BRIGHAM AND
WOMEN'S HOSPITAL

CARDIOVASCULAR
CENTER

CARDIAC SURGERY

A GUIDE FOR PATIENTS

CARDIOVASCULAR CENTER

Beginning with the world's first mitral valve surgery in 1923, the Division of Cardiac Surgery at Brigham and Women's Hospital is New England's oldest and largest heart surgery program. Our mission statement is quite simple — *to provide the highest quality patient care while advancing the frontiers of cardiac surgery practice, science, and technology*. We provide the complete spectrum of adult cardiac surgery. We care for patients with coronary artery disease, valvular heart disease, heart failure, aortic aneurysms, adult congenital heart disease, and for patients requiring circulatory support and cardiac transplantation. Our goal is to provide you or your loved ones — *our patients* — with the highest level of compassion, care, and competence that modern medicine has to offer.

CARDIAC SURGERY

A GUIDE FOR PATIENTS

Table of Contents

Your Heart

YOUR HEART

Your heart is a muscle that pumps blood to all parts of your body. It pumps the blood through arteries and veins. The arteries are the blood vessels that send oxygen-rich blood to all parts of the body, including the heart itself. The veins return oxygen-poor blood back to the heart and lungs.

The Parts of Your Heart and How Your Heart Works

Four Chambers

There are four chambers inside your heart. The two upper chambers are called **atria** and the two lower chambers are called **ventricles**. The heart muscle squeezes blood from chamber to chamber and then into a large artery called the **aorta**.

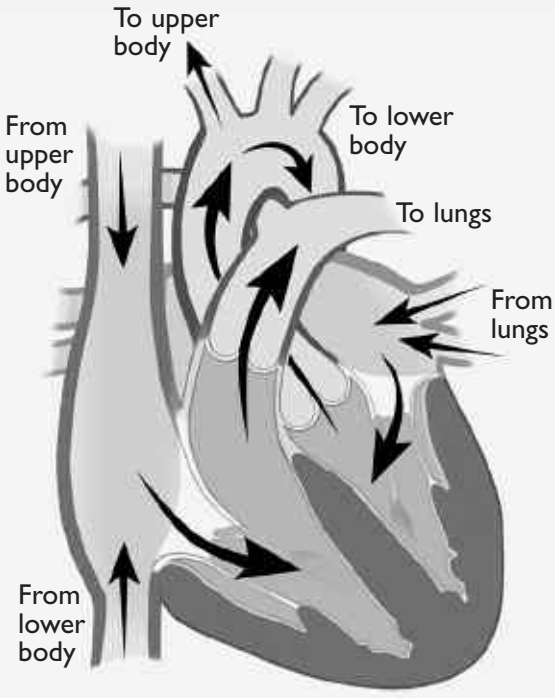
Aorta

The aorta is the largest artery in the body. It carries oxygen-rich blood from your heart to the rest of your body.
It is divided into three parts:

- ascending aorta
- aortic arch
- descending aorta

The descending aorta is divided further into two parts:

- thoracic aorta
- abdominal aorta

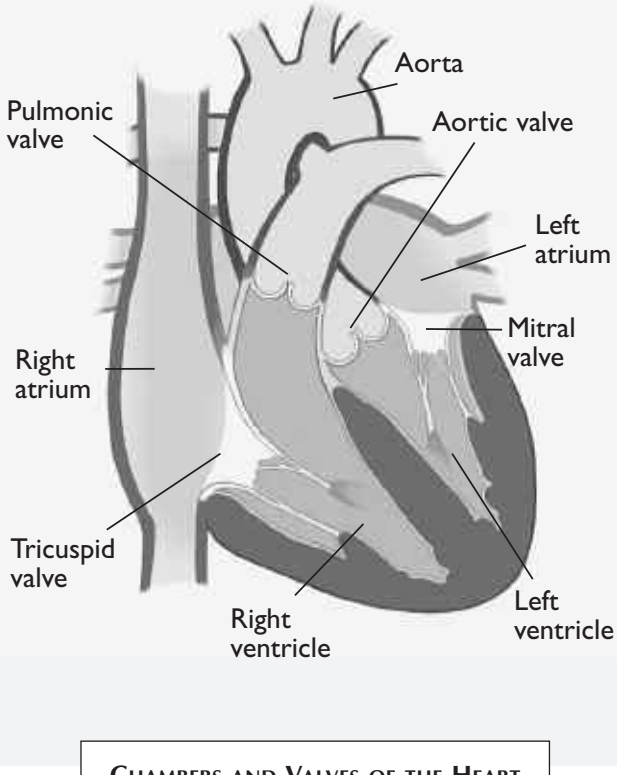


BLOOD FLOW THROUGH THE HEART

Four Valves

Your heart has four valves, which open to allow blood to move forward through each chamber of the heart. These valves open and close to prevent blood from flowing backward.

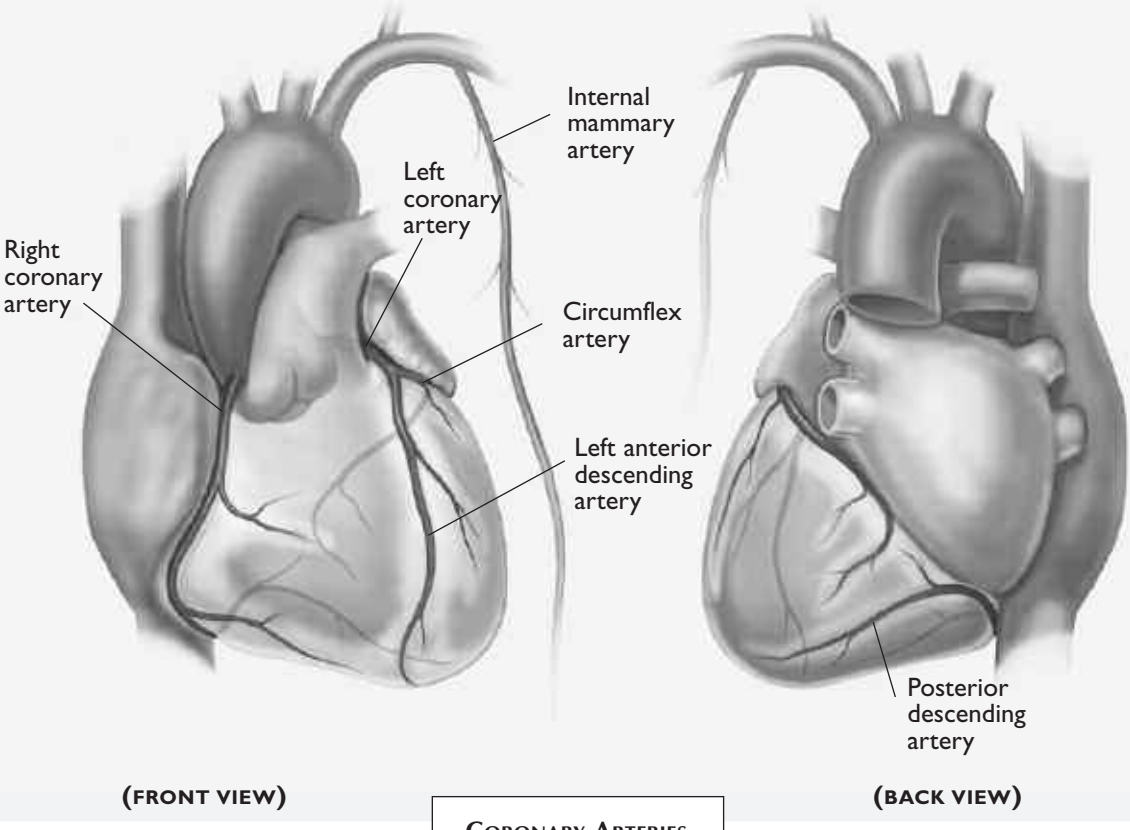
- **The tricuspid valve** allows blood to move from the right atrium into the right ventricle.
- **The pulmonary valve** allows blood to move from the right ventricle to the lungs to get oxygen.
- **The mitral valve** allows blood to move from the left atrium into the left ventricle.
- **The aortic valve** allows blood to move out of the left ventricle into the aorta and then to the rest of the body.



CHAMBERS AND VALVES OF THE HEART

The Heart Muscle and the Coronary Arteries

Your heart is a muscle and needs oxygen-rich blood like other muscles in your body. Your heart muscle gets its blood supply from large blood vessels called the coronary arteries. These coronary arteries come from the aorta and wrap around your heart to feed it with oxygen-rich blood.



CORONARY ARTERIES

There are two main coronary arteries:

- **The right coronary artery** (RCA) supplies blood to the bottom and right side of the heart, including the right ventricle.
- **The left coronary artery** (LCA) supplies blood to the rest of the heart, including the back of the heart and the left ventricle.

Diagnostic Tests

DIAGNOSTIC TESTS

Chest X-ray

What is it?
A chest x-ray is a picture of your heart and lungs. In an x-ray, your doctor can see if your heart or aorta is enlarged. Your doctor can also see if there is fluid or abnormal air in your lungs.

What will happen?
When you have a chest x-ray, you will be asked to stand or sit in different positions. An x-ray technician will point the camera toward your chest and ask you to hold your breath while the picture is taken.

Echocardiogram (Echo)

What is it?
An echocardiogram, often called "echo," uses sound waves to see how well the heart is working. It measures:

- the heart's size and shape
- how well the heart valves are working
- how well your heart fills and pumps blood out to your body (this is known as the "ejection fraction")

What will happen?
During an echo, a cool gel is put on your chest. A wand called a "transducer" is moved around your chest while pictures are taken. The gel makes it easier to move the transducer around. If you are thin, you may be more sensitive to the pressure of the wand.

Electrocardiogram (ECG)

What is it?
An electrocardiogram, also called "ECG", records the electrical activity of your heart. It can show irregular heart beats or changes in your heart muscle such as enlargement or damage.

What will happen?
When you have an ECG, you will be asked to lie down and electrodes, which feel like sticky patches, will be put on your chest, arms and legs. Wires will be attached to these electrodes. These electrodes connect you to the ECG machine. You will be asked to lie still while the ECG machine records the electrical activity of your heart.

Echocardiogram (Echo)

Cardiac Catheterization

Cardiac Catheterization Lab

What is it?

A cardiac catheterization, also called cardiac cath or coronary angiogram, is a procedure where dye is injected into your veins and then x-rays are taken of the coronary arteries. Coronary arteries are the blood vessels located around the outside of your heart that supply oxygen-rich blood to the heart muscle itself.

A cardiac catheterization shows if you have blockages in your coronary arteries. It also shows which arteries are blocked and how severe the blockage is. The test tells your doctor how well your heart muscle and valves are working.

What will happen?

The procedure room is cold. This is because the equipment used for your catheterization needs a cool environment. You will be given warm blankets. Once you are in the cardiac cath room, you will be moved onto the procedure table. You will lie on your back with a pillow under your head. The nurse may give you medications through your IV line to help you relax and make you drowsy. You will still be able to talk, answer questions, and follow instructions like, "Hold your breath."

Next, the site of the procedure (either your wrist or groin) will be numbed with a local anesthetic, similar to what your dentist may use. During the procedure, you should feel only pressure in your wrist or groin. Please let the team know if you have a lot of discomfort. You may feel some warmth in your chest, arms, or body for a few seconds as the dye is injected.

When the procedure is finished:

- An assistant will put pressure on the area for 5-30 minutes to stop any bleeding.
- A nurse will frequently check the pulses in your feet and arms and the procedure site for bleeding. You may have a bump under the skin and bruising. This is normal and will go away in about a week.

If the catheter is inserted in the leg:

- You will have to lie flat and you will not be able to sit up in bed for 6-8 hours
- You will not be able to get up to go to the bathroom for 6 hours.

Stress Test

What is it?

A stress test is a test used to detect coronary artery disease or to determine a safe level of activity for you following a heart attack or heart surgery. During the stress test, your heart's electrical activity or ECG is recorded while you exercise on a treadmill or a bicycle. If you are unable to exercise, your doctor may order other tests to see how your heart and blood supply work under stress.

What will happen?

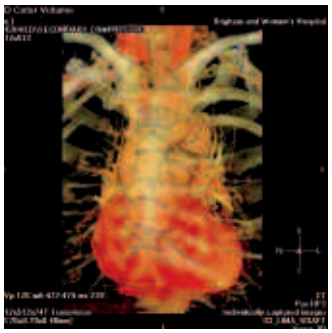
ECG wires will be placed on your chest and arms to monitor your heart. If your stress test is being done with medication, it will be given through an IV in your arms. This medication will increase your heart rate without exercise.

Stress Test

Computerized Tomography (CT Scan)

What is it?
A "CT" or "CAT" scan is a special x-ray that can see parts of your body that cannot be seen on regular x-rays. CT scans of the chest are often used to examine and measure aortic aneurysms.

What will happen?
The CT scanner is a doughnut-shaped machine. During a CT scan, you will lie on your back inside the machine while pictures are taken. The CT scan table can feel hard, but a CT scan is painless. Sometimes dye is used to see parts of your body more clearly. Dye may be put into an IV, or you may be given the type of dye that you can drink. ***It is very important that you do not move during the test.***



Images of the Heart

CT Scan

Cardiac Magnetic Resonance Imaging (MRI)

What is it?

The cardiac MRI uses a combination of radio waves in a magnetic field to see a clear picture of the size, shape and thickness of the heart muscle. In addition, your doctor can look closely at the parts of the heart and how it works.

A cardiac MRI takes movie-like pictures that help doctors find many heart problems such as a heart attack or a blockage in a blood vessel. Sometimes dyes are used to see your heart muscle and how well it is working.

MRI machine

What will happen?

An MRI machine is a long sliding table with a large circle at one end. You will be asked to lie on the sliding table. Someone will help you get into a comfortable position. The person taking the pictures will leave the room, but you will be able to talk to him or her at all times.

As the MRI machine takes the pictures, you will hear loud clicking and tapping sounds. You will be given earplugs to lessen this noise. There is no pain during the test, but you may notice a warm feeling. This is normal. If it bothers you, tell the person taking the pictures. ***It is very important that you do not move during the test. The technician will ask you to remove any metal on your body, including jewelry.***

Aortagram

This is an invasive test using a catheter to inject dye into the aorta. X-rays are taken of the dye as it travels within the aorta, allowing clear visualization of blood flow. This way any structural abnormalities of the aorta will be accurately seen. This test is particularly useful in evaluating aortic dissection and aortic aneurysms.

Quantitative Perfusion Lung Scan

A V/Q Lung Scan (Ventilation and Quantitative Scan) is a two part test.

The first part is called a ventilation scan and shows how well you get the air in and out of your lungs when you breathe. You will be asked to breathe through an oxygen mask while a small amount of radioactive gas is released in to the oxygen mask. Pictures will be taken as you breathe in and out.

The second part is called a perfusion scan and shows how well the blood flows to your lungs. Dye will be injected into a vein in your arm so that pictures of the blood flow to your lungs can be taken.

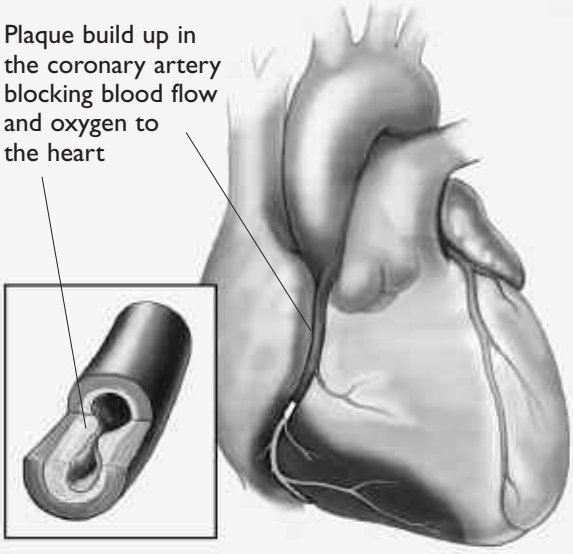
What is Coronary Artery Disease?

WHAT IS CORONARY ARTERY DISEASE?

Coronary artery disease (CAD) is a condition where fat and cholesterol, called "plaque," build up inside your arteries.

What Happens to the Heart in Coronary Artery Disease?

With coronary artery disease, oxygen-rich blood no longer flows easily to the heart muscle. Cholesterol or fat builds up on the inside of the artery making the opening too narrow. Sometimes the artery can be completely blocked by plaque or a blood clot. This blocks the blood flow to the heart muscle. It can cause discomfort, pain, or pressure in your chest called "angina." It may also cause damage to the heart muscle known as a myocardial infarction (MI), or a heart attack.



PLAQUE BUILDUP IN CORONARY ARTERIES

What Causes Coronary Artery Disease?

Causes you can change:

- High fat and/or high cholesterol diet
- Smoking
- High blood pressure
- Being overweight
- Lack of exercise
- Excessive alcohol intake

Causes you cannot change:

- Family history
- Gender (CAD is more common in men; however, the risk in women increases after menopause)
- Age (rate of CAD increases with age)
- Diabetes

What are the Symptoms?

Symptoms can vary from person to person. The most common symptoms are:

- Chest pain
- Chest pressure or discomfort
- Jaw pain
- Back pain
- Arm pain
- Shortness of breath
- Indigestion
- Nausea or vomiting

Women with CAD are more likely than men to have nausea, vomiting, shortness of breath, and back or jaw pain.

Sometimes people do not have any symptoms at all. Your coronary artery disease may be discovered during a check up or when you come to the hospital for another surgery.

How is Coronary Artery Disease Diagnosed?

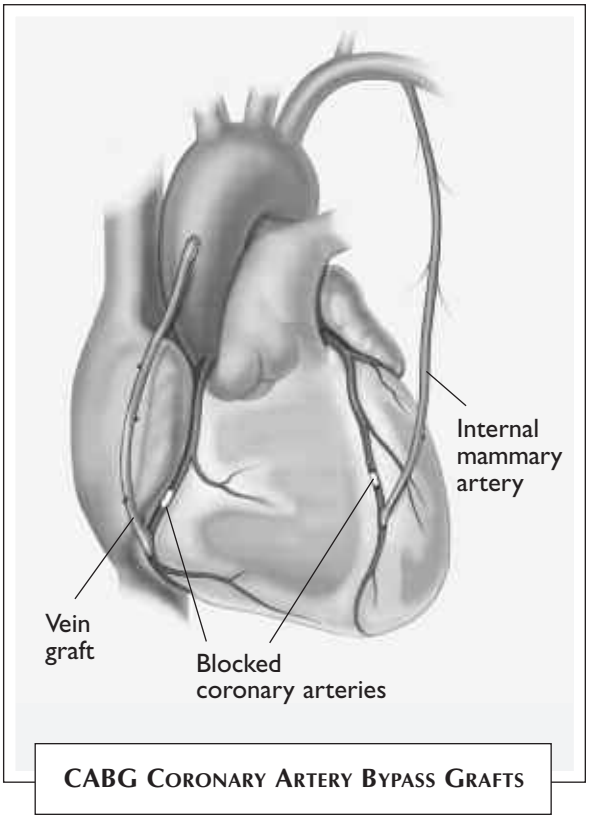
- Electrocardiogram (ECG)
- Stress test
- Cardiac catheterization
- Cardiac magnetic resonance imaging (MRI)
- Exercise echocardiogram

For more information about tests, look in the "Diagnostic Tests" Section of this booklet.

How is Coronary Artery Disease Treated?

CAD can be treated one of four ways or in combination.

1. Making lifestyle changes such as:
   - Quitting smoking
   - Eating a low fat/low cholesterol diet
   - Exercising regularly
2. Taking medications to help ease the work of your heart and to lower your cholesterol.
3. Angioplasty or stents to open your arteries.
4. Coronary Artery Bypass Surgery (CABG).



CABG CORONARY ARTERY BYPASS GRAFTS

How is Coronary Artery Disease Treated with Surgery?

When surgery is the treatment of choice, new pathways are created around the blocked artery that allow blood to flow to the heart muscle, bypassing the blockage.

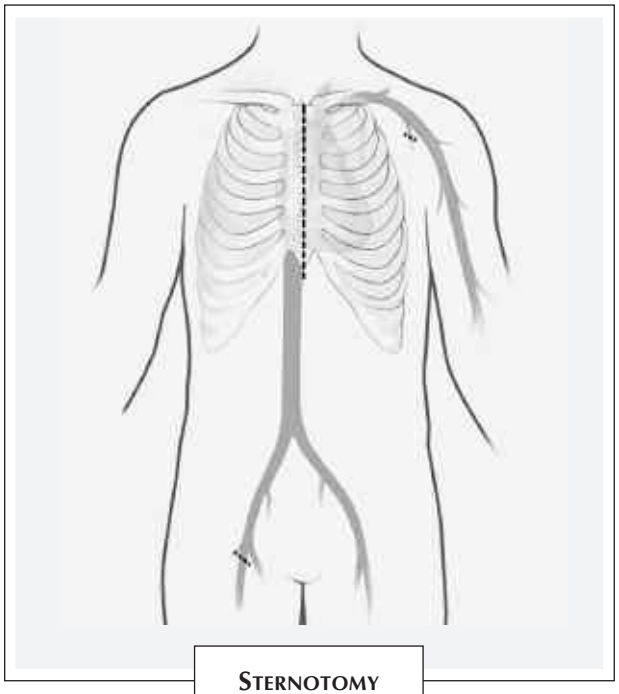
This new pathway, or bypass graft, is created with an artery or vein that is taken from another part of your body, such as your leg, chest, or arm.

The blood vessels most commonly used in bypass surgery are:

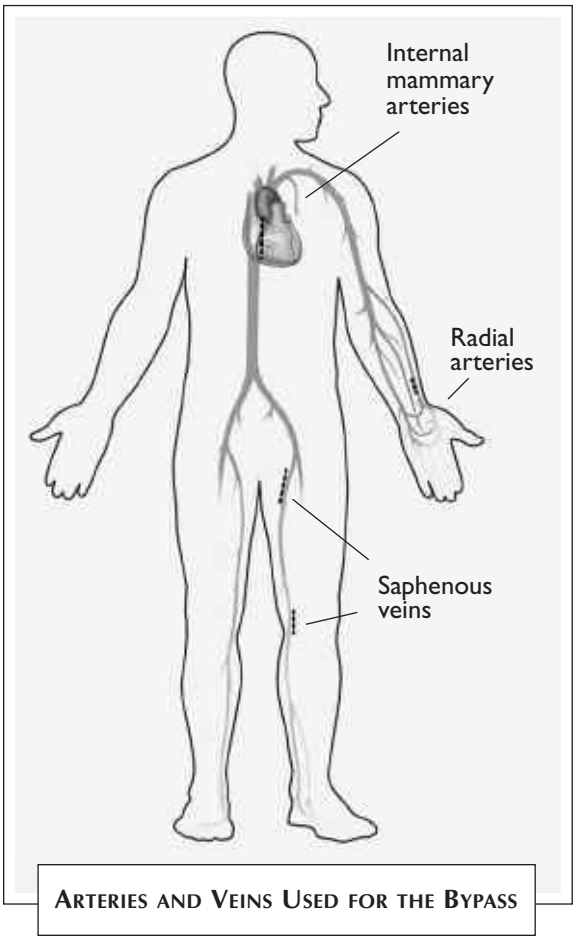
- **Internal mammary arteries** located inside your chest.
- **Saphenous veins** located in your legs. These veins are taken out through a small incision (endoscopic) in your leg. This procedure is called "endoscopic vein harvesting."
- **Radial arteries** located in your arm.

Incision for CABG Surgery

The breastbone or sternum is separated so that the surgeons can reach your heart. This is called a sternotomy (stir-not-o-me).



STERNOTOMY

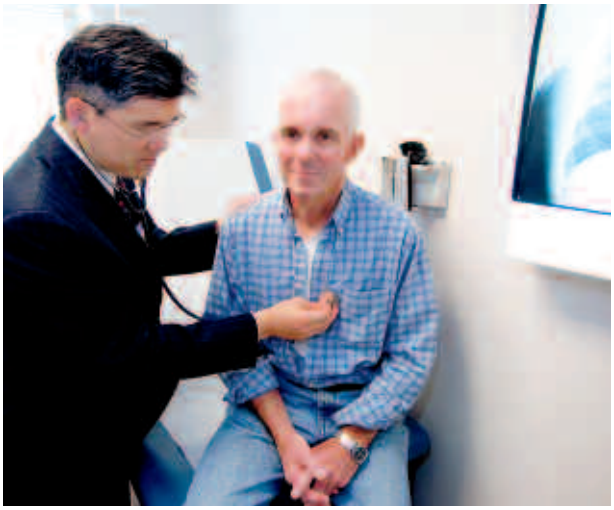


ARTERIES AND VEINS USED FOR THE BYPASS

"Valve surgery takes an immediate burden off the heart. Following valve surgery, the vast majority of our patients resume a much higher level of activity and overall feeling of well-being, similar to what they had enjoyed in the past."

Dr. Cohn

What is Valvular Heart Disease?



WHAT IS VALVULAR HEART DISEASE?

Heart valves guide the blood forward through the heart's four chambers. The valves open and close like one-way swinging doors to make sure the blood only flows in one direction through the heart. Valvular heart disease occurs when the valves do not open and close correctly.

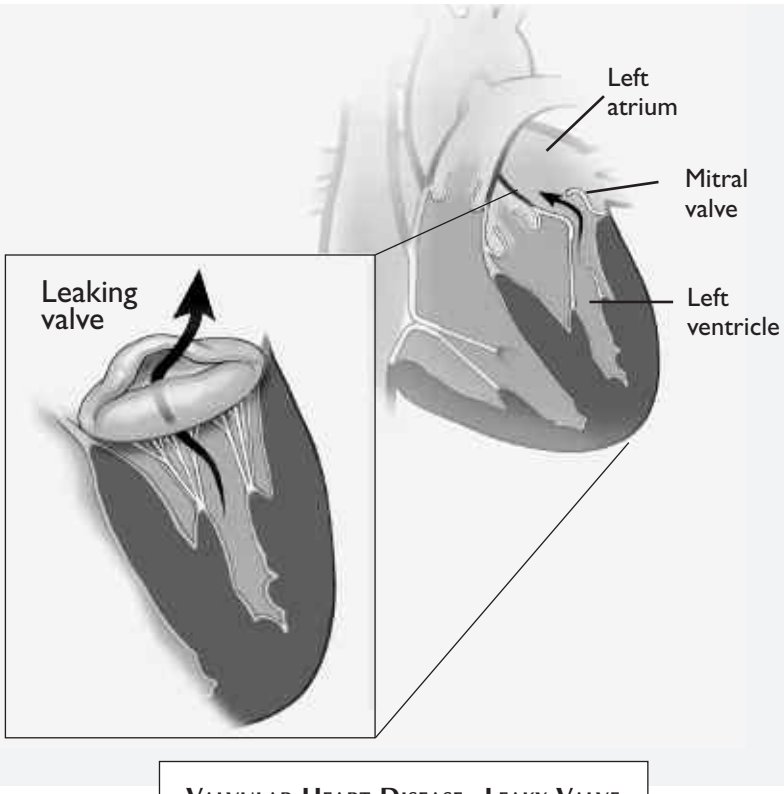
What Happens to the Heart in Valvular Disease?

When you have valvular heart disease, two things can happen:

1| Your heart valve does not open all the way.
If your valve does not open all the way, the blood has to flow through a smaller opening than normal. This is called "stenosis."

2| Your heart valve does not close all the way.
If your heart valve does not close all the way, the blood will flow both backwards and forwards through the valve instead of only forward. This is called "regurgitation."

Both conditions make it harder for your heart to pump blood to the rest of your body. Sooner or later, your heart will become weaker and larger.



VALVULAR HEART DISEASE – LEAKY VALVE

What are the Causes of Valve Disease?

- Birth defect in your valve
- Calcium or plaque on the valve
- Infection
- Rheumatic fever
- Valve degeneration
- IV drug abuse

What are the Symptoms?

- Increased shortness of breath
- Chest pain
- Swelling of your legs and ankles
- Increased tiredness
- Dizziness
- Fainting
- Palpitations

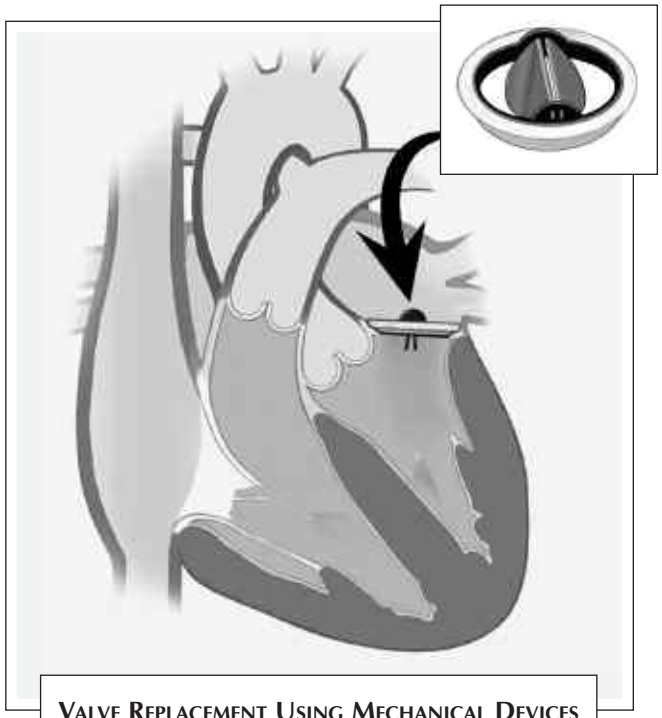
How Does Your Doctor Discover Valvular Heart Disease?

If your doctor hears an abnormal heart sound, he or she will order an echocardiogram to see how well you heart valves are working.

How is Valve Disease Treated?

Once the stenosis or regurgitation reaches a certain point, the surgeon will recommend surgery. Your surgeon will tell you which valves need to be fixed and whether your valves need to be repaired or replaced.

Your surgeon will also take into consideration your age, health, lifestyle, and ability to take blood thinner medication before making recommendations about which treatment is best for you.



VALVE REPLACEMENT USING MECHANICAL DEVICES

Valve Replacement

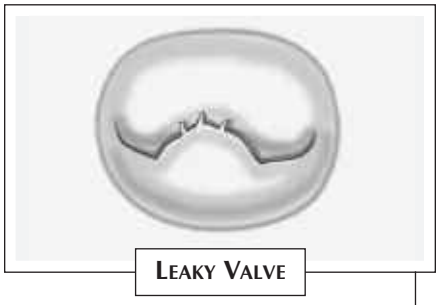
To replace your valve, your heart surgeon will carefully remove your damaged valve and replace it with an artificial valve. Valves can be tissue or mechanical.

There are three kinds of artificial valves used to replace your damaged valve:

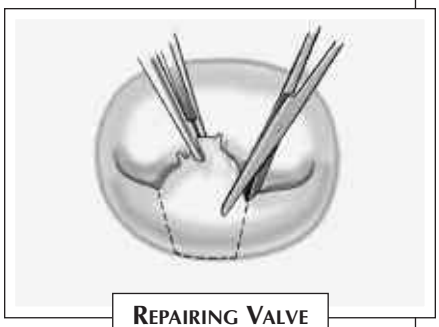
- Animal valves
- Mechanical valves
- Human heart valves

Valve Repair

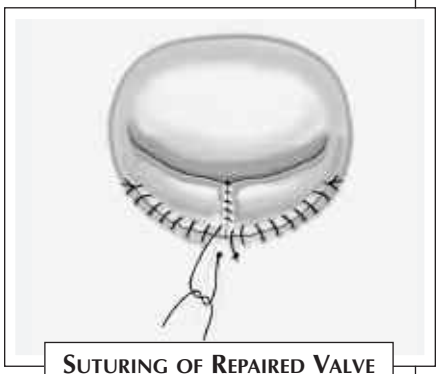
There are two common methods to repair your heart valve. In the first method, a ring of metal, cloth, or tissue is placed around the valve to tighten it. In the second method, parts of the valve itself are adjusted to make it work like a normal valve.



LEAKY VALVE



REPAIRING VALVE



SUTURING OF REPAIRED VALVE

REPAIR OF MITRAL VALVE

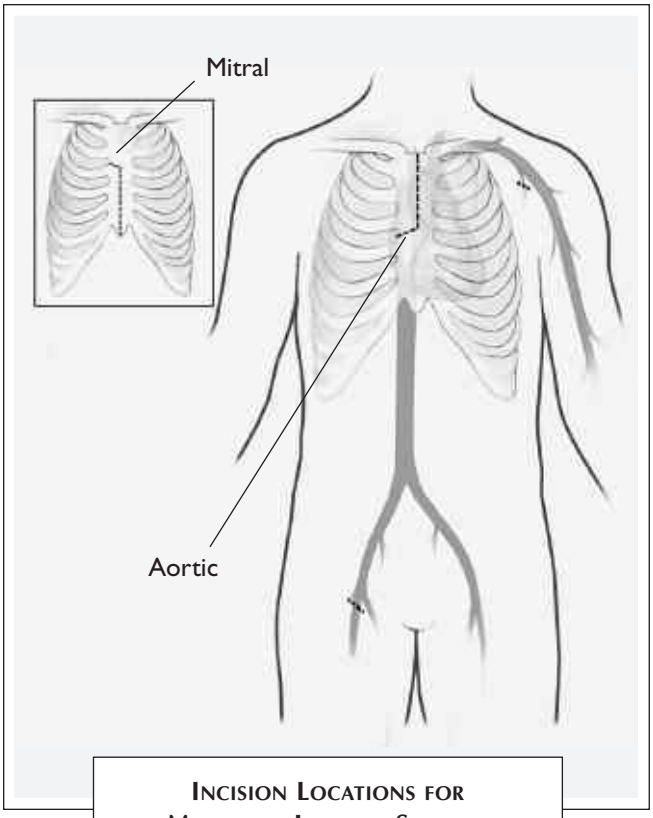
Incisions for Heart Valve Surgery

Heart valve surgery can be done using one of three surgical incisions:

- **Sternotomy (stir-not-o-me):** An incision is made down the center of your chest separating your breastbone
- **Ministernotomy (mini-stir-not-o-me), sometimes called minimally invasive valve surgery:** A 3-inch incision is made either at the top or bottom of your breastbone depending on which valve is being treated.
  - **Minimally invasive aortic valve replacement or repair** is done through a small opening that goes from the top of your breastbone down to the third rib.
  - **Minimally invasive mitral valve replacement or repair** is done through a small opening that runs from the bottom of your breastbone.

  Some advantages of this type of surgery are:
  - Less trauma to the body
  - Less blood loss during surgery
  - Better physical appearance of the scar
  - Less pain at the incisions
  - Shorter hospital stay
  - Faster recovery
- **Thoracotomy (thor-a-COT-o-me):**

  An incision is made in your rib cage from under your arm around to your back.



INCISION LOCATIONS FOR MINIMALLY INVASIVE SURGERY

"The Thoracic Aortic Disease Program at Brigham and Women's Hospital brings together all the specialists with interest and expertise in the treatment of aortic diseases. We bring together all these individuals so that we can offer the very best, and least invasive, treatment for each individual patient."

Dr. Bolman

What is Thoracic Aortic Aneurysm?

WHAT IS THORACIC AORTIC ANEURYSM?

The aorta is the largest artery that carries oxygen-rich blood out of the heart to the rest of the body. The aorta extends upwards from the heart and then arches downwards through the chest and into the abdomen or belly. The part of the aorta in the chest is called the thoracic aorta. The part of the aorta in the abdomen is called the abdominal aorta.

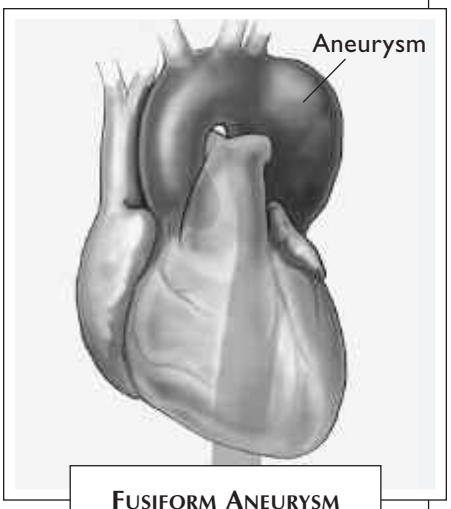
What Happens to the Heart in Thoracic Aortic Aneurysm?

An aortic aneurysm occurs when an area of the aorta weakens and enlarges like a balloon. An aneurysm can occur anywhere along the aorta. When the aneurysm is small, your doctor will order a CT scan or MRI every 6-12 months to monitor the size of the aneurysm. This will help your doctor know when treatment is necessary. Once an aneurysm gets to a certain size or is growing rapidly, it is at risk for tearing (dissection) or bursting (rupture). These can cause life threatening internal bleeding.

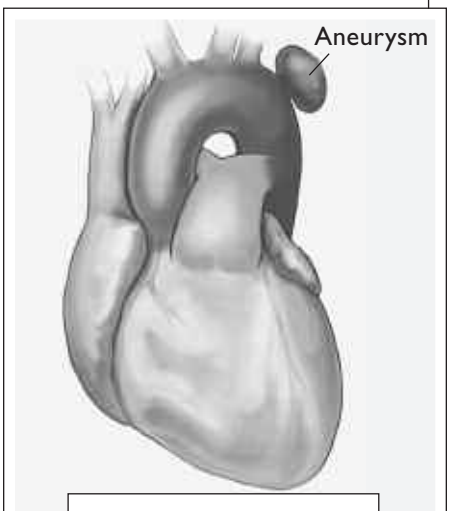
- Thoracic aortic aneurysms (TAA) occur in the chest.
- Abdominal aortic aneurysms (AAA) occur in the abdomen.
- Thoracoabdominal aortic aneurysms (TAAA) includes both the chest and the abdomen.

There are two types of aortic aneurysms. Aneurysms can be one of the two following shapes:

- Fusiform aneurysm: an aneurysm that extends around the entire wall of the aorta and looks like an even bulge around the aorta.
- Saccular aneurysm: an aneurysm that looks like a small blister on the side of the aorta. It is usually caused by trauma, such as a car accident or bad fall, that weakens the aorta and can cause bulging.



FUSIFORM ANEURYSM



SACCULAR ANEURYSM

What are Causes and Risks for Thoracic Aortic Aneurysm?

- High blood pressure
- Atherosclerosis – hardening of the arteries
- Trauma to the chest, such as a car accident or fall
- Smoking
- Heart disease
- High fat diet
- Age
- Gender (more common in men than women)
- Family history: people with a family history of aneurysms should be screened on a regular basis.

Conditions that can weaken the aortic wall and cause an aneurysm:

- A bicuspid aortic valve (2 valve leaflets instead of 3)
- Marfan Syndrome: an inherited connective tissue disorder that causes a widening of the aorta and malfunctioning of the heart valves
- Syphilis
- Tuberculosis

What are the Symptoms of Thoracic Aortic Aneurysm?

Many people do not have symptoms of a thoracic aortic aneurysm. However, symptoms may occur. The type is related to the location of the aneurysm.

Warning symptoms may include:

- Pain or tenderness in the mid or upper chest, back or shoulders
- Coughing or hoarseness
- Difficulty breathing
- Difficulty swallowing
- Pulsating sensation in your chest

If you experience any of these symptoms, you should notify your doctor so that further evaluation can be done.

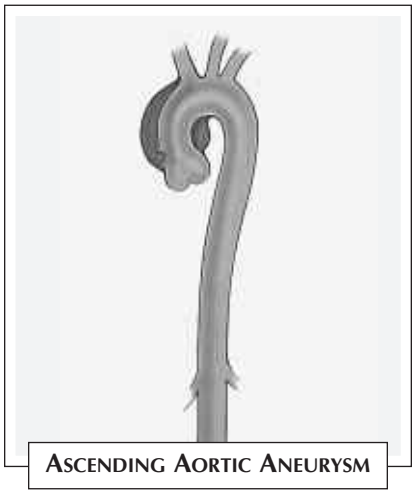
Locations of Thoracic Aortic Aneurysms

The location of the aortic aneurysm will determine the type of symptoms a person will have and the treatment they will need.

The following are possible locations of aortic aneurysms:

- **Ascending Aortic Aneurysm**

  In ascending aortic aneurysms, the aneurysm is located in the upper portion of your aorta. The main symptom of this type of aneurysm is severe chest pain, and very often urgent surgery is needed. Symptoms can range from none at all to severe chest pain. Severe chest pain is often a result of a rupture or a tear and requires urgent surgery.



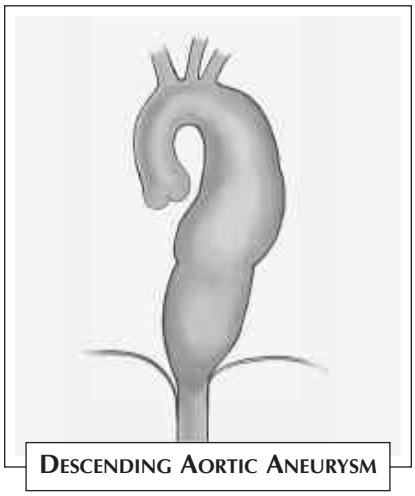
ASCENDING AORTIC ANEURYSM

- **Descending Aortic Aneurysm**

  A descending aortic aneurysm is located in the lower portion of your thoracic aorta and can decrease the blood supply to the spinal cord. The symptoms of this type of aneurysm are:

  - Numbness of the legs
  - No pulses in the legs
  - Inability to move legs

If these symptoms occur, surgery must begin at once.



DESCENDING AORTIC ANEURYSM

What is an Aortic Dissection?

An aortic dissection is a tear within the wall of the aorta. When the aorta tears, it allows blood to flow between the layers of the wall.

The tear can be small or large. If you have an acute large tear, you will have symptoms such as severe chest pain, back pain, shortness of breath, fast heartbeat and confusion. This is a life-threatening condition. You will need surgery right away.

How Does Your Doctor Discover a Thoracic Aortic Aneurysm?

People who have an aneurysm may not know that they have one. Your doctor may discover an aneurysm on a routine exam. Often it is discovered during a medical text such as a CT scan, MRI, chest x-ray, or cardiac catheterization.

Tests

- **Chest X-ray**
  Sometimes a thoracic aortic aneurysm is found on a routine chest x-ray during a checkup with your doctor.
- **Echocardiogram**
- **"CT" or "CAT" Scan**
- **MRI**
  This can show how large a thoracic aneurysm is and help your doctor decide on the type of surgery that should be done.
- **Aortagram**
  This is an x-ray using a dye or contrast which will show any bulges in your aorta.

For more information about tests, look in the "Diagnostic Tests" section of this booklet.

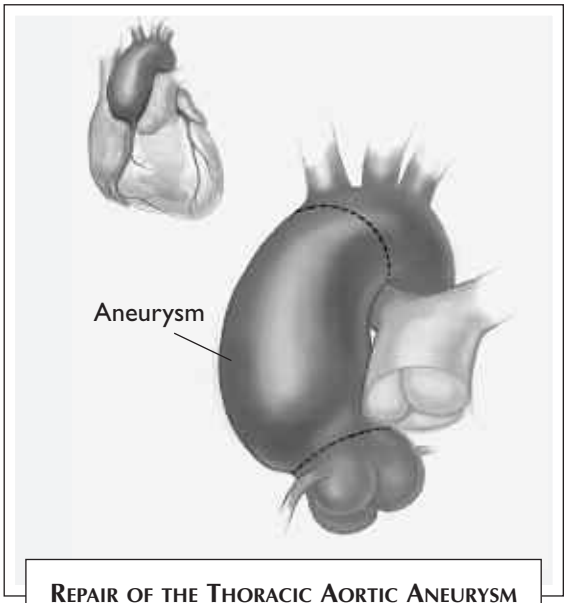
How is a Thoracic Aortic Aneurysm Treated?

If the aneurysm is small, your doctor will recommend checking your aneurysm regularly with a CT scan or MRI. These tests are necessary to monitor the size and the rate at which the aneurysm is growing. Additionally, you may be prescribed drugs called beta blockers to lower your blood pressure. This will also decrease the pressure on your aorta. You may also be given medicine to lower your blood cholesterol. Other recommendations will include eating a low-fat diet and quitting smoking.

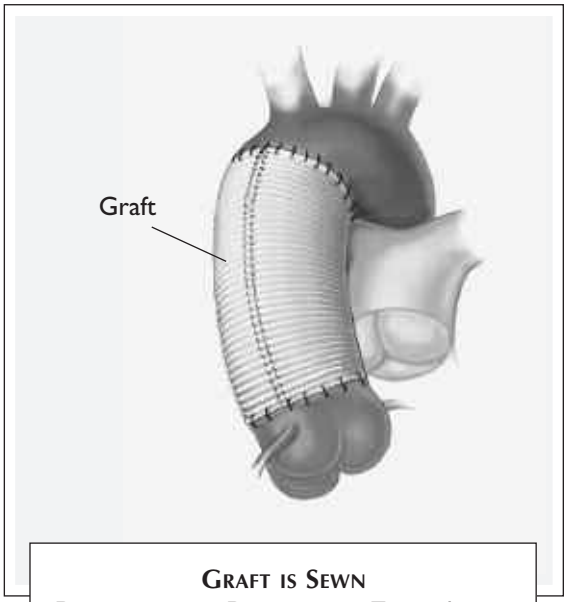
When is an Aneurysm Repaired with Surgery?

Surgery is generally recommended when the aneurysm reaches 5 centimeters. However, your surgeon will take other factors into consideration, such as your overall health, your height and weight, and how fast the aneurysm is growing. A lumbar drain may be placed in your lower back before surgery to drain cerebrospinal fluid either at the bedside or in the operating room. The drain will remain in place for 1 to 2 days in order to help blood flow to your aorta and decrease the risk of paralysis of your legs. Usually this surgery is done while you are on the heart-lung machine and your heart is rested. The aneurysm is cut out and replaced with a synthetic graft (tube) that is sewn to the healthy aorta.

Since this is a complex surgery, your surgeon will order other tests to check your heart. These may include an echocardiogram to check your heart valve function and a coronary angiogram to look for blockages in your coronary arteries. If there are issues with one of your heart valves or blockages in your coronary arteries, they can be fixed during your aortic surgery.



REPAIR OF THE THORACIC AORTIC ANEURYSM



GRAFT IS SEWN
REPLACING THE BULGING OR TORN AORTA

Endovascular Repair

In recent years, a treatment has been developed to repair an aneurysm without major surgery. "Endovascular repair" means that surgery is done inside your aorta using a thin, long tube called a catheter. Catheters are inserted into a small incision in the groin. A stent-graft is used to seal off the aneurysm, creating a new path for blood flow.

This type of repair is used to treat abdominal and descending thoracic aneurysms. The benefits of this type of repair include less blood loss, less trauma to the aorta, and a shorter recovery. Usually, you do not need to go to the ICU after the procedure.

What Happens After the Aneurysm is Repaired?

After your aneurysm is repaired, your doctor will recommend follow up visits and tests on a regular basis to monitor your aorta. This is to ensure that no new aneurysms have developed.

What is Congenital Heart Disease?

What are Tumors of the Heart?

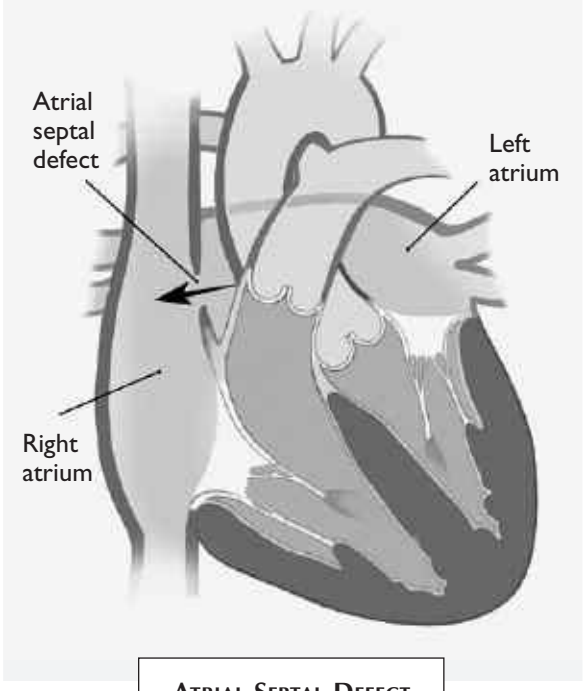
WHAT IS CONGENITAL HEART DISEASE?

Congenital (con-GEN-it-al) heart disease means that you are born with a heart condition. Often, these conditions are found at birth and fixed with surgery as a child. Other times, they are not fixed until the person is an adult.

What Happens to the Heart in Congenital Heart Disease?

The most common congenital heart condition is an opening in the wall between the left and right sides of the heart. If the opening is between the two upper chambers, the atria, it is called an atrial septal defect or ASD. If the opening is between the two lower chambers, the ventricles, it is called a ventricular septal defect or VSD.

ASD is the second most common congenital heart condition, which occurs twice as often in women as in men. An atrial septal defect (ASD) is classified by its size and location. The size of an ASD can range from small to large.



ATRIAL SEPTAL DEFECT

There are three major types of ASD. The type of ASD depends on where the defect is located on the septum:

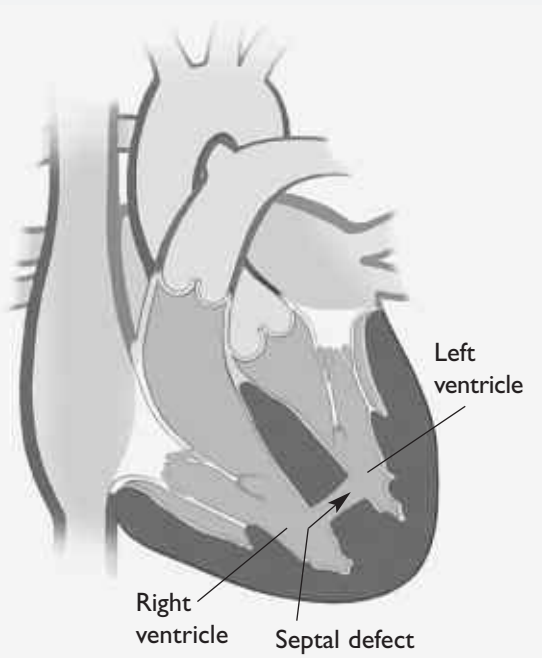
- **Secundum** (se-cund-um) This defect is in the middle of the septum. It is the most common form of ASD. This type often closes on its own, unless it is large.
- **Primum** (prim-um) This defect is in the lower part of the septum. It also involves an incomplete or partial septal defect. The valves that separate the upper and lower heart chambers are not normal. This type of defect does not close on its own.
- **Sinus venosus** (si-nus vin-O-sis) This defect is located in the upper part of the septum near a large vein that brings oxygen-poor blood from the upper body to the right atrium. It is rare, accounting for only about 1 out of every 10 cases of ASD. This type of defect does not close on its own.

What Happens If There is a Hole in the Wall of the Heart?

If you have a hole in the wall between the left and right side of your heart, the blood moves back and forth through the opening. This is not the normal way blood should flow. Many types of congenital heart conditions cause the heart to work harder than it should. This stresses the heart, causing the heart muscle to weaken and the heart to enlarge, and can lead to heart failure.

What are the Symptoms?

- Tiring easily
- Shortness of breath
- Bluish skin
- Irregular heart rhythm
- Decreased ability to exercise
- Chest pain
- Fainting
- Coughing
- Swelling in your ankles and/or feet



VENTRICULAR SEPTAL DEFECT

How Does Your Doctor Discover Congenital Heart Disease?

A congenital heart condition can sometimes be found during a routine checkup with your doctor. When your doctor listens to your heart and lungs with a stethoscope, she or he may hear a heart murmur. If a heart murmur is heard, your doctor may order more tests.

- **Quantitative Perfusion Lung Scan** is a type of scan that checks right- and left-sided blood flow to check for congenital defects in the heart.
- **Chest X-ray** is a picture of your heart and lungs. Your doctor can see if your heart is enlarged or has other abnormalities.
- **Electrocardiogram** may show irregular beats or any changes in your heart muscle.
- **Cardiac Catheterization** is an x-ray that uses dye to see how well your heart is working and if there are any defects.
- **Echocardiogram** can show if the heart is not pumping well.

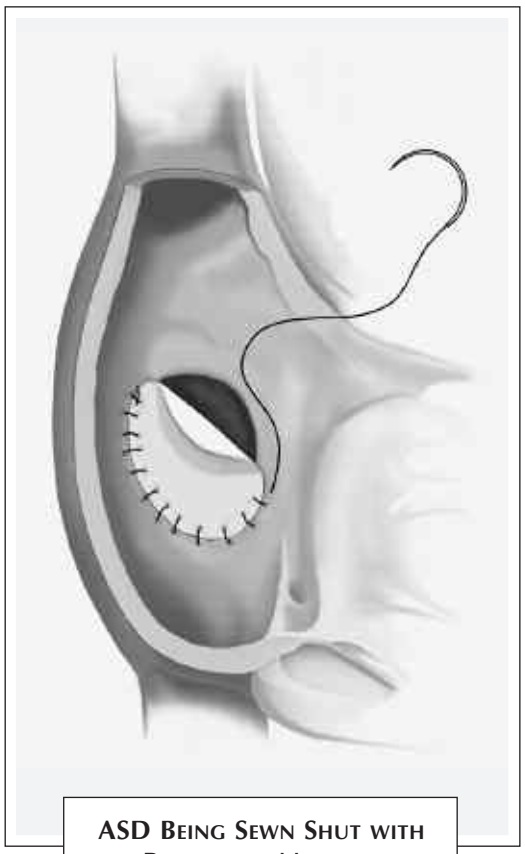
For more information about tests, look in the "Diagnostic Tests" Section of this booklet.

How is Congential Heart Disease Treated?

The surgeon may use a special patch or stitches to close the hole in the wall between the left and right side of your heart.

Incisions for Congenital Heart Disease Repair

- **Sternotomy:**
  An incision is made down the center of your chest separating your breastbone.
- **Ministernotomy:**
  A 3-inch incision is made in your breastbone; **sometimes called minimally invasive surgery.**



ASD BEING SEWN SHUT WITH PROSTHETIC MATERIAL

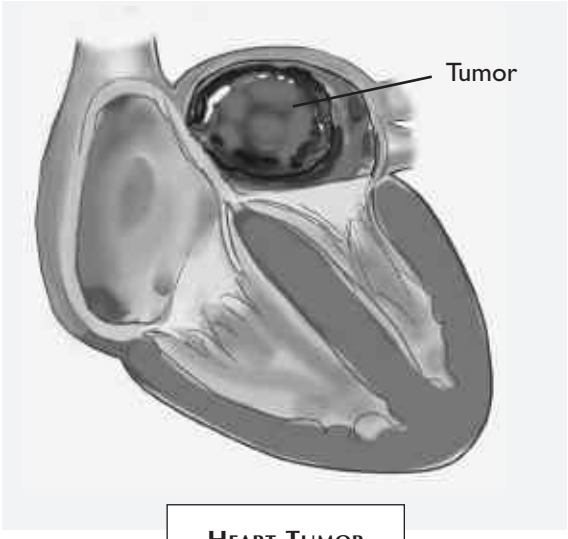
WHAT ARE TUMORS OF THE HEART?

Tumors can occur in the heart. The most common one is called an "atrial myxoma," which accounts for 40-50% of primary cardiac tumors. This kind of tumor is most often found in the left atrium. Most atrial myxomas are benign. Myxomas are more common in women. About 10% of myxomas are hereditary, meaning it is passed down through families.

What are the Symptoms?

If there is a heart tumor, some of the symptoms a patient may have are:

- Shortness of breath
- Chest pain or tightness
- Feeling of a rapid heart rate
- Small stroke
- Dizziness
- Fainting
- Fatigue



HEART TUMOR

How does Your Doctor Discover a Heart Tumor?

- **Listening to your heart** with a stethoscope, your doctor may hear an abnormal heart sound or a murmur.
- **Chest x-ray**
- **Echocardiogram**
- **MRI**

How is a Heart Tumor Treated?

Surgery is recommended to remove the tumor as soon as it is found because small clots called "emboli" can break off and cause a stroke. The incisions for this surgery are similar to those for heart valve repair or replacement surgery.

"When preparing for surgery, it's just as important to prepare yourself emotionally as it is to prepare in other ways. Learning about the surgery and about what to expect during your hospitalization is one way to alleviate anxiety. There are ways you can positively impact your recovery, such as relaxation techniques, yoga, reading, listening to music, or spending time with your loved ones."

Suellen Breakey

Preparing for Surgery

PREPARING FOR SURGERY

Up to two weeks before your surgery, you will have an appointment for a preoperative evaluation. This appointment can take up to 4 hours. You may want to bring something to read or do.

Preoperative Evaluation

A nurse practitioner will ask you about your medical history and you will have several tests done as well.

Your visit will include:

- Physical exam
- Chest x-ray
- ECG (Electrocardiogram)
- Blood work

If you have had these tests at other locations, please bring all your x-rays, ECG and test results with you.

Smoking

If you smoke, **STOP**.

Smoking increases your chances of having complications such as pneumonia after surgery. Ask your doctor or nurse for information and medicine to help you quit.

If you want assistance to quit smoking, call the Brigham & Women's Hospital

Quit Smoking Program

☎ 617-732-9694

or visit the website at

www.brighamandwomens.org/quitsmoking

Blood Donor Center

You may be able to donate blood for your own use in case you need it during or after your surgery. This is called "autologous" blood donation—meaning it is your own blood. Your cardiac surgeon can tell you if you are able to donate blood. If you cannot donate blood because of your medical condition, your family and friends may donate blood for you.

TO DONATE BLOOD, please contact the Brigham and Women's Hospital Blood Donor Center to make an appointment at least 2 to 3 weeks before your surgery.
☎ 617-732-6912

Advance Care Directives

There are two types of advance care directives: a healthcare proxy and a living will.

A healthcare proxy is a form that allows you to choose a person who will make healthcare decisions for you if you are unable to make decisions for yourself. This person is someone you trust and who knows the treatment choices you would make for yourself.

Be sure to ask the person if they are willing to be your healthcare proxy.

A living will is a written guideline that states the medical care you would want to receive if you became sick and were not going to get better. In addition to completing a living will, it is important to talk to your doctors and family about the treatments you would prefer if you were unable to make your own health care decisions.

Every patient will be asked if he or she has a healthcare proxy or a living will.

IF YOU HAVE . . .
a living will or a healthcare proxy, **bring copies of these forms with you.**

IF YOU DO NOT HAVE . . .
a healthcare proxy or a living will, these forms will be available for you to fill out at Brigham and Women's Hospital.

Medications

At your appointment for preoperative evaluation, a nurse will ask you for a list of your medications. It is important to let us know if you are taking herbal supplements, vitamins or over-the-counter medicines like Aleve or Motrin.

Coumadin (warfarin)
If you are taking Coumadin (warfarin), you may be told to stop taking this medication three days before your surgery.

My Coumadin Instructions:

_____

Plavix
If you are taking Plavix, call the Cardiac Surgery office to set up a plan to stop Plavix before your surgery.
☎ 617-732-7678

My Plan to Stop Plavix:

_____

Insulin
If you have diabetes, the nurse practitioner at your preoperative evaluation will give you instructions about taking your insulin the day of your surgery.

My Insulin Instructions

_____

ACE Inhibitors
Call the Cardiac Surgery office to set up a plan to stop this medication before surgery:

- ❑ benazepril (lotensin)
- ❑ captopril (capoten)
- ❑ enalapril (vasotec)
- ❑ fosinopril (monopril)
- ❑ lisinopril (zestril/prinivil)
- ❑ moexipril (univasc)
- ❑ perindopril (aceon)
- ❑ quinapril (accupril)
- ❑ ramipril (altace)
- ❑ trandolapril (mavik)

❑ **other ACE inhibitor** _____

Surgery Confirmation

One business day before your surgery, call the Cardiac Surgery office to confirm the time of your surgery and the time you should arrive at the hospital on the day of your surgery. If your surgery is scheduled on a Monday, call to confirm on the Friday before.

☎ 617-732-7678
Call the Cardiac Surgery office by 4:30 pm.

My Surgery

Date: _____

Time: _____

Arrival Time: _____

The Night Before Your Surgery

Food and Drink
The night before your surgery, do not eat or drink anything after 12:00 midnight. This helps decrease side effects of the anesthesia.

On the Day of Your Surgery

Medication
If you are taking any medications, you may not need to take all of them on the day of your surgery. **You should only take those medications that your surgeon or nurse practitioner at the Weiner Center tells you to take.** On the day of surgery, take your medications with only a small amount of water.

Arrive at the Hospital
Please arrive 2 hours before your surgery time. Enter the hospital at the 75 Francis Street entrance. Go to the Scharf Admitting Office located next to the information desk.

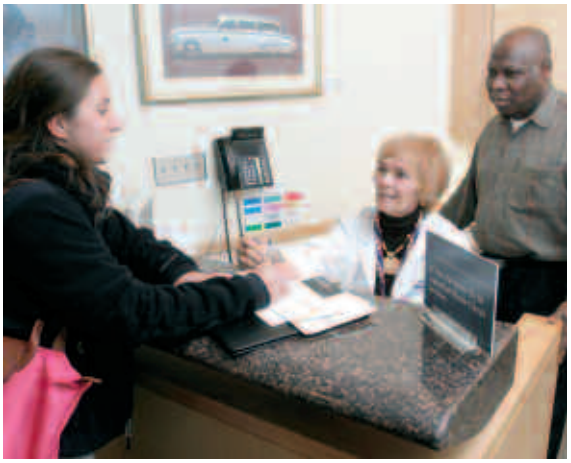
Before Your Surgery
You may be brought to a pre-operative holding area outside the operating room for a few hours before surgery.

An intravenous line (IV) will be placed in your arm. The IV will be used to give you medication and fluids during your surgery. We will also connect you to a monitor so we can check your heart and blood pressure.

The surgical team will greet you and ask you questions that you may have already answered. This is to make sure our information about you is correct. They can answer any questions you may have.

Leave valuables at home such as money, jewelry (including wedding bands), and your cell phone.

Make sure you remove these items and leave them at home.



Your Surgery

Doctors and nurses are always with you. They will explain what is happening or what they are doing. Feel free to ask any questions you may have. In the operating room, you will be given medication to make you sleepy. A breathing tube and a urinary catheter will be inserted. Special IVs will be placed in your arms and neck to monitor your heart and blood pressure.

Some Relaxation Techniques …..
If you are interested in listening to music or special tapes to help you relax, bring a walkman or iPod, batteries, and your favorite music selections. Ask the nurse about listening to your own music or tapes.

Shapiro Family Center

During your cardiac surgery, your family and friends can wait either in the hospital or at home. If they wish to wait in the hospital, they can wait in the Shapiro Family Center. If they would like to wait at home, please have them leave a phone number with your cardiac surgeon's office.

The Family Liaison staff are available to assist those who are waiting. They can check on the progress of the surgery. If your family would like to leave the hospital, they can leave a cell phone number with the staff. Pagers are also available for your family to carry.

Mind-Body Techniques
Prepare for Surgery,
Heal Faster Workshop
by Virginia Lieblein
(978-443-3904 to schedule a workshop)

Peggy Huddleston is the author of
Prepare for Surgery, Heal Faster:
A Guide of Mind-Body Techmiques.
Web site is www.healfaster.com

Please remind your family to let us know where they will be waiting.

After Your Surgery

Immediately after the surgery, your cardiac surgeon will call or come to the Shapiro Family Center to talk with your family and inform them of your progress. Your loved ones will be able to visit once you are settled in the unit. It may be up to an hour after the surgery before your family will be able to visit you.

Your family can wait in the intensive care unit (ICU) family/visitors lounge.

Meanwhile, you will be brought to the ICU. During this time, the nursing staff will be caring for you and doing tests ordered by your surgeon.

Your family can use the phone in the ICU family/visitors lounge to call into the ICU to find out how long it will be before they can visit you. The number to call is posted next to the phone.

Call the ICU from the family/visitors lounge

Brigham and Women's Hospital is a sponsor of CaringBridge, a non-profit, free on-line service developed to keep friends and family connected when a loved one is receiving medical care. Through this service, families and patients may communicate messages, write journal entries and display photographs through a personal CaringBridge website. Visitors who have been provided the Web addresses can remain up-to-date on their loved ones' conditions and write their own messages of support and encouragement. For more information, contact Patient/Family Relations at 617-732-6636 or visit www.caringbridge.org

Carl J. and Ruth Shapiro Cardiovascular Center

The Shapiro Center is located on Francis Street across from the Hospital's main entrance. The two buildings are connected through two lower levels and a transparent glass bridge over Francis Street.

It is one of the most advanced cardiovascular care facilities in the world for patients and their families. The philosophy of patient and family focused care was a major force behind the design of the Center. Here the staff understands that the active presence of a family member or loved one can be an essential part of a patient's recovery.

Visitors are asked to be respectful of directions from the staff as they must be able to remain focused on patient care at all times in order to provide the highest quality and safest care possible to the patient. Your visitors may be asked to leave your room at any time to support patient care. There are comfortable family rooms available for those occasions.

Listed next are some important guidelines for family and friends visiting at the Shapiro Center.

Guidelines for Visiting and Overnight Stays

- One support person may stay overnight in the patient's room. He or she must be at least 18 years old, able to care for themselves, and free of any illness or infection.
- Overnight visitors must manage their own personal needs and belongings; toiletries can be purchased at the gift shop, and food can be purchased at the hospital cafeteria or other cafes. (For a listing of local eateries or shops, please call Patient/Family Relations at 617-732-6636.)
- Appropriate clothing/sleepwear and shoes must be worn at all times in and outside of the patient's room, as this is also a work environment for hospital staff.
- This is a fragrance-free environment. Visitors should avoid using products with scents before and during the visit.
- The patient's bathroom and shower may not always be available for visitor use. Please check with the nurse daily for the best time to shower, and remember to lock the door when using the bathroom or shower.
- Please use the bed linens in the sofa drawer to make up the bed. Place bed linens in the sofa drawer for reuse or in the laundry hamper each morning.
- Please keep personal items neat and away from the patient care area. For storage of large luggage, contact Patient/Family Relations at 617-732-6636.
- There are refrigerators in the nourishment stations to store personal food items. Please place the food in a plastic bag (provided) and label it with name and date. Food will be discarded after 24 hrs. Food may not be stored in the patient's room.
- The patient will need care during the night; staff will need to turn on lights to assess the patient and provide care. We understand that this may interrupt sleep. Many families choose to sleep at home or a local hotel so they are well rested.
- For patient safety, please never touch medical equipment and keep 3-4 feet away from medical equipment when using cell phones.
- Quiet is important for healing. Please speak quietly, keep TV volume low, and place cell phones on silent or vibrate.

In the ICU

YOUR ICU TEAM

Director of the ICU — An attending physician who oversees the care of all cardiac patients in the ICU.

Attending Physician/Surgeon — A doctor responsible for your care while you are in the ICU. Your attending physician will see you daily to examine you, to discuss your progress, and to notify you of any plans for tests or changes in your treatment.

House Staff — Doctors-in-training who work in a team and are supervised by your attending physician. They include Fellows, Residents, Interns and Medical Students from Harvard Medical School. House staff will visit you daily as part of their rounds.

ICU Nursing Staff — Nurses with special training who will care for you throughout your stay in the ICU. She or he will make sure that you receive the appropriate medications, any medical treatments your require (such as dressing changes), and the diagnostic tests ordered by your physicians.

Intensivists Staff — Doctors who specialize in Critical Care. They will work closely with your surgeon to provide the best quality of care while you are in the ICU.

IN THE ICU (INTENSIVE CARE UNIT)

From the operating room, you will go directly to the ICU to recover from your surgery. In the ICU, you will be cared for by a team of doctor and nurses who specialize in the care of cardiac surgery patients.

How Long You Will Stay in the ICU

In most cases, you will be in the ICU for 1 to 2 days. You will be moved to the step-down unit when your team of doctors and nurses feels you are ready.

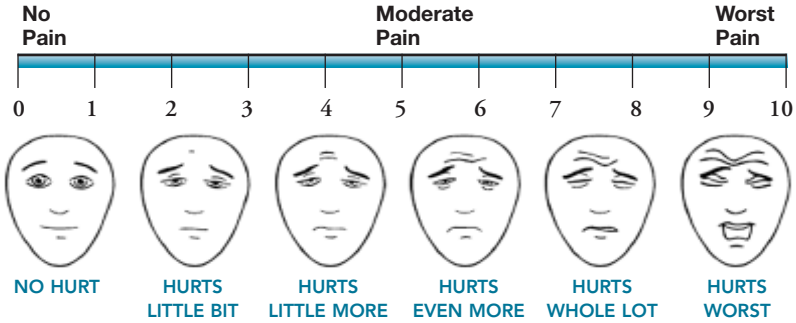
How You May Feel and What You May Hear in the ICU

- You will hear sounds and alarms from the machines. Your nurse knows what the sounds mean and will be listening to them carefully.
- You may feel confused and drift in and out of sleep. This is normal and is due to the anesthesia and pain medication.
- You will have many tubes and intravenous lines (IVs) in place including a breathing tube in your throat.
- Sometimes wrist restraints are necessary to keep you safe while the breathing tube is in place.

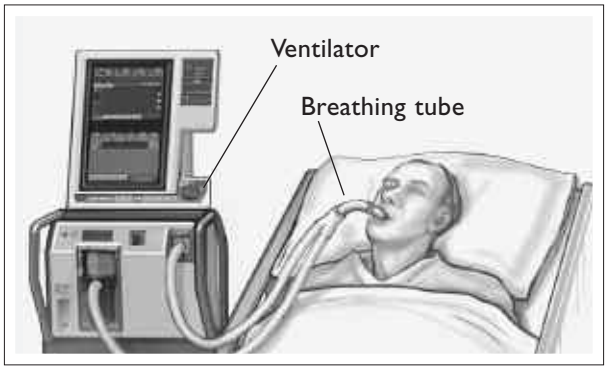
Pain Management

It is normal to have some pain after surgery. We want you to be as comfortable as possible. Your nurse will give you medication for your pain.

You will be asked to rate your pain using a 0-to-10 pain scale. Zero means no pain. Ten means the worst pain.



Tell your nurse if you have any pain or discomfort so he or she can give you pain medication. Do not wait until it gets bad before asking for medication. It is important to take pain medication to decrease your pain so you can do activities. It is normal to have more pain the day after surgery as you increase your activity. It is important to cough, take deep breaths and move around to help you recover.



Tubes & Monitors

Breathing Tube

You will have a breathing tube in your throat when you wake up. It will be connected to a machine called a ventilator that is helping you breathe and giving you oxygen.

You will not be able to talk, but you will be able to communicate with your nurse and your family by nodding yes or no. You should not try to talk because it will make your throat sore. The breathing tube will come out as soon as you are breathing safely on your own. This is usually within the first day.

Deep Breathing and Coughing
Your nurse will give you a "cough pillow." This is a heart-shaped pillow that you hug against your chest incision while you take deep breaths and cough. The pillow helps protect your incision and decreases your pain. Deep breathing and coughing will help open your lungs fully and clear congestion. This will help prevent pneumonia.

Monitors
The monitors help your nurse watch the pressures in your heart and your heart rate. You will have ECG (electrocardiogram) wires and special IVs in your wrist, neck or groin that connect you to monitors.

Intra-aortic Balloon Pump
This mechanical device is commonly used in heart surgery to increase blood flow and oxygen to your heart when your heart has been weakened by heart disease or surgery. The device may stay in place for 1 to 2 days or until your heart becomes stronger and is able to pump on its own.

Chest Tubes
You will have 2 to 4 chest tubes at the bottom of your chest incision to drain blood and fluid from the area around your heart and lungs. These tubes will help to re-expand your lungs. The tubes will come out in 2 to 4 days when the drainage decreases. Removal of the chest tubes are performed at the bedside. You may receive pain medication before removal of the tubes.

Catheter
You will have a catheter inserted into your bladder to drain your urine. During this time, you will not need to worry about using the urinal or bedpan. The catheter will be in for 1 to 2 days.

Recovering in the ICU

Pneumoboots
Pneumoboots are cloth sleeves applied to your legs and connected to a machine as soon as you arrive in the ICU. They help circulate the blood and prevent blood clots. They will be removed as soon as you transfer to the step-down unit.

Blood Sugar Checks
The stress of surgery can make your blood sugar go up even if you do not have diabetes. Studies have shown that keeping your blood sugar level less than150 significantly reduces your chance of getting an infection and having other complications.

While you are in the ICU, the nurse will be checking your blood sugar levels. Depending on your blood sugar levels, you may need to take insulin.

Diet

- After the breathing tube comes out and your stomach wakes up, you may be able to start slowly drinking and eating.
- At first you will only be allowed to have a few ice chips and then some sips of water or juice. Your mouth may feel very dry from the medications used during your surgery. You may feel hungry and want to eat and drink right away, but your stomach will not be ready for food. If you try to eat or drink too soon, you may have an upset stomach.
- Once you begin to pass gas (a sign that your stomach is waking up), you will be able to progress to a regular diet.
- If the doctors are concerned about your swallowing or you are over 80 years old, you may need to have a special test. This test checks if you can swallow normally, without food and liquids getting into your lungs.

Activity

- While you are in bed, your nurse will change your position about every two hours. This helps prevent skin redness and skin sores.
- As soon as you wake up, the nurse will remind you to wiggle your toes and move your feet up and down, like you are pushing on a gas pedal in your car. This helps to prevent blood clots from forming in your legs.
- As early as the first day after your surgery, your nurse will help you sit on the edge of the bed or get out of bed and into a chair.
- Little by little, you will increase your activity. You will walk 3 to 4 times a day with your nurse or patient care assistant until you are strong enough to walk independently. It is important to try to do a little more activity each day.

YOUR STEP DOWN TEAM

PAs — Physician Assistants will be the primary medical provider when you are in the step down unit. They will manage your care with your surgeon's supervision.

Nursing Staff — Nurses will continue to care for you during your stay in the step-down unit. Your nurse will also teach you skills you will need to know to prepare for discharge. You can contact your nurse by pressing the call button attached to your bed.

Care Coordination Staff — Nurses will assist in your care while you are in the hospital and will help coordinate arrangements when it is time for discharge planning. They can help arrange home care or, if necessary, help you or your family select an appropriate rehabilitation or skilled nursing facility. Social workers are available to help you with other issues, including your emotional needs and access to support services.

Patient Care Assistant (PCA) — The patient care staff will assist your nurse in providing your daily care. He or she may help with bathing, taking vital signs, or taking you to and from your tests.

AFTER THE ICU

AFTER THE ICU

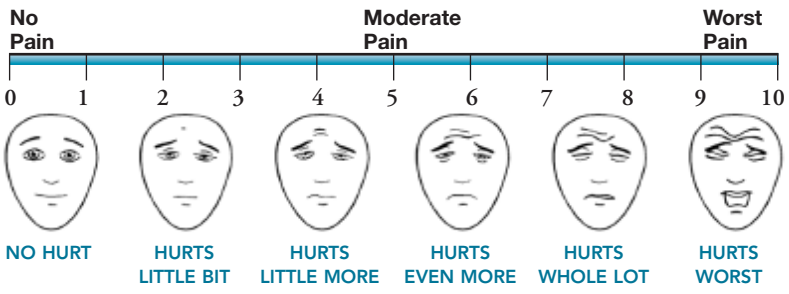
After the ICU, you will go to the step-down unit until you leave the hospital. On the step-down unit, our team will continue to help you recover from cardiac surgery and prepare you and your family for going home.

How You May Feel

- You may be tired or weaker than usual. Simple tasks may be very tiring.
- It is normal to be forgetful or to have trouble concentrating while reading or watching television.
- You may have difficulty sleeping in the hospital environment. You will likely be taking lots of naps, which also makes you less tired at night. Most people sleep better when they return to their own sleep routines at home.

Pain Management

- It is normal to have pain during the first few days. It will get a little better each day.
- It is important to take pain medication when you begin to feel pain and to use your cough pillow to deep breathe and cough. Please ask your nurse for medication when you start to feel uncomfortable. He or she will ask you to rate your pain using a 0-10 scale and will then give you the medication that will work best for you.
- It is also helpful to take pain medication before you walk and at bedtime.



Treatments You Will Have

- **Deep Breathing and Coughing**

Your nurse will give you a "cough pillow." This is a heart-shaped pillow that you hug against your chest incision while you take deep breaths and cough. The pillow helps protect your incision and decrease your pain. Deep breathing and coughing will help open your lungs fully and clear the congestion, which will help prevent pneumonia.

- **Chest Physical Therapy**

Your nurse will tap on your back to help your lungs expand and clear any mucus. This is called chest physical therapy and it is important to do while you are not moving around.

- **Elastic Stockings/Ace Wraps**

If you have had a CABG, you will have Ace wraps on your legs for 48 hours. These help to reduce swelling and improve the circulation in your legs. Elastic stockings will be applied after 48 hours.

- **Heart Monitor**

This monitor helps your nurse watch your heart rate and rhythm. It is a small box that runs on batteries with wires that are attached to your chest. You will carry it in the front pocket of your johnnie.

- **Pacemaker Wires**

You will have wires placed on your heart that can be hooked up to a pacemaker if it is needed. A physician's assistant will take them out 2 to 4 days after surgery.

- **Chest Tubes**

Chest tubes will help drain fluid from around your heart and lungs. A physician's assistant will take them out once the drainage has decreased, usually in 2 to 4 days.

- **Catheter**

A tube called a catheter will drain the urine from your bladder into a bag. Your nurse will take out the catheter 1 to 2 days after surgery.

If you hear a clicking noise after coughing, tell your nurse.

Deep breathing and coughing

- **IVs**

A large IV will be in your neck that will be taken out by your nurse in 1 to 2 days. You will also have a smaller IV in your arm until the day you go home.

- **Dressing Changes**

You will have dressings covering your incisions for 1 to 2 days. Your nurse will change the dressings every day.

You may also have Dermabond glue covering your chest incision. Wash your incision gently to remove the glue as it begins to peel.

Tests You Will Have Every Day

- **Chest X-ray** will be done to look at your heart and lungs.
- **ECG** will be done to monitor your heart rhythm.
- **Blood** will be taken to monitor your blood levels.
- **Blood Sugar Checks** will continue. The nurse or patient care assistant will do a finger stick to get a small drop of blood for the blood sugar test.

Diet

Your food in the hospital may be low in salt, fat and sugar. It may taste different than what you are used to eating at home. You may also be asked to limit the amount of liquids that you drink. It is very normal if you do not feel like eating big meals for about two weeks after surgery. Plan to eat many small snack-size meals until your appetite returns.

If you have questions about what you can eat, ask your nurse to have the nutritionist talk with you. The nutritionist can help you choose heart-healthy foods.

Activity

- You will continue to do your ankle exercises. Pump your feet up and down like you are pressing on the gas pedal in your car. Next, move your feet in small circles.
- You will get up to sit in a chair for each meal. You may need assistance from a nurse or patient care assistant.
- You will walk 3 to 4 times a day with a nurse or patient care assistant until you are strong enough to walk independently.
- If you have stairs at home, you may climb the stairs on our unit with your nurse or physical therapist. If you go to a rehabilitation facility, you will increase your walking and climb stairs there.

Self Care

- **Bathing**
  You will get washed and brush your teeth in your bed or chair. Once all of the tubes or wires have been removed, you will shower daily.

  A nurse or patient care assistant will help you with your first shower. You may feel weak. A chair will be placed in the shower.

Discharge Teaching Classes

We offer discharge classes every day to help prepare you and your family to leave the hospital. The Patient/Family Educator for the Shapiro Cardiovascular Center teaches the classes. It is important for you and your family to go to the class. The class will help you understand what you will need to do when you leave the hospital.

Refer to the monthly calendar for patient education classes posted in your room.

Questions to ask

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Ask your nurse for educational reading materials and videos about your condition.

Care Coordinator

Your care coordinator is a nurse who specializes in discharge planning. He or she will help you and your family decide the best plan for you when you leave the hospital.

- **Going Home**
  If you go home directly after your hospital stay, the care coordinator nurse will make plans for a visiting nurse to visit your home.
- **Rehabilitation**
  Some people need more time to increase their strength before returning home. If necessary, the care coordinator nurse will make arrangements for you to go to a rehabilitation facility. This is called "rehab."

Important to Know…

Most people go home after cardiac surgery. A rehabilitation stay is arranged only if you have medical needs and require extra time to increase your strength. To be approved for a rehabilitation facility, you must meet criteria set by Medicare or your insurance company. It is not the doctor's decision and it does not depend on your home situation.

If you have Medicare you will be able to choose where you want to go to rehab.

If you have insurance other than Medicare, such as managed care, you will need to go to one of their preferred facilities.

You will be approved to go to a rehab if

- the insurance company approves the stay
  AND
- the rehab accepts you based upon certain criteria for their facility.

Getting More Information

Bretholtz Center – Kessler Library
While you are in the hospital, your family members can get more health information at our patient and family library in the Bretholtz Center. It is located in the main lobby of 75 Francis Street behind the information desk.

Example of Daily Schedule

EXAMPLE OF DAILY SCHEDULE

This timeline is an example of your plan.

	STEP DOWN DAY 1	STEP DOWN DAY 2
Things you need to do	• Cough and deep breathe with your cough pillow every two hours while you are awake. • Ask for pain medication so you can cough and move more comfortably. • Pump your ankles every hour while you are awake.	• Cough and deep breathe with your cough pillow every two hours while you are awake. • Ask for pain medication so you can cough and move more comfortably. • Pump your ankles every hour while you are awake. • Participate in your bath and moving in bed. • Read the **"After ICU"** section and the items in your patient education folder. • Ask a family member or support person to come in and review teaching and discharge planning with the healthcare team.
Activities	**With the help of** your nurse, patient care assistant or physical therapist: • Sit in a chair at least once today. • Walk in your room.	**With the help of** your nurse, patient care assistant or physical therapist: • Get into the chair for all meals. • Walk around the unit at least three times today. • Bathe yourself and brush your teeth.
Preparing for discharge	• Congratulations, you have transferred out of the ICU.	• Members of our cardiac surgical team will review your discharge needs with you. • If you are going home, plans will be made for a visiting nurse. • If you are going to a rehabilitation facility, someone from one or more rehabilitation facilities will come and see you. The staff from each facility will check to see if your medical needs and insurance coverage meets their criteria.

	STEP DOWN DAY 3	STEP DOWN DAY 4 UNTIL DISCHARGE
Things you need to do	• Ask for pain medicine so you can increase your activity. • Review the medications you will be taking at home. • Read through the **"Going Home"** section of your book and talk with your primary caregiver at home. **Ask your nurse questions!**	• Ask for pain medicine so you can increase your activity. • Review the medications you will be taking at home. • Read the **"Going Home"** section of your book and talk about it with your primary caregiver at home. **Ask your nurse questions!** • Go to the discharge class (if you haven't already). Bring a family member with you.
Activities	• Sit in the chair for all meals. • Walk around the unit at least four times today. • **Your nurse will let you know whether you still need help walking.**	• Sit in the chair for all meals today. • Walk around the unit at least four times today. • Climb one flight of stairs **today with help**. • **Take a shower with assistance.**
Preparing for discharge	• The cardiac surgical team will work with you and your family member or support person to plan for your discharge.	• Final details about where you are going after discharge will be confirmed. • Make arrangements for a ride home after discharge. • Review all educational material and ask questions. Be sure that you understand: ❒ your medications ❒ incision care ❒ activity progression ❒ diet ❒ danger signs ❒ reasons to call your doctor ❒ who to call for follow-up appointments

	DISCHARGE DAY
Things you need to do	❒ Ask any questions you may have about your care after discharge. ❒ Medications will be reviewed and prescriptions will be given. ❒ Discharge instructions and follow up appointments will be reviewed. ❒ Take discharge paperwork and booklet with you. ❒ Make appointments as soon as you get home.
Activities	❒ Walk around the unit at least four times a day.
Treatments	Before you go home, you may need to wait for blood tests and chest x-ray results. Remind the nurse to remove: • Heart monitor • IVs • Any remaining stitches • Staples
Preparing for discharge	❒ Ask a family member or friend to arrive at 9 a.m. to review final discharge instructions. ❒ Leave your room at approximately 10 a.m. for home or rehab. If your ride has not yet arrived, we may ask you to wait in the discharge lounge. The discharge lounge is a comfortable waiting area where you can wait for your family. ❒ The visiting nurse agency will call you at home to schedule their visits. The number of visits you receive depends on your medical needs and your insurance coverage.

At Home

AT HOME

What to Expect at Home

Healing and recovery from your surgery may take up to three months.

The day after you get home, a visiting nurse will contact you to make an appointment for your first home visit. During your appointment at home, the visiting nurse may:

- Check your blood pressure, pulse, and lungs
- Check your incisions
- Draw blood if necessary
- Review your medications
- Review your activity schedule
- Review your weight and temperature log

Managing Your Pain

It is normal to have some discomfort, itching or numbness along your incision. Medications like ibuprofen (Advil, Motrin) or acetaminophen (Tylenol) are usually the best choice for pain relief. If you need something stronger, you may be sent home with a prescription pain medicine. In this case, check with your nurse if you have concerns.

If you have had angina pain before your surgery, you should not have this type of pain in your chest after surgery.

Visiting nurse

Keeping Your Weight and Temperature Log

- Weigh yourself once a day
- Take your temperature twice a day
- Record these numbers in your log

WEIGHT CALENDAR

PATIENT

Date	Temperature / Time	Temperature / Time	Weight

(An example of the log in the back of this book)

Caring for Your Incisions

It is normal to have a small amount of swelling at the top of the chest incision. You may feel a hard ridge along the borders of the incision.

If you had a vein removed from your leg, you may notice some bruising, swelling and/or bumps along your incisions. If you had an artery removed from your arm, you may notice some bruising, swelling and slight numbness. These will go away with time. The incisions will fade over the next 6 to 12 months.

What Should Your Incision Look Like?

NORMAL SYMPTOMS:	SIGNS TO CALL THE CARDIAC SURGEON:
• A little redness and soreness along the incision sites • No drainage at the incision sites • Swelling at the top of the chest incision • A hard ridge along the borders of the chest incision	• Increased redness or warmth at the incision sites • Any drainage at the incisions sites • Increased swelling along the incision sites • Increased pain along the incision sites • Any opening along the incisions • If you have a fever of 100.5 or higher

What Should I Do to Care for My Incisions?

- Look at your incisions every day. Use a mirror or have someone else look for you.
- Clean the incisions in the shower daily with mild soap and water.
- Gently remove the dermabond glue as it begins to peel from your chest incision
- Dry your incisions completely by gently patting instead of rubbing.
- Do not apply ointments, lotions, oils, salves, or dressings unless your doctor or nurse tells you to do so.
- Avoid direct sunlight to your incision site for one year. Use sunscreen whenever you need to be outside.
- Remember to take care of the incisions in your legs, arms and groin too. If you have an incision in your leg or arm, it is important to elevate your leg or arm while you are resting. This will help prevent swelling in your ankle, arm or leg and improve your circulation.

Women will need to wear a bra to help support the muscles around the breast and prevent pulling on the chest incision and muscles. When you wear a bra, place some padding, such as a clean bandage, over the incision area that comes in contact with the bra.

Your Activity: When and How to Restart Your Activities

Most people feel tired after they leave the hospital and return home. Even when you are told you can resume normal activities, you may not feel up to it. It is best to pace yourself as you return to your daily routine. The following activity limits are recommended to allow your breastbone and chest muscles time to heal. This usually takes up to 3 months.

Showering	You should shower every day. The water should not be too hot, which can cause you to faint. Gently wash with a mild soap and rinse with warm water.
Bathing	You can take a bath when the incision is healed. Showers are preferred.
Weigh yourself	• Weigh yourself at the same time every morning **before breakfast** and **write your weight down** in your log. *(Log is on last page of this book.)* • Call your cardiologist if you gain more than 2 lbs. in a day or 5 lbs. in a week.
Walking	The best exercise is walking. Start walking short distances every day. • Increase your distance by 5 minutes every day. • You can walk inside your house, in a large store, at a mall or outside. • Do not allow yourself to become fatigued or overtired. Take short naps during the day.
Sitting	Elevate your legs on a foot stool whenever you are sitting.
Elastic Stockings	• Elastic stockings help to prevent blood clots and decrease leg swelling. • **Coronary Artery Bypass Graft (CABG) patients should wear elastic stockings during the day for 4 to 6 weeks.** They may be removed at night. • Have someone put the stockings on for you. This type of pulling will put too much pressure on your breastbone if you pull them on yourself. It is easier to put them on when you are lying down.
Climbing Stairs	• You can climb stairs. Go slowly, hold the railing and stop on the stairs if you need to rest. • At first, limit climbing to once up and once down until you feel stronger.

Lifting	• **Do not lift more than ten pounds (such as a gallon of milk) for 3 months.** • Avoid doing activities that require lifting both arms over your head at the same time. • Do not do exercises that use your upper body and will pull on your breastbone, such as lifting weights, swimming, tennis, skiing, rowing or golf for three months.
Driving	• **Do not drive for 3 to 4 weeks.** • If you have had minimally invasive surgery, you can drive at 3 weeks. • You should not be in the front seat of the car if airbags are in use. • Always wear your safety belt. Place a small pillow between your chest incision site and the strap crossing your chest.
Work	• Returning to work depends on the type of work you do. This should be discussed at your first follow up visit with your doctor. • Return to light physical work if you feel up to it 4 to 6 weeks after surgery. • Return to work that involves heavy lifting after 3 months.
Sex	• You may have sex when you feel up to it. • It takes the same amount of energy to have sex as it does to climb two flights of stairs. • It is important to position yourself so that you are not putting pressure on your chest.
Travel	• When you are traveling long distances, take time to walk every hour. • If you are on a plane, get up and walk around every hour. If you are in a car, stop every hour to walk. • Do your foot exercises frequently.
Childcare	• Have children come to you and sit next to you rather than picking them up. • Have someone place a smaller child in your lap. Remember you should not lift more than 10 pounds during the first 3 months.
Constipation	Pain medication, iron pills, and decreased activity can cause constipation. Things that can help reduce constipation: • Take a stool softener like Colace (bisacodyl). • Increase your activity. • Eat more fiber like whole grains and vegetables.

Your Medications

When you go home, take only the medications that your **cardiac surgeon** has prescribed for you.

- **Do not stop taking** your medications unless one of your doctors tells you to stop.
- Have your prescriptions filled the day you are discharged and begin taking them as instructed.
- Before you run out of medication, have the prescriptions refilled by your **cardiologist** or **primary care physician**.
- If you miss a dose of your medications, **don't** take two doses the next time.
- Keep a list of medications or medication card in your wallet with the name and dose of each of your medications.

Know about your medications

- ➙ The name of the medication
- ➙ What it does and why you take it
- ➙ How much to take
- ➙ When and how to take it
- ➙ Side effects to watch out for

- **Notes:**

Coumadin (Warfarin)

Coumadin is a medication that prevents blood clots.

Dosage
The amount of Coumadin in your blood must be carefully monitored by taking a blood test called an INR. The visiting nurse, physician office or lab will take your blood to check your INR. **It is important to keep your appointment for this test.**

The amount of Coumadin you will take will depend on the results of your blood test. Your doctor or Anticoagulation Clinic will tell you how much to take each day and when to have your blood tested again.

To keep the Coumadin level even in your body, it is important to:

- Take the Coumadin at the same time each day.
- Avoid alcohol.
- Ask your doctor before you take any over-the-counter medications such as aspirin, cold medicine, vitamins or sleeping pills.
- Do not eat a lot more or a lot less of vitamin K-rich foods. Many foods are rich in vitamin K. Coumadin interacts with vitamin K in your body. (Examples of vitamin K-rich foods listed at right.)

☎ Call your doctor if you experience:

- A serious fall or you hit your head
- Excessive bruising on your skin
- Excessive bleeding such as nosebleeds or bleeding gums
- Blood in your urine or stool

Things you should do if you are on Coumadin

- Tell your dentist and physicians that you are taking Coumadin.
- Avoid activity or sports that may result in a severe injury.

Bracelet
You can obtain a medical alert bracelet for Coumadin. **Call 800-363-5985 or visit www.americanmedical-id.com for more information.**

Coumadin Self-Testing
Medicare and many insurance plans will pay for Coumadin self-testing machines for patients with mechanical heart valves. Check with your doctor or Anticoagulation Clinic that is following your blood tests. **For more information call 877-729-8350 or visit www.raytel.com/anticoag.htm.**

Vitamin K-rich foods

beef liver
pork liver
green tea
alfalfa
asparagus
broccoli
Brussels sprouts
cabbage
cauliflower
collard greens
kale
lettuce
spinach
turnip greens
watercress

Your Nutrition: Healthy-Heart Diet

After your surgery, you should eat three meals or six smaller meals a day. Eating a balanced diet will help your incisions to heal. For more information about changing your diet, ask your doctor to refer you to a qualified dietician.

Things to do:

- Read food labels to choose healthy products.
- Choose to eat foods that are:
  - low fat (avoid saturated fats and partially hydrogenated oils)
  - low salt or sodium (avoid canned and processed foods, ham, catsup, mustard, relish, chili sauce, soy sauce, salt)
  - low cholesterol (limit eggs, fatty meats)
  - high in fiber such as oats, beans, and fruit
  - low in sugar and carbohydrates if you have high blood sugar (avoid cakes, candies, pies, and other sweet desserts)
- Bake, broil or roast meats.
- Avoid fried foods.
- Try to use very little salt and butter.

Refer to the BWH Guide to Healthy Eating for more information.

What Emotions to Expect

It is normal to feel tired and weaker than usual after your surgery.

Be patient with yourself as you recover. Remember, you just had major surgery.

Things you can do to help yourself feel better

- Get up every day, take a shower and get dressed.
- Do as much of your normal routine as possible with frequent periods of rest.
- It will be important for you to get 6 to 8 hours of sleep every night.
- It is important after surgery to avoid stress.
- Talk to your friends. It is OK to feel mad or upset.

Cardiac Rehabilitation

Cardiac Rehabilitation (also called "Rehab") is a program that meets 3 times a week at various locations. You may join one of these programs after you leave the hospital. Ask your cardiologist at your post-op visit for a referral. You will need an evaluation including a stress test before you can sign up. Most insurance companies provide coverage for Cardiac Rehab.

Cardiac Rehab is recommended for patients who have had a heart attack, angioplasty, stents or cardiac surgery. Cardiac Rehab programs are located in many hospitals. You can go to a Cardiac Rehab at a hospital close to where you live. There you will find a team of nurses, doctors, dietitians, physical therapists and social workers to help you learn how to improve your health and feel better by decreasing your risk factors. Some risk factors include:

- Smoking
- High blood pressure
- Diabetes
- Family history of heart disease
- Obesity
- Stress
- Age
- Lack of exercise
- High cholesterol diet

You can learn what you can do to decrease your risk factors and live a healthy life and feel better.

Your Follow-up Appointments

- ☎ **Make your follow-up appointments as soon as you get home**

Cardiologist in 1-2 weeks	(date/time)
Primary Care Doctor in 1-2 weeks	(date/time)
Cardiac Surgeon in 2-6 weeks	(date/time)
Other Doctors	(date/time)

- **Bring your weight and temperature log to your follow-up appointments**
  - Weigh yourself every morning when you first wake up and write it down. **Call your Primary Care Doctor or Cardiologist if you gain more than 2 lbs in a day.**
  - Take your temperature twice a day and write it down. **Call your Cardiac Surgeon's office if you have a fever over 100.5 degrees.**

Your Weight and Temperature Log is on the last page of this book.

- **Danger Signs to Watch for:**

WHEN TO CALL	WHO TO CALL
• If you have a **fever of 100.5 or higher** • If you have **swelling, redness, oozing, pain or tenderness around the incision** • If your **incision opens** • If you have **chills, sweating, or fever** • If your **breast bone is clicking**	**Cardiac Surgeon** _____ Mon.– Fri. 8am to 5pm 617-732-7678
• If you **gain 2 pounds in a day or 5 pounds in a week** • If your **heart is beating too fast or too slow** • If you **feel dizzy getting up**	**PCP or Cardiologist** _____
• If you have chest pain or **angina pain in your arm, back, jaw or chest that is not related to your incisions** • If you have **chest pressure** • If you have sudden **shortness of breath while at rest**	**911**

To contact your Cardiac Surgeon after hours, 5pm to 8am on Monday–Friday and on weekends and holidays, call the cardiac surgery answering service at 617-732-6660. Your call will be directed to the Cardiac Surgery Fellow on call.

Frequently asked Questions

FREQUENTLY ASKED QUESTIONS

Your Next Appointment

When do I need to make my doctors' appointments?

You should make your appointments with all of your doctors as soon as you get home. We recommend you see:

- your Cardiologist within 2 weeks. Your cardiologist should adjust all of your medications. If you have questions about your medications when you return home, you should call your Cardiologist.
- your Primary Care Physician within 2 weeks (optional for some patients).
- your Cardiac Surgeon within 2 to 6 weeks. If you develop any problems with your incision, contact your Cardiac Surgeon's office.

Medications

How long do I take the medications I received from the hospital?

Take all the medications you receive when you are discharged. When the medications are finished, have your pharmacy refill them unless the bottle states to take the medication for only a certain number of days. For example, Lasix, Kdur and antibiotics may be medicines that you are instructed to take for a certain number of days.

Pain medications that are narcotics such as Oxycodone can only be refilled with a new prescription. Pain medications such as Ibuprofen and Tylenol give adequate pain control and are more commonly used.

Should I take my regular medication when I get home?

Do not take any medications that you might have taken before your surgery unless your doctor tells you to take them. This includes all over-the-counter medications.

Do I need to take a stool softener?

Yes, you should be taking a stool softener. Most patients are discharged on iron medication, which may cause constipation and black stools.

Incision Care

How do I care for my incisions at home?

You should take a shower every day and wash with a mild soap.
You may have one of the following dressings:

- **Dermabond**: Your chest incision may have Dermabond glue still in place. You may wash the incision gently and remove the glue as it begins to peel. All glue should be removed within 7 to 10 days.

You may also experience temporary numbness and burning along your incisions and some sensitivity if there is clothing touching your chest incision. This is due to swelling around the nerves in your incision area.

Activity

When can I resume exercising?

- Walking every day is a great way to exercise. Pace yourself, especially if your walk includes hills.
- Climbing stairs is okay. It's up to you how often you feel able to climb stairs.
- For the first 3 months, do **not** do activities that require the following repetitive movements:
  - putting your arms over your head
  - twisting
  - pulling
  - pushing

After 3 months you may resume any of your activities.

At your post-op appointment talk to your doctor about the activities you can do.

How long should I wait before I can lift anything heavy?

Do not lift, push, or pull anything over 10 pounds for 3 months from the date of your surgery. Your breastbone was closed with stainless steel wires and needs time to heal.

When can I resume sexual relations?

Resuming sexual activities can occur when you and your partner feel ready. If you can climb two flights of stairs without difficulty, you may be physically ready.

When can I return to work?

Most people feel ready to return to work either part-time or full-time after 6 weeks unless the job requires heavy lifting over 10 pounds. If you need a letter for your employer, please contact your Cardiac Surgeon's office.

When can I drive?

You may resume driving after 3 weeks if you had a "minimally" invasive operation. If you had the standard chest incision, you may resume driving after 4 weeks. You may wish to place a small towel or pillow between your chest and the seatbelt for comfort.

Sleeping

Is it normal to have trouble sleeping after surgery?

You may have trouble sleeping at night due to incision discomfort or because you are sleeping in a different position than you normally do. It may help you to take pain medication before you go to bed and to use additional pillows to prevent you from lying flat in bed. You can sleep in any position that is comfortable for you. Sleeping pills are not encouraged because they can be habit forming. It is not unusual to nap some during the day for the first few weeks, but limit naps if they interfere with sleeping at night.

Eating

Is it normal to lose your appetite after surgery?

After surgery, some patients lose their appetite or report that food doesn't taste good. You may experience a metallic taste in your mouth as well. Eat small frequent meals instead of three large meals a day. Remember to drink enough fluids to prevent dehydration. Once you begin eating a normal diet, it is important to limit your intake of fat, cholesterol, sodium, and sugar.

Feelings

Will I feel depressed after surgery?

Depression can be common when you first return home. You may feel you are not recovering fast enough. The best way to deal with these feelings is to talk about them with your family or friends. These feelings usually subside as you get back to doing your normal activities.

Other

Is it safe for me to have an MRI?

If you need an MRI for the evaluation of some other health problem, you can be assured that it is safe to have an MRI. The only time that you are not able to have an MRI is if you have a pacemaker, defibrillator, or pacing wires in place.

How do I manage other health conditions?

Be sure that you continue to see your primary care physician and cardiologist for the management of your ongoing medical problems. Some of your medications may have changed while in the hospital, but your primary care doctor will monitor you and make decisions about how to take care of you over the long term.

Glossary of Terms

GLOSSARY OF TERMS

This glossary includes some common terms that may apply to your specific surgical procedure and postoperative hospitalization course. Please review these terms before your surgery. If you need further clarification please ask your caregivers.

Arterial Line: This tube is also called an "A-line", and is placed in an artery of the wrist. The line is attached to tubing and is used to measure blood pressure or to draw blood tests.

Blood Tests: You may need blood taken for tests. This may be taken from a vein in your arm or drawn from special IV lines. It will be tested to see how your body is handling your illness.

Breathing Treatments: Breathing treatments are sometimes ordered to open your airways. Medicine is slowly breathed in by mask or mouthpiece and often followed by Chest PT.

Chest PT: You will receive this gentle tapping on your chest after surgery. Along with coughing and deep breathing exercises, it helps to keep your lungs clear.

Chest Tubes: These are tubes that are put into your chest during surgery. Chest tubes remove air, blood, or fluid from around your lung, and are connected to a drainage container.

Chest X-ray: This is a picture of your lungs and heart. After surgery you may have a daily chest x-ray taken either in your hospital room or in the radiology department. Caregivers may use the x-ray to look for signs of infection, pneumonia or collapsed lungs.

Consent Form: This is a legal piece of paper that gives your surgeon permission to do surgery and other related procedures while you are in the hospital. It tells exactly what will be done to you, and what risks are possible. Be sure all your questions have been answered before you sign this form.

Deep Breathing and Coughing Exercises: These breathing exercises help to prevent a lung infection after surgery. Deep breathing opens the airways going to your lungs. Coughing helps bring up sputum from your lungs.

Elastic Stockings: These tight elastic stockings keep blood from pooling in the legs and causing clots. They may also be called TED stockings.

Fluid Restriction: This is the total amount of fluid that you may take in a 24-hour period. It includes fluids that you drink by mouth and IV fluids. Fluid is restricted after surgery because too much fluid can be very stressful to the lungs.

Foley Catheter: This is a tube that is placed in your bladder to drain your urine. When the catheter is taken out, you can urinate on your own.

Heart Monitor: This is a machine that allows your caregivers to view the tracing of your heartbeat on a TV type screen. Your heart is being watched to make sure your body is making a good recovery from surgery.

Intra-aortic Balloon Pump: This is a circulatory assist device commonly used in heart surgery to increase the supply of oxygen and blood flow to your heart when your heart is too weak to do its normal work.

IV Line: An intravenous line is a tube that is placed in your vein for giving medicines or fluid. This tube can be capped or connected to tubing and fluid.

JP Drain: This small bulb-shaped drain may be placed by your surgeon during your operation. It will help to drain fluid from the wound.

Lumbar Drain: This is a drain placed in your lower back before your aneurysm surgery. It is used to decrease blood flow in your aorta as a means of decreasing neurological complications such as paraplegia.

NG Tube: This is also called a nasogastric tube. This tube may be put in your nose and down into your stomach. The tube is attached to suction to keep your stomach empty.

Oxygen by Mask or Nasal Prongs: You will receive extra oxygen through a mask or small prongs that enter your nostrils. Your caregivers will monitor your vital signs to determine how much oxygen your body requires while you are in the hospital.

Pneumoboots: These are sleeves surrounding the lower legs and connected to a machine which inflate and deflate with air to improve circulation and prevent blood clots.

Pulse Oximeter: This is a machine that tells how much oxygen is in your blood. This percentage of oxygen is known as oxygen saturation or "sat." A cord with a clip is attached to your finger, ear or toe.

Vital Signs: This includes taking your temperature, blood pressure, pulse and respirations (counting your breaths). Caregivers may also listen to your heart and lungs using a stethoscope. Your vital signs are taken so that your caregivers can see that you are making a good recovery from surgery.

CARDIOVASCULAR RESOURCES

CARDIOVASCULAR RESOURCES

Available in the Brigham and Women's Hospital
The Michele and Howard Kessler Health Education Library

Books

- An Arrow Through The Heart: One Woman's Story of Life, Love, and Surviving a Near-Fatal Heart Attack, Heffernan, Free Press, 2002
- Blood and Circulatory Disorders Sourcebook: Basic Information About Blood and Its Components, Bellenir, Omnigraphics, 1999
- Braunwald's Heart Disease, 2005
- CT of the Heart: Principles and Applications, Schoepf, Humana Press, 2005
- The Cardiac Recovery Handbook: The Complete Guide to Heart Disease and Recovery for Patients and Families, Kligfield, Hatherleigh Press, 2004
- Contemporary Diagnosis and Management of Acute Coronary Syndrome, Cannon, Handbooks in Health Care Co., 2006
- Diagnosis: Heart Disease, Farquhar, Norton, 2001
- Drugs for the Heart, Opie, WB Saunders & Co., 2001
- Enfermedades Cardiovasculares: Todo lo Que Necessita Saber, Auberti, Grupo Imaginador, 2003
- Essential Atlas of Heart Diseases, Braumwald, McGraw Hill, 2001
- The Female Heart: The Truth About Women and Heart Disease, Legato, Quill, 2000
- Get Rid of the Blues: Everything You Always Wanted to Know about Varicose Veins and Spider Veins but Didn't Know Who to Ask, Johnson, iUniverse.com, 2000
- Guia de la Clinica Mayo Sobre Hipertension, Sheps, Mason Crest Publishers, 2003
- Heart Attack! Advice for Patients by Patients, Berra, Yale University Press, 2002
- Heart to Heart: A Guide to the Psychological Aspects of Heart Disease, Budnick, Health Press, 1991
- Keep the Beat: Heart Healthy Recipes, National Heart, Lung and Blood Institute, 2003
- Living with Angina: A Practical Guide to Dealing with Coronary Artery Disease and Your Doctor, Pantano, 1st Books Library, 2000
- Mayo Clinic Heart Book: The Ultimate Guide to Heart Health, Gersch, William Morrow & Co., 2000
- Stories from the Heart: Women Heart Patients Describe their Disease, Treatment and Recovery, Roussos, National Coalition for Women with Heart Disease, 2003

- Strong Women, Strong Hearts, Nelson, Putnam, 2005
- Thriving with Heart Disease: A Unique Program for You and your Family, Sotile, Free Press, 2003
- Varicose Veins, Ellis, Oxford University Press, 1999
- Vascular Medicine: A Textbook of Vascular Biology and Diseases, Loscalzo, Lippincott, Williams & Wilkins, 1996
- While Waiting for a Heart, Power, Xlibris Corporation, 2005
- Women are not Small Men: Lifesaving Strategies for Preventing and Healing Heart Disease in Women, Goldberg, Ballantine Books, 2002
- The Women's Heart Book, Pashkow, Hyperion, 2001

eBooks

- Healthy Heart Handbook, Pinckney, Health Communications, 1996
- Herbs for the Heart: Herbs to Lower Cholesterol and Blood Pressure, Increase Circulation, Prevent Clotting, and Enhance Heart Health, Puotinen, Keats Pub, 1997
- The Heart Disease Sourcebook, Cicala, Lowell House, 1997
- Understanding Heart Disease, Selzer, University of California Press, 1992
- Your Heart: Questions You Have-- Answers You Need, People's Medical Society, 1996

Journals

- Harvard Heart Letter

eJournals

- American Heart Journal
- American Journal of Cardiology
- British Heart Journal
- Cardiovascular Device Update
- Cardiovascular Week
- Clinical Cardiology Alert
- Harvard Heart Letter
- Heart
- Heart and Lung
- Heart Disease Weekly
- HeartCare
- HeartCorps
- HeartInfo Ask the Doctor
- HeartInfo FAQ
- HeartInfo Fitness Guide
- HeartInfo Nutrition Guide
- HeartInfo Patient Guides
- HeartInfo Women's Health
- Journal of Cardiovascular Nursing
- Journal of Cardiovascular Pharmacology and Therapeutics
- Journal of Thoracic and Cardiovascular Surgery
- Primary Cardiology

Videos

- Angina Pectoris
- Anticoagulant Medications
- Atrial Fibrillation
- Cardiac Rehabilitation
- Cardioverter Defibrillator
- Controlling Your Cholesterol
- Coronary Angiography
- Coronary Angioplasty
- Diabetes and Heart Disease
- Eat and Be Healthy
- Emotions and Heart Disease
- Exercise and Heart Failure
- Going Home After Surgery
- Handling Stress
- Heart Attack
- Heart Disease Risk Factors
- Heart Failure Management
- Heart Failure Treatment
- Heart to Heart - Getting Fit
- High Blood Pressure
- High Blood Pressure Control
- How to Quit Smoking
- Life with your ICD
- Life with your Pacemaker
- Nutrition and Heart Failure
- Overweight: Who's in Control?
- Pacemakers
- Radioisotope Testing
- Read and Use Food Labels
- Symptoms of a Heart Attack
- The First 6 Weeks at Home
- Using Lovenox
- Your Electrophysiology Study

Pamphlets

- Abdominal Aortic Aneurysm
- After Heart Surgery
- After Your Heart Attack
- Artery Problems
- Atrial Fibrillation
- Become Heart Smart
- Cardiac Arrhythmia Service
- Cardiac Rehabilitation
- Cardiac Rehabilitation Program
- Cardiovascular Center: Guide to Services
- Cardioversion
- Carotid Angiography
- Carotid Artery Surgery
- Carotid Artery Surgery – Reducing Your Risk
- Catheter Ablation
- Center for Cardiovascular Disease in Women
- Common Arrhythmias
- Congestive Heart Failure
- Controlling Cholesterol
- Coronary Artery Bypass Surgery
- Coronary Artery Procedures
- Echocardiogram
- Electrophysiology Studies
- Fitness and Heart Disease
- Heart Attack
- Heart Catheterization Diagnosis and Intervention
- Heart Smart for Life

- Heart Valve Surgery: A Guide for Patients
- High Blood Pressure
- Holter and Event Monitoring
- Implantable Cardioverter Defibrilator
- Living With Congestive Heart Failure
- Lower Extremity and Aneurysm
- Pacemakers
- Patient and Family Guide to Cardiac Surgery
- Peripheral Angiography
- Peripheral Artery Disease
- Peripheral Bypass Surgery
- Peripheral Vascular Disease
- Primary Pulmonary Hypertension
- Raynaud's Phenomenon
- Risk Factors for Heart Disease in Women
- Sex and Heart Disease
- Signs of a Heart Attack
- Tilt-Table Testing
- Transesophageal Echocardiography
- Understanding Advanced Heart Disease
- Understanding and Treating Heart Failure: A Guide for Patients and Families
- Understanding Angina
- Understanding Interventional Cardiology and Drug-Coated Stents
- Women and Cardiovascular Disease: Live a Heart Healthy Life
- Women and Heart Disease
- Women Take Heart

Recommended Websites

- American Heart Association – http://www.americanheart.org
- U.S. National Library of Medicine, National Institute of Health – http://www.nlm.nih.gov
- National Coalition for Women with Heart Disease – http://www.womenheart.org

DISCHARGE MEDICATION LIST

PATIENT

Medication Brand Name/Generic	Dose/ How much to take:	Frequency/ How many times a day:	Time/ When to take it:	Reason/ Why I'm taking it:

WEIGHT CALENDAR

PATIENT

Date	Temperature / Time	Temperature / Time	Weight

Home after Cardiac Surgery

What to Do....

Activity

Lifting:	No Heavy lifting (greater than 10 pounsa) for 3 months.
Driving:	No driving for 4 weeks (3 weeks for minimally invasive surgery).
Hygiene:	Shower daily using mild soap and water.
Legs:	Elevate legs when sitting. For Bypass patients, wear elastic stockings during the day and remove at night.
Exercise:	The best exercise is walking. Your cardiologist may suggest cardiac rehabilitation after your 6-week check-up with your Cardiac Surgeon.

How to do a Self Exam

There are certain things you should check everyday when you go home.

Incisions: Examine your incisions for signs of infection:

- ➙ Increased redness, swelling or drainage
- ➙ Increased incisional pain

Temperature: Take your temperature twice a day, morning and night. Record it in your log. If your temperature is greater than 100.5°F, please contact one of your physicians.

Weight: Weigh yourself daily. Record it in your log. If you gain 2 pounds over night or 5 pounds in a week, contact one of your physicians.

Sutures: All sutures and staples should be removed, unless specified, prior to discharge.

When to Call

☎ Call your **Surgeon** if:

- Incisions show any signs of infection
- Your temperature is greater than 100.5°F

➙ On nights and weekends: call 617-732- 6660 and have operator page the cardiac surgery doctor

☎ Call your **Primary Care Physician** or **Cardiologist** if:

➙ Weight Gain of greater than

- 2 pounds in 1 day *or*
- 5 pounds in 1 week

☎ Call your **911** if:

- You are experiencing angina pain or shortness of breath not relieved by rest

Your Follow-up Appointments

	Date	Time
Cardiologist		
Cardiac Surgeon		

BRIGHAM AND
WOMEN'S HOSPITAL

75 Francis Street
Boston, MA 02115

www.brighamandwomens.org/cardiac surgery/default.aspx

Member of PARTNERS™ HealthCare