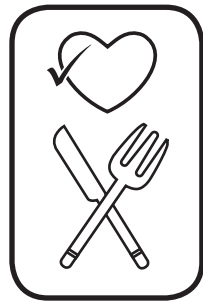
## Preparing for Surgery

Be sure to take the best possible care of yourself before surgery. As a reminder you should plan to:

### **Exercise**

Maintain your regular exercise routine as advised by your doctor. Don't start any new exercise programs before surgery. Exercise will help relax your body and tone the muscles. Stop exercises that bring on signs of your heart problems.

### **Eat Balanced, Nutritious Meals**



Good nutrition can help prepare your body for surgery and help with recovery after your surgery. If you have diabetes, making heart healthy food choices can also help to optimize your blood sugar control before surgery.

## Preadmission Class

### **Preadmission information session**

All patients require preparation prior to surgery. This preadmission information session will take 2-3 hours to complete. This visit consists of a pre admission assessment with a nurse and an anesthetist. The anesthetist completes a medical exam and reviews your medications. The nurse will review with you, skin preparation, fasting, and address any concerns you may have. Preoperative testing consists of blood testing, a chest x-ray, an electrocardiogram, and any other testing your surgeon may request. You will need to bring your Health Card and a hospital card, if you have one. Remember to bring all your medications (In their original containers) - prescription, over-the-counter, and herbal – and the name and number of your regular pharmacy or family physician with you to the pre-admission class.

The class is offered for patients having heart surgery one week before your admission. The date of your class is provided by the surgeon's office. Family members are encouraged to attend and participate in the class, as they play a key role in your recovery. The cardiovascular coordinators and other members of the health care team will be available to answer any questions you may have about your upcoming surgery, as well as any discharge concerns. The physiotherapist will be demonstrating some deep breathing exercises for you to practice at home.

## Discharge Planning

By the time you attend pre-admission class, your discharge plan should be in place. Most patients are well enough to return home in 4- 5 days after surgery with a family member or friend. Someone is required to be available for the first 1-2 weeks to offer you assistance with grocery shopping, meal preparation and cleaning. Most people do not require a nurse to visit them at home. If the need arises, the necessary care will be arranged prior to your discharge.



You may be given an injection (needle) or an oral medication (by mouth) before going to surgery to make you feel relaxed and drowsy. **MAKE SURE YOU HAVE USED THE WASHROOM BEFORE RECEIVING THESE MEDICATIONS!**

You will be taken to surgery on a stretcher. Please bring basic toiletries, housecoat, slippers, comb, toothbrush, glasses, for use before and after surgery. Belongs may be returned home with your family or stored in a locker on the ward D3.

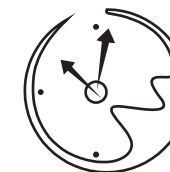
During your surgery your family may go to the waiting area located on the second floor of M wing.

## During Surgery

Upon arrival to the operating room, the anaesthetist will give you medicine to put you to sleep and your operation will begin. During surgery you may be connected to a heart-lung bypass machine which provides oxygen to your blood during surgery.

For patients having coronary artery bypass surgery, the saphenous vein (located in the legs), the mammary artery (located behind the chest wall), and sometimes the radial artery (located in the arm) may be used to bypass your blocked coronary arteries. For all heart surgery patients, a chest incision will be made through the breastbone and then closed at the end of the operation with stainless steel wires. Dissolvable stitches are used to close the outer portion of your incision. The wires will remain and the stitches will dissolve on their own.

How long does the surgery take? You will be in the operating room usually between 4-6 hours.



## Following Surgery

After surgery you will be transferred to the Cardiovascular Intensive Care Unit (CVICU), on the second floor of M wing. Family members may wait in the CVICU waiting room on the second floor of M wing. The surgeon will speak with them after the surgery is completed. If your family members are unable to be present immediately following surgery, the surgeon will contact them by telephone.

After the surgeon speaks with your family it will take another 1 - 1 1/2 hours to transfer and settle you into the CVICU. Your family will then be welcomed in for their first visit. A team of doctors, nurses and other health care professionals work together to meet your individual needs. Constant and specialized care in the CVICU is provided for you during your immediate recovery following surgery.

How long will I stay in the CVICU?

You will be in the CVICU normally between 12-24 hours. You will be transferred to D3 once you are medically fit.

## Visiting Guidelines for the CVICU

The visitor's waiting room is located to the left of the 2nd floor, M wing elevators. The special needs of cardiac surgery patients require a visiting policy different from other areas of the hospital. We ask that visitors to the CVICU respect the following guidelines:

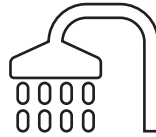
1. Use the desk phone in the visitor's waiting room to call CVICU at Ext. 6090 and let them know you would like to visit. A volunteer may be present to assist you.
2. Visits are limited to immediate family or significant others
3. Two people at a time are able to visit in the CVICU

It is possible that a blood transfusion may be required during or after your surgery that also requires you to sign a consent form. This decision is made on an individual basis.

If you have any concerns about this, please contact the Cardiovascular Coordinators or your surgeon's office. Transfusion consent is obtained at the same time, on the same form as the surgical consent.

Sunnybrook Health Sciences Centre is a teaching hospital and is involved in cardiovascular research. Certain clinical trials are being conducted that may benefit you or future patients. If you are asked to participate, please take the time to ask questions or call your surgeon for further information.

## *Before Surgery*



### **Cleaning Your Skin**

You will be asked to shower with a special antiseptic soap, once a day for 5 days, up to and including the day of your operation. (With short notice this may be fewer showers) Scrub your chest, legs and arms the night before surgery with a special antiseptic soap. This will clean your skin and remove germs. Rinse off all the soap GENTLY. Don't use powder or lotion on your legs or chest. If you are unable to clean yourself, your nurse will assist you.

### **Clipping the Hairs on Your Skin**

Clipping of the hair will be done with special clippers prior to your surgery by one of the staff. Please do not shave the hair on your chest or legs yourself. Clipping the hairs on your skin decreases the chance of infection following your surgery. The area and time of the clipping will depend on the kind of surgery and your doctor's orders.

### **Bowel Preparation**

A suppository may be given to help you have a bowel movement, the night before your surgery.

### **Rest**

If you can not sleep the night before surgery, ask your nurse if a sleeping pill is ordered. Sometimes just talking to your nurse helps reassure you.



### **Nothing to Eat or Drink**

You must not eat or drink anything on your own after midnight before your surgery. This will prevent you from vomiting during your surgery. (You may be given some of your medications with a sip of water). You may rinse your mouth with water, or brush your teeth, if it becomes too dry but DON'T SWALLOW IT!

### **Common Emotions prior to Surgery:**

Often some patients and or caregivers experience fear and or anxiety.

Some common questions patients ask are:

- How will I manage?
- How will my life change?
- Do not be afraid to express these feelings, as these concerns are natural prior to surgery.
- Often talking to someone helps in decreasing your worry.

## *Going to Surgery*

### **What to Wear**

After your final shower, you will be asked to put on a hospital gown. Just before you are taken to the operating room you will be reminded to remove:

- Dentures
- Jewellery – it is advisable to remove and leave at home. Rings left on may need to be cut off if the swelling in the fingers cause it to be too tight.
- Hairpins or hairpieces
- All clothing, including underwear
- Contact lenses, artificial body parts
- Nail polish
- Eye glasses
- Makeup
- Hearing aides (These are removed after you are in the operating room and the nurse and anaesthetist have spoken with you)

The nursing staff is available to assist you.

## *Your Cardiovascular Health Team*

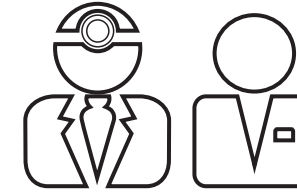
### **Cardiovascular Surgeons**

**Dr. S.E. Fremes**, Head of Cardiovascular Surgery

**Dr. G.T. Christakis**

**Dr. G. Cohen**

**Dr. F. Moussa**



### **Cardiovascular Coordinators**

The cardiovascular coordinators are links to the surgeons during the waiting period before hospitalization. During an office visit and/or telephone follow-up, these nurses help you understand your symptoms, monitor any changes in your condition, and assess your risk factors through education, support, and referral to other health care team members.

### **Nursing Staff**

With knowledge and skill in cardiovascular care, nurses assist and support patients and families during all phases of hospitalization. Recognizing that each patient, and their family, has special needs, nurses play a key role in preoperative and postoperative education and discharge planning.

### **Nurse Practitioners**

After your surgery a nurse practitioner (NP), a Masters degree prepared RN specialized in cardiovascular care, who works with your doctor, will see you regularly. The NP will help direct your daily care and discharge planning. The NP is also a resource for nurses, other staff members, patients and their families, in areas of clinical management, education, family support and planning from the hospital. In addition, they will assist you and your family in communicating with the other members of your health care team.

### **Anaesthetist**

Before surgery you will be visited by a member of the Anaesthesia Department. This may occur in either the preadmission clinic or in the hall outside the operating room just prior to your surgery.

This doctor will put you to sleep in the operating room and take care of you until your operation is finished.

When you leave the operating room you, you will go to the Cardiovascular Intensive Care Unit (CVICU) where your care will be supervised by a physician of the Department of Critical Care Medicine.

### **Cardiologist**

A member of Sunnybrook's Cardiology staff will also follow patients undergoing heart surgery during their stay. The cardiologist does not participate in your operation itself, but will pay particular attention to what heart medications you receive after surgery. They will be available to help treat any post-operative problems such as heart rhythm disturbances. These are common, usually short lived and resolve before you go home. Your own cardiologist will receive information about the care and medications you required from the Sunnybrook cardiologist.

### **Physiotherapist**

Before your surgery, you will be taught deep breathing exercises and how to cough properly by a physiotherapist. He/she will also explain why deep breathing and coughing are important to your recovery and what to expect when moving around.

After surgery, the physiotherapist assesses your progress daily, reviews your breathing exercises and assists you with your walking activities until you are able to do them on your own.

Before leaving the hospital, you will attend a class where the physiotherapist will review your home exercise program and give recommendations concerning activities at home. Information about Cardiac Rehabilitation programs will be discussed with you by your physiotherapist during your hospital stay.



## Dietitian

Good nutrition is very important during the recovery period after surgery. The dietitian is available to help optimize your nutritional intake after surgery, and also make sure that your in-hospital meals are tailored to any dietary restrictions or food allergies. The dietitian teaches group nutrition classes on heart healthy eating after surgery, and can provide individual teaching at your bedside (upon your request).

## Heartpals

“Heartpals” are a team of volunteers who have undergone cardiovascular surgery and who may visit patients before and/or after surgery. Having been through the experience, they are able to help you understand the emotions and feelings that accompany cardiovascular surgery. The volunteers can provide a compassionate “listening ear” when necessary or answer simple questions that are not of a medical nature. “Heartpals” are living proof of the success of the cardiovascular surgery.



## Pharmacist

The pharmacist is available to discuss your medications at anytime during your stay. Things that will be discussed about your medications include:

- The names of your medications
- Reason(s) why you are taking it
- The dose, amount, and side effects
- Any changes to your pre-operative medications

You may be provided with a personal medication schedule and medication information sheets. If you have had a heart valve replacement and will be taking a blood thinner called warfarin (Coumadin®), you will be given special information about this medication.



## Other Support Services

Before, during, and after your hospital stay, a number of additional support services are available to you and your family.

A social worker works with the cardiovascular team in assisting patients and families to identify and manage possible social circumstances that might act as a barrier to hospitalization and recovery. The social worker assists patients and families with the impact that change in health status might have on the social situation of patient and family.

### Some interventions might include:

- Consulting with patients and families in planning an appropriate plan of discharge.
- Providing counseling to patients and caregivers to help them manage different anxieties, worries and emotions experienced through hospitalization and recovery.
- Assist patients and caregivers with practical concerns such as finances, transportation, housing, and food, via referral to appropriate community resources.

## Occupational Therapist

An occupational therapist is available upon request to assist you in returning to your normal activities and routines. This involves showing you ways to practice energy conservation techniques and recommending special equipment as necessary.

Your surgeon or nursing staff can refer you to the team member best suited to meet your needs at any time.

## Chaplain

There is pastoral or chaplaincy staff available for you. If ministry of a specific denomination is desired (Christian or non-Christian), pastoral services staff will arrange this. A chaplain is available 24 hours a day to assist patients and their family members. They are available for support and not just religious needs. Please ask any staff member if you would like to contact the chaplain.

## Family Support

The support of family and or friends cannot be overestimated. Caregivers are an invaluable element of your recovery. There are many important tasks that they can help with that will be challenging for you independently.

Caregivers include friends as well. Do not be afraid to ask for help. Often friends and family want to help. If you are living independently and do not have resources available, please contact the social worker (416) 480-6100 ext. 3913. The social worker will assist you in planning an appropriate discharge plan.

## Admission to Sunnybrook

### Parking Services

Visitors may use either the parking meters found in various locations or the parking garage. Weekly parking permits may be purchased at a reduced rate in room CG 01 (C wing, Ground floor). Please call (416) 480-4591 Ext. 4123 for more information.

### Admission Routine

Admission to hospital will be the same day of your surgery (M-wing, Ground Floor) or the day before (D-wing, 3rd Floor.) This information will be sent to you from your surgeon’s office.

If having same day surgery, you will be admitted to the preadmission area where your personal information will be checked. From there you will be transferred to the operating room. A member of the anesthetic department will meet you.

Nurses are available throughout your stay to talk with you and your family about your hospital experience. They can:

- Review the hospital procedures with you and your family
- Discuss your recovery in the hospital and at home
- Answer any questions you or your family might have
- Refer you to other team members who may be of assistance

## What to Tell Your Nurse:

- Any allergies you may have
- Foods you don’t like or don’t eat and/or food allergies
- How the hospital can contact your family
- Seeing or hearing problems
- The person(s) who will be at home with you following surgery
- Any concerns you may have
- Special meals like vegetarian, kosher, diabetic etc...

## Medications

It is important to know the exact name, dose, and schedule of EACH medication you are taking! Ask your pharmacist for a computer-generated list of your medications for you to keep in your wallet at all times. Please bring all your medications - prescription, over-the-counter, and herbal – as well as the name and number of your regular pharmacy or family physician with you when you are admitted so that the staff know exactly what you are taking. If you have any allergies to any medications, please describe the details of the reaction to your nurse or doctor.

If you are taking a blood thinner (anticoagulant) such as Coumadin®, your doctor will ask you to stop taking it 5 days before your surgery.

If you are taking aspirin, aspirin containing medications, or Plavix® your doctor may ask you to stop taking it at least one week before your surgery.

**PLEASE DO NOT STOP TAKING ANY OTHER MEDICATION WITHOUT FIRST CHECKING WITH YOUR DOCTOR.**

### Informed Consent

Before your surgery your doctor will ask you to sign a special consent form. This consent form will give the hospital and your doctor permission to treat you and perform the surgery. The doctor will discuss possible risks and benefits of your surgery with you. Please ask for more information if you do not understand. Some people find it helpful to prepare a list of questions to ask the doctor.

