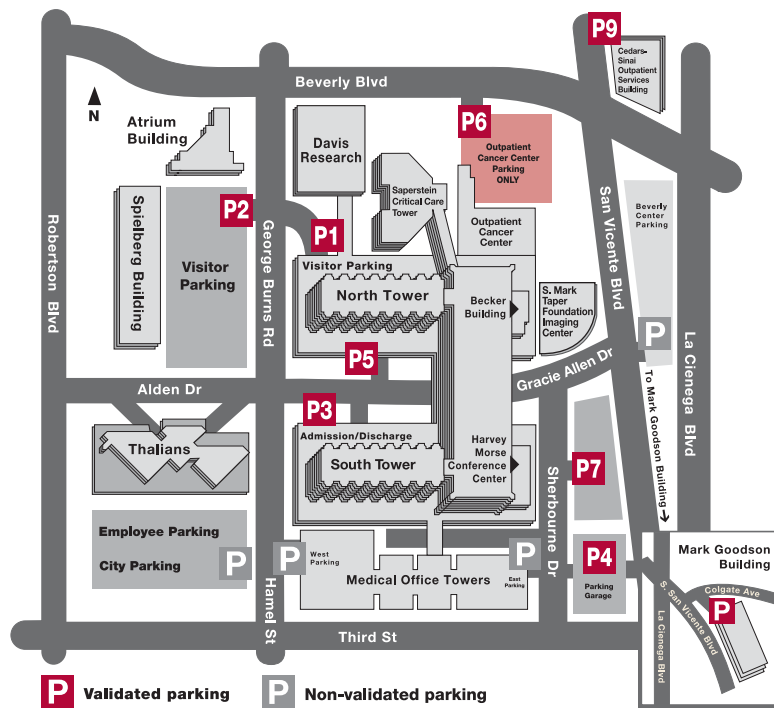


P Cedars-Sinai Visitor Parking
map not drawn to scale



The Cedars-Sinai Heart Center is located at 8700 Beverly Blvd., on the fifth and sixth floors.

From the Santa Monica Freeway (10), exit La Cienega Blvd. Proceed north to the Medical Center, just north of Third Street.

From the Hollywood Freeway (101), exit Highland Ave. Proceed south to Beverly Blvd. Turn right, and proceed to the Medical Center. At San Vicente Blvd., turn left.



CEDARS-SINAI MEDICAL CENTER

Heart Center

8700 Beverly Blvd.
Los Angeles, CA 90048
Office: (310) 423-3535
Fax: (310) 423-0739

www.cedars-sinai.edu/heartcenter

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Form # CB0015

Cardiac Patient and Family



Education Handbook



CEDARS-SINAI MEDICAL CENTER

Heart Center



A Word of Welcome

Admission to the hospital for a heart condition can be unsettling or even alarming for the patient as well as the family. The purpose of this handbook is to familiarize you with medical words, terms, expressions and treatments that are frequently used in connection with problems of the heart, in understandable language.

The Cedars-Sinai Heart Center is an internationally recognized leader in the diagnosis and effective treatment of heart disease. Over the last decade there has been many advances in technologies for diagnosis and treatment of heart disease, giving Cardiology a “high-tech” profile. We will attempt to make you familiar with these new advances.

The health care team at our institution includes doctors, nurse practitioners, clinical nurse specialists, physician assistants, nurses, dietitians, respiratory therapists, pharmacists, physical therapists, and clinical partners. This team is ready to provide individualized treatment to our cardiac patients. This treatment is based upon the condition of the patient and type of heart disease, with the goals of improving quality of life. Working together, we hope to provide the best care for you and make your stay as comfortable as possible.

Eduardo Marbán, MD, PhD
Director, Heart Institute

P.K. Shah, MD
Chief of Cardiology

Alfredo Trento, MD
Chief of Cardiothoracic Surgery



Dedication

The Cardiac Patient and Family Education Handbook is dedicated to Cedars-Sinai heart patients and their families.

The Cedars-Sinai Heart Center would like to thank the Max Factor Family Foundation for their generous contribution in making this handbook possible.

Special thanks goes to the Cedars-Sinai Heart Center and the Heart Families Volunteer Program for their hard work and assistance in making this handbook inclusive for all cardiac patients. And most specifically, to the diligent work of the following people:

Fifth Edition Revisions:

Judy Beyer, RN
George Chaux, MD
Bernice Coleman, RN, PhD, ACNP
Stanley Conte, RN
Barbara Cowen, LCSW, Heart Families Coordinator
Bonnie De Los Santos, RN, MN, CNS, CCRN
Jeffrey S. Goodman, MD, FACC
Richard Gordon, MA
Walter Lemankiewicz, RN
Cristina Luper, RN
Scot Macdonald, PhD, Sr. Marketing Associate
C. Noel Bairey Merz, MD, FACC
Margo Minissian, ACNP-C, MSN, CNS
Donna Polk, MD
Elaine Winters, Heart Families Volunteer Program

January 2008



Heart Families Program

As part of your education, the Heart Families volunteers are available to you. They comprise a very special group of men and women who themselves have had a cardiac crisis (including, in some cases, a heart transplant), or have experienced one in their immediate family. They are specially trained volunteers who have been in your shoes. They have felt the fear and

loneliness and survived. Now, they are here to help you.

Heart Families volunteers provide assistance to cardiac patients undergoing testing and treatment procedures and, when necessary, heart surgery, as well as providing support to patients' families. Volunteers focus on:

- Offering emotional support on a person-to-person basis during your time of crisis
- Helping you understand and better utilize medical and hospital services
- Acting as a liaison with other Medical Center staff, such as nurses and physicians
- Acquainting you with methods to make home care simpler and easier

In addition to their own personal experience with cardiac problems, Heart Families volunteers undergo extensive training at Cedars-Sinai, working under the supervision of a licensed clinical social worker. The Heart Families volunteers are further supported by a team consisting of the director of Volunteer Services and representatives from Nursing, Psychiatry, Pediatrics, Medicine and Surgery, and have served in this capacity since 1981.

The Heart Families Program has been honored with the American Hospital Association's Award under the Volunteer Excellence Program. They also travel to other national hospitals to provide guidance to other cardiac programs for developing volunteer programs.

The Heart Families Program is offered free of charge. We look forward to helping you with your cardiac needs and education.

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Cedars-Sinai Heart Center

What Services Do We Provide?

Cardiac Care Units

The Cardiac Care Units are patient care units on the 5th and 6th floors of the North Tower. The Coronary Intensive Care Unit and the Cardiac Surgical Intensive Care Unit are both on the 6th floor of Saperstein Critical Care Tower. The 3rd and 4th floors of Saperstein also admits cardiac patients. A majority of patients admitted in these units are: 1) patients who have cardiovascular disease requiring medical treatment including coronary artery disease, heart attack (myocardial infarction), chest discomfort (angina), congestive heart failure (CHF), and/or irregular heartbeat (arrhythmia) problems; and/or 2) patients who have had a diagnostic or therapeutic cardiac procedure. The goal of care is not only the return of health but also to navigate the hospitalization course and positively reckon with their disease.

Coronary Intensive Care Unit (CICU)

The Coronary Intensive Care Unit (CICU) is a 12-bed unit on the 6th floor, south side of the Saperstein Critical Care Tower. This unit cares for patients who are acutely ill due to heart attack, chest discomfort, irregular heartbeats, congestive heart failure or any other potentially life threatening disease pertaining to the heart or blood vessels and/or patients who have undergone invasive cardiac procedures. This unit is equipped with specialized equipment (rhythm and heart pressure monitoring) and highly qualified health care personnel to provide care directed towards continuous and intensive monitoring and treatment of actual or potentially serious complications from a cardiovascular disease.

Coronary Observation Unit

5 North East and 5 North West are units with cardiac monitors, that care for patients with cardiac problems who require close monitoring of their heart rhythm and vital signs.

Cardiac Surgical Intensive Care Unit (CSICU)

The Cardiac Surgical Intensive Care Unit (CSICU) is a 12-bed unit on the 6th floor of the Saperstein Critical Care Tower. The majority of patients admitted

to this unit have undergone a surgical procedure such as open heart surgery (i.e., coronary artery bypass surgery [CABG] or valvular surgery), left ventricular assist device, repair of aortic aneurysm, heart and/or lung transplant, surgery of the blood vessels in the leg, or surgery of the chest. The goal of management is to help restore the patient to an optimal state, as well as provide emotional support for patients and their families during and after heart, chest, blood vessel or transplant surgery.

This unit consists of highly qualified healthcare personnel and is equipped with highly specialized equipment to provide continuous and intensive monitoring and treatment during the acute phase of recovery following major surgery.

6 North East is a 24-bed monitored unit that cares for stable cardiac surgical patients requiring close monitoring of their heart rhythm.

6 North West is a 32-bed non-monitored cardiovascular surgical floor that cares for stable cardiac-surgical patients or those patients who have undergone other surgical procedures.

Cardiovascular Intervention Center (CVIC)

The Cardiovascular Intervention Center (CVIC), previously known as the Cardiac Catheterization Laboratory (Cath Lab), is located on the 6th floor of the Professional Tower. In this laboratory, a wide range of diagnostic and therapeutic procedures are performed for coronary artery disease, heart muscle function and/or heart valve dysfunction. These include: coronary angiography, left and right heart catheterization, percutaneous transluminal coronary angioplasty (PTCA) by balloon, directional atherectomy, laser, or intracoronary stent, valvuloplasty, and myocardial biopsies and septal ablation. The staff of the CVIC, physicians, nurses and technicians are knowledgeable in the state-of-the-art technology administered in the CVIC and have experience in identification and treatment of emergency cardiac intervention.

Cardiac Electrophysiology Laboratory

The Cardiac Electrophysiology Laboratory is also located in the CVIC (Professional Tower). In this laboratory, a wide range of invasive diagnostic and therapeutic procedures for irregular heartbeats are performed. These procedures include: electrophysiology, ablation, arrhythmia mapping, radiofrequency ablation, implantable cardioverter defibrillator (ICD) implantation, and/or pacemaker implantation and adjustments.

Cardiology Department

The Cardiology Department is located on the 5th Floor, Professional Tower. In the Cardiology Department, non-invasive tests (diagnostic procedures) for the heart rhythm and heart function are performed. The Cardiology Department has 2 sections: 1) Electrocardiography section; and 2) Non-invasive section.

In the Electrocardiography section, the following procedures are performed: electrocardiograms, holter monitoring and event monitoring, ambulatory blood pressure monitoring, pacemaker follow-up, implantable cardiac defibrillator follow-up, and consult services.

In the Non-invasive section, the following procedures are performed: Echocardiograms (2D/Doppler, Transesophageal, Exercise Stress Echo, Pacing, Dobutamine Echocardiogram), Tilt Table Study; and Exercise Stress Testing.

Heart Failure Program

The Heart Failure Program specializes in the diagnosis, treatment and on-going management of heart failure patients. Along with your primary care physician, the treatment team includes a physician who specializes in heart failure and nurses educated in the management of your heart disease. The program provides both inpatient and outpatient services, and offers innovative therapies, through clinical trials of new medications, surgical devices and procedures.

Nuclear Cardiology

Nuclear Cardiology is located at the North Tower, Lower Level, Room AO41. Nuclear Cardiology performs various non-invasive tests to assess the function and/or blood flow to the heart muscle. These procedures include: various types of stress tests (which include Stress Thallium, Adenosine Thallium, Ipyridamole Thallium, MIBI Stress, Dobutamine Stress Test, or Dual Isotope Stress); Wall Motion Studies; and Technetium Pyrophosphate Scans. These procedures may be scheduled while you're in the hospital or after you are discharged.

Women's Heart Center

The Women's Heart Center at Cedars-Sinai provides risk assessment, diagnosis and heart disease care specifically for women. The program is designed to help women reduce their chances of heart disease through a preventative approach, including state-of-the-art screening and diagnostic testing. Located in the outpatient Noninvasive Cardiac Laboratory, the Women's Heart Center provides convenient access to all of Cedars-Sinai's heart disease diagnostic and treatment resources.

The Women's Heart Center is directed by C. Noel Bairey Merz, MD, an internationally recognized cardiologist specializing in heart disease in women. She is one of the country's most respected researchers and takes a leadership role in educating the community and physicians about heart disease prevention. Dr. Bairey Merz is available for consultation to patients of the Women's Heart Center. To make an appointment, please call 310-423-9680.

Preventive & Rehabilitative Cardiac Center

The Preventive and Rehabilitative Cardiac Center offers a wide range of programs designed to restore you to a productive, satisfying life and to prevent worsening of your heart disease. These goals are accomplished through a comprehensive program which utilizes physicians, nurses, exercise physiologists, physical therapists, occupational therapists, dietitians, psychologists and stress management therapists (Yoga) in the hospital and outpatient clinic.

You will be seen initially in the hospital (Phase I), at your physician's request, for a program which includes education about nutrition, smoking cessation and stress management, as well as exercise designed to assist in the recovery process. There is also special television programming on the heart available at particular times (see the television guide in your room or ask your primary nurse for details). Our goal is to assist you in speedy recovery and provide you with the necessary tools to prevent further heart disease problems.

You can further hasten your recovery and gain behaviors which prevent or reduce coronary artery disease by participating in our outpatient (Phase 2) program. This can begin usually 2 to 4 weeks after your discharge from the hospital, depending on your doctor's instructions. Located in the Mark Goodson Building, 444 S. San Vicente Blvd., Suite 901, there is ample parking and a wide range of operational hours to suit your schedule. The program focuses on your achievement of a full recovery. You will also focus more specifically on food habits, blood cholesterol, stress management and exercise. Individualized nutrition counseling and risk factor assessment are included in the program. The program is supervised by a cardiologist and physician referral is required.

The Preventive and Rehabilitative Cardiac Center offers many other programs and services designed to assist you in reducing your chances of more heart disease in the future. Maintenance exercise programs (Phases 3A and 3-4) are available to help you maintain your fitness and conditioning, as well as your preventive edge. A recent stress test is typically required for entry into these programs.

A Phase 5 program is available for your family or friends who have risk factors, but no current heart condition, and would like to stay that way. Nutrition counseling, support groups, Yoga classes, psychological screening/counseling and regular relaxation classes are available, as are group and individual education. For further information regarding these programs, contact the Cardiac Rehabilitation Program at (310) 423-9660.

Cardiac Channel: 12

The Cedars-Sinai Medical Center Cardiac Channel (Channel 12) is dedicated to bringing patients, families and friends up-to-date information about heart disease treatment and prevention. Cutting edge research performed at Cedars-Sinai and elsewhere has provided a wealth of information, which can help patients, and physicians successfully manage heart disease. Our programming topics range from cardiac procedure orientation, to treatments and lifestyle changes which can reverse heart disease, prevent recurrence and improve quality of life. For further information about the Cedars-Sinai Cardiac Channel, please call (310) 423-4444 or ext. 34444 or look in the television guide in your room.



How May We Help You?

Not only are you here under the care of your personal physician, but you are also supported by a team of healthcare professionals who combine their different skills to provide you with the finest care possible.

Nursing Team

You will be cared for by a team of nursing personnel including: registered nurses (RNs), advanced practice nurses (APNs), licensed vocational nurses (LVNs), clinical and support partners (CPs). As your condition improves you may be moved to areas that will best meet your individualized needs. To best prepare you for recovery, the nursing team will encourage you to participate in your care as much as your condition permits. Please feel free to offer any comments or suggestions regarding your special needs. We hope to help make your stay as pleasant as possible.

Nurse Manager

The Nurse Manager is responsible for the coordination and management of activities on designated units. The Nurse Manager is available to you and your family. Should you have any concerns about your hospitalization, ask your nurse to notify the Nurse Manager.

Clinical Nurse Specialist

The Clinical Nurse Specialist is a registered nurse with a master's degree in a clinical specialty. As an expert in a field of specialty (i.e. cardiology, cardiac surgery), the Clinical Nurse Specialist assists patients and families in difficulties associated with serious cardiovascular illness and assists the nursing team in the care of patients with complex cardiovascular problems. The Clinical Nurse Specialist continually works collaboratively with the various members of the health care team (i.e. physicians, nurse managers, nursing team, liaison nurses, social workers, etc.) to achieve a positive patient outcome. You may ask your nurse to contact the Clinical Nurse Specialist to assist you and your family with any concerns you might have (i.e., education regarding your disease or diagnostic procedures, medications, discharge planning and psychological support).

Nurse Practitioner

The Nurse Practitioner (NP) is an advanced practice registered nurse who is board certified in a specialty area of cardiology or cardiac surgery. Under direct supervision of your physician, the NP provides comprehensive health assessment, diagnosis, treatment, consultation, education and follow-up care for individuals with cardiac needs. The NP works collaboratively with your physician(s) along with the entire interdisciplinary team to deliver exceptional patient care.

Case Managers

Case Managers are nurses who will follow your progress and assist you along with the social worker in meeting your needs after discharge.

Physician Assistant

The Physician Assistant (PA) is a board-certified health professional who works closely with the surgeons before, during and after your cardiothoracic surgery. In the operating room, the PA serves as an assistant, and may harvest conduits, such as the saphenous vein or radial artery, for use in a bypass procedure. On the wards, the PA assists with admissions, daily progress notes, physical exams, medications, and ordering diagnostic tests, as well as with discharges and office follow-ups. PAs continuously coordinate, monitor and provide high quality medical care under the supervision of surgeons to improve the quality of your hospital stay.

Cardiac Surgical Liaison Nurse

The Cardiac Surgical Liaison Registered Nurse provides the patient and their families with individual education, guidance and emotional support throughout the surgical process from the initial consultation through after discharge. Educational needs regarding the surgery, hospitalization and future life styles will be reviewed in detail with each patient and family. They will assist patients and their families with discharge planning including initiating referrals to cardiac rehabilitation, social services and community resources (agencies) as indicated. In addition, they promote an atmosphere of respect, support and open effective communication with patients, families, and the entire healthcare team. Ask your primary nurse to contact the Cardiac Surgical Liaison Nurse for specific information and assistance at any time at (310) 423-3851.

Clinical Dietitian

The Clinical Dietitian offers individual and group nutrition counseling by registered dietitians. A dietitian is available to both inpatient and outpatient programs. While in the hospital, you may ask your doctor to order an individual diet instruction, free of charge. In the outpatient setting, diet

counseling may be provided through the Preventive Rehabilitative Cardiac Center (310) 423-9660 or ext. 39660, which requires a fee for service. In both settings, the dietitian can provide nutrition information specific to your individual needs.

Heart Families

Heart Families is a program of volunteers providing support to cardiac patients and their families. They have personal experience with cardiac patients, have undergone extensive training at Cedars-Sinai and work under the supervision of a clinical social worker. They support hospitalized patients on 5 North and 6 North as well as families who are waiting for news of their loved one in the 6th floor lobby. The volunteers are liaisons for the families waiting for news of a heart surgery or about a patient's status who is undergoing a procedure in the cardiac catheterization lab. They are also accessible to patients and families in the coronary intensive care units. Ask your primary nurse to contact Heart Families at (310) 423-3193 or ext. 33193.

Medical Social Worker

Social Workers are available to all inpatients, outpatients and their families. The social worker is a professional who can provide emotional support and guidance, assist with discharge planning and post-hospital care and provide resource information.

You and your family members may contact the Social Work Department during office hours, 8 a.m. to 5 p.m., seven days a week at (310) 423-4446 or ext. 34446.

POOCH Visits (Pets Offering Ongoing Care and Healing)

The physical and psychological benefits of animals has been well supported in healthcare literature. Pet teams are authorized to visit cardiac patients on 5 North, 6 North and the coronary intensive care units. Volunteers and their dogs, evaluated and trained, offer patients unconditional love, warmth and an opportunity to be distracted from fears, loneliness and uncertainty often associated with hospitalization. The visits are beneficial not only to patients and families, but to the doctors, nurses and entire medical staff. To request a POOCH team, please contact Volunteer Services at (310) 423-8044 or ext. 38044.



Diagnostic Procedures

It is normal to feel anxious about the testing that is being done. When you have questions or concerns about any of these tests or procedures, always ask your doctor and/or nurse to explain.

Room Monitors and Telemetry

While you are in the Intensive Care Unit (ICU) or the Telemetry Unit, Electrocardiographic (EKG) electrodes (sponge pads) will be placed on your chest. The EKG electrodes will be connected to a monitor. The continuous picture of your heart's electrical activity helps plan your treatment. The EKG electrodes are very sensitive, so don't be frightened if your movement activates the monitor's alarm. This is a safety feature that alerts nurses and physicians regarding any significant changes in the rate or rhythm of your heartbeat. Your physician may also order a Holter monitor. This monitor is worn by the patient and retains a constant record of your heart rhythm on a tape recorder for 24 hours.



An electrocardiogram (EKG) is likely to be done frequently while you're in the hospital. This painless test gives an electrical "picture" of how your heart is working. The test requires only that you lie still while the technician puts electrodes (small adhesive pads) on your arms, legs and chest. The test takes about five minutes.

Stress Test (Exercise Test)

A stress test allows us to see how your heart is working during the stress of exercise, and just after exercise. The exercise device or stress test can be performed on a treadmill or a stationary bicycle.

During the test you are connected to a monitor by EKG electrodes (adhesive pads). A doctor watches and evaluates you very closely. They will make adjustments in the speed and angle of the treadmill or the resistance of the bicycle upon their evaluation of you. Always communicate how you are feeling throughout the test. After the stress test is over you will return to a table for a post-exercise EKG and to relax.



Preparation for a stress test:

- Nothing to eat or drink for three to four hours prior to the test (other than medication).
- Wear good walking shoes (rubber soles, if possible). You may want to bring a robe or something warm.
- Some medication may be withheld temporarily prior to the stress test. Your doctor will decide this and you will be notified.
- For certain types of stress tests, you may be asked not to consume caffeinated foods or drinks before the test (i.e. sodas, Mountain Dew, colas, coffee, tea, chocolate).

During the stress test, it is important to let the doctor or nurse know if you:

- Have any severe fatigue, nausea and/or difficulty breathing
- Have any chest pain, jaw or back discomfort
- Experience light-headedness or dizziness
- Are physically unable to continue the test

Echocardiogram (ECHO) of the Heart

These are painless, non-invasive procedures that image the heart's chambers, valves, and blood flow using high frequency sound waves (ultrasound).

1. Doppler Echocardiogram

You will remove upper body clothing and stockings and lie quietly on a table or bed. A technician will place a small transducer on your chest. The transducer sends ultrasound waves over the various heart structures. As the sound waves bounce off the moving heart structures, they are converted to images that can be seen on a television screen, recorded on videotape, and paper. This procedure may take 45-60 minutes.

It is important that you lie quietly so that the transducer can be positioned to

obtain the exact angle desired. You may be asked to turn to your side or briefly hold your breath as the technician locates the best transducer position.

Preparation: None

2. Dobutamine Echocardiogram

While the above doppler echocardiogram is being performed you will be given a medication (Dobutamine) through an intravenous solution that will increase your heart rate. The echocardiogram will be performed to evaluate the effect of Dobutamine on your heart. This procedure may take about two hours.



3. Stress Echocardiogram

A stress test combined with an echocardiogram. The echocardiogram will be performed prior to and immediately after the exercise portion of the stress test. The purpose of the test is to evaluate the effect of exercise on your heart.

4. Pacing Echocardiogram

Preparation:

- Eat or drink nothing three to four hours before the test.
- Wear comfortable clothing, as you will be laying on a table or bed.

During the dobutamine test or stress echocardiogram, it is important to let the doctor or nurse know if you have any:

- Unusual feeling in the chest, arms, neck or jaw
- Light-headedness or dizziness
- Feeling of your heart beating fast (palpitations)
- Shortness of breath

Transesophageal Echocardiography (TEE)

Transesophageal Echocardiography is a minimally invasive procedure used to assess and diagnose abnormalities of heart valves, blood clots and infectious vegetation in the heart, and aneurysms of the heart and aorta (main artery) that are difficult to evaluate by other tests.

The equipment used is the same as in conventional echocardiography except that a probe with an ultrasound transducer is placed into the esophagus via your mouth (similar to gastroscopy). The transducer sends ultrasound waves from the

esophagus over various heart structures, which are converted to images that can be seen on a television screen, recorded on videotape, and paper.

You will be given intravenous (IV) sedation to make you sleepy. Your blood pressure and heart rate are monitored during the procedure. The procedure may take about 30 minutes. However, you will be in the examining room about 60 to 90 minutes to recover from the sedation.

Preparation:

- Nothing to eat or drink for at least eight hours before the test.
- Wear comfortable clothes. You will be asked to undress and wear a hospital gown.
- A licensed driver must accompany outpatients. You are not allowed to drive for 24 hours after being sedated.

Nuclear Medicine Studies (Heart Scans)

A cardiac nuclear scan is a special type of imaging procedure in which a small amount of radioactive material is injected into a vein. A special camera and a computer take pictures of the heart. Sometimes the pictures are taken during a stress test as well. During the procedure you will be connected to a monitor through EKG electrodes. The test may be done either in the Nuclear Medicine Department or in your room.

The procedure may take two to three hours and sometimes it is necessary to take further pictures of the heart four and 24 hours after the initial picture-taking session.

There are four types of heart scans used:

- Thallium scan (the most common procedure)
- Wall motion test
- Sestamibi
- Technetium Pyrophosphate scan

Preparation for nuclear studies:

- Do not consume any products containing caffeine (which includes coffee, tea, decaffeinated products, chocolate, cocoa, soda [diet or regular]) 24 hours prior to the procedure.
- The following medications may be withheld prior to a stress test procedure in consultation with your doctor:
 - Beta-Blockers (Inderal, Lopressor, Sectral, Tenormin, Visken, Corgard, etc.)
 - Calcium-Channel Blockers (Calan, Cardizem, Isoptin, Procardia)
 - Nitrates (Isordil, Nitro-bid, etc.)

- For nuclear studies that are combined with a stress test, the following should be observed:
 - Nothing to eat or drink for three to four hours before the test
 - Wear good walking shoes.
- If you are pregnant (or suspect that you might be pregnant), let your doctor or nurse know; such tests should not generally be done on pregnant patients

During the nuclear medicine test, it is important to let the doctor or nurse know if you have:

- Any unusual feelings in the chest, arms, neck, jaw or back
- Severe fatigue
- Lightheadedness or dizziness

Cardiac MRI/MRA

Your doctor has recommended you for either magnetic resonance imaging (MRI) or magnetic resonance angiography (MRA) of your chest and heart. These procedures use a magnetic field, radio waves and a computer to create detailed images of the chest area. The angiography procedure is specifically designed to examine the heart and the blood vessels entering your lungs. Our team of specialist physicians can use these images to distinguish between different types of tissue as well as diseased tissue. Our team of physicians, nurses and technologists are led by our Chief of Cardiac Imaging and Nuclear Cardiology, Daniel S. Berman, MD, and our Chief of Thoracic Imaging, Peter J. Julien, MD.

Preparation:

- **Before Arriving at the S. Mark Taper Foundation Imaging Center:**
 - You should not have anything to eat or drink three to four hours prior to the exam start time, unless instructed to do so by your physician.
 - If you are undergoing MRI for cardiac perfusion, you will be asked to avoid caffeine for 24 hours before the test, and to not take any beta blockers, calcium channel blockers, ace inhibitors or angiotensin receptor blockers (ARBs) for the 48 hours before your procedure.
 - If you are claustrophobic (fearful of small, enclosed areas) or experience pain when lying on your back for more than 30 minutes, your referring physician may prescribe a relaxant or pain medication to help you through the exam. The imaging physicians at Cedars-Sinai will not prescribe such medications for you.
 - We want to make your waiting time as pleasant as possible. Consider bringing your favorite magazine, book or music player to help you pass the time. You may also bring a CD to listen to during the procedure.
 - Please wear comfortable clothing.

■ **After Arriving**

- You must tell the technologist, radiology nurse and/or imaging physician of any allergies you may have, and if you are pregnant or are nursing.
- You will be asked to complete a questionnaire, which will help determine if an MRI is safe for you. People with various implants (usually metallic) or with metal in their bodies (including some tattoos) may have difficulty with an MRI, which utilizes a strong magnetic field. The imaging physician needs to be informed of any of these potential problems.

During the Exam

- You will be positioned on the scanning table head-first with your arms at your side.
- Coils (special devices to improve image quality) may be placed on or around your chest. The scanning table will slide your entire body into the magnet.
- During the scan you will not feel anything, but you will hear intermittent humming, thumping, clicking and knocking sounds. Earplugs will be provided to help mask the noise and to allow you to listen to music.
- In most cases, the imaging physician requests a contrast agent (dye) to improve the quality of the images.
- The contrast agent is injected into a vein in the arm, and may cause a cool sensation.
- As pictures are taken, you must hold very still and, in some cases, hold your breath for up to 25 seconds.
- The technologist is always able to see and hear you during the exam.
- The MRI exam will take approximately 60 minutes. The MRA exam will take approximately 30 to 60 minutes.

After Your Exam

- There are no restrictions placed upon you. You may eat or drive as normal.
- Your films will be examined by an imaging physician and a report sent to your doctor. Your doctor will review the results with you.

To request a copy of your images on a CD or film, or a copy of your report, please call (310) 423-8000.

Cardiac Imaging

Myocardial Perfusion SPECT

A myocardial perfusion SPECT (Single Photon Emission Computed Tomography) study, also called a cardiac stress-rest test, is used to evaluate the heart's blood supply. Two sets of images showing blood flow are obtained: the first following a period of rest, and the second following a period of stress (i.e., exercise).

Please tell the doctor or tech about any allergies that you have. The technologist injects a radiotracer into a vein. A radiotracer is a compound made of a radioactive isotope and a pharmaceutical agent. In the radiotracer used for myocardial perfusion SPECT, the pharmaceutical part keeps the tracer in the blood until it is filtered out by the kidneys. The radioactive isotope releases energy, and a special camera creates an image from it.

Myocardial perfusion SPECT is used to evaluate damage that might have been caused by a myocardial infarction (heart attack) and to assess the presence and extent of myocardial ischemia (reduced blood flow due to obstruction in the vessels).

Coronary Reactivity Testing

Your doctor has recommended you for Coronary Reactivity Testing of your heart arteries. The angiography procedure is specifically designed to examine the blood vessels in your heart and how they respond to different medications. Our team of specialist physicians can use these images to distinguish different types of blood vessels reactivity dysfunction. Our team of physicians, nurses and technologists are led by our director of the Women's Heart Center, Noel Bairey Merz, MD, and our interventional cardiologist, Saibel Kar, MD.

Women often experience chest symptoms differently than men. The Women's Ischemia Syndrome Evaluation (WISE) study is one of the primary studies changing the way women's heart disease is detected and treated. For men, heart disease often manifests as blockage in the large arteries of the heart. One of the major discoveries of the WISE study is that many women with chest pain or other symptoms, have microvascular disease, a narrowing of the small arteries and blood vessels of the heart. Blood flow to the heart is restricted by fatty plaque buildup, but the restriction does not show up in traditional diagnostic exams. Until recently, this led physicians to discount the possibility of heart disease in many female patients. These women often found themselves making repeated visits to physicians and hospitals trying to unravel the mysteries of their symptoms. The Coronary Reactivity Test is the gold standard for diagnosing coronary microvascular disease and endothelial wall dysfunction.

The procedure occurs in the catheterization laboratory and patients should follow the same instructions before and after catheterization explained in the Cardiac Catheterization and Angiography section on page 20. The physician will ask to see you in clinic a week before your procedure. At that time, you will have a pre-procedure chest X-ray, blood work and an EKG. Patients are asked to avoid caffeine 24 hours before the test and to not take beta blockers, calcium channel blockers, ace inhibitors and angiotensin receptor blockers

(ARBs) during the 48 hours before your procedure. The exam lasts approximately 60 to 90 minutes, and patients are often released from the outpatient procedure area that afternoon.

For more information regarding Coronary Reactivity Testing, please contact the Women's Heart Center at (310) 423-9680 or ext. 39680.

Tilt-Table Study

A Tilt-Table study is a procedure used to evaluate changes in heart rate and blood pressure during changes in body position. The most common indication to perform this test is in patients who have symptoms of temporary loss of consciousness or near fainting.

The nurse prepares you prior to the procedure by starting an intravenous (IV) line and connecting you to a machine that continuously monitors your heart rate and blood pressure. Initially, you will be lying in a flat position for 20-30 minutes. Then, the tilt bed will be changed to a near vertical (80 degrees) position for a period of 30 to 45 minutes. During this portion of the vertical tilt position, it is possible that you will experience lightheadedness, dizziness, or a feeling of fainting. It is important that you inform the physician or nurse of any symptoms you may be feeling. Finally, the tilt bed will be placed in a horizontal position and you will be observed for another 20 to 30 minutes while lying in a flat position.

You may also be given a medication through your IV as part of this test. The physician will determine this at the time of the study. During this portion of the test your position will be changed from a vertical to a flat position every ten minutes.

Depending on the individual response, the test may last from one to three hours.

Preparation:

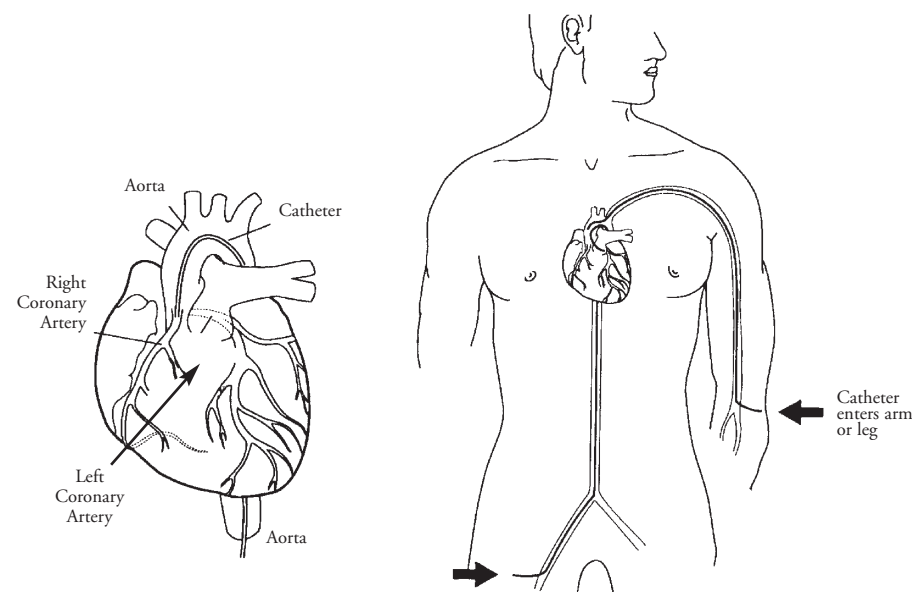
- Wear comfortable clothing or your hospital gown
- Nothing to eat or drink for at least eight hours before the test.
- You may continue to take your heart medication.

Cardiac Catheterization and Angiography (Heart Cath or Angiogram)

In this test, a small catheter (tube) is put into an artery and/or a vein, in your left (groin) and/or in the arm or neck and passed up to the heart under X-ray guidance. Numbing medication is used to minimize any discomfort with the insertion of the catheter at the insertion site.

Heart catheterization helps in the diagnosis of disease affecting the heart muscle, heart walls, and heart valves, as well as the condition of the coronary arteries that feed blood and oxygen to the heart. Angiography involves the injection of contrast or "dye" into the coronary arteries and sometimes the heart chambers. During contrast injections, X-ray movies are viewed in real time and can later be reviewed as part of your medical record. You may experience a warm sensation throughout your body when the dye is injected into the main pumping chamber (left ventricle). Let the doctor or nurse know if you experience any chest discomfort.

During the procedure you will see monitors nearby and may be able to see your EKG and the pictures of the heart and arteries. The total procedure may take one to two hours. However, the preparation and recovery time may take an additional two hours. Your family can wait in the 6th floor lobby where your



doctor can meet with them following the procedure.

Preparation for Cardiac Catheterization:

- Your nurse will ask you to sign consent form(s) for the procedure(s).
- Nothing to eat or drink six to eight hours prior to the procedure. (Note: You may, however, take your cardiac medication, aspirin, or any other medications prescribed by your physician the morning of the procedure with very little water.)
- Intravenous line will be started in your room before you leave before you leave for the catheterization laboratory. Medications can be given directly into this line as needed during the test.

- Wear a hospital gown, remove all undergarments and empty your bladder before you leave your room.
- Depending on the procedure approach, a small area will be prepped by clipping hair in the area and then cleaning with an alcohol based antiseptic solution for the catheter insertion.
- Often a relaxing medication is given to you before you leave your room.

After Cardiac Catheterization:

- The sheath (or tube) in your artery will be taken out in the cath lab (CVIC) before returning to your room or after blood thinning medications wear off for patients held in Cath Lab Recovery Unit.
- Avoid bending the groin for four to six hours (complete bed rest; head should be relatively flat). Your physician or nurse will discuss how long you will need to be flat.
- A closure device (collagen plug or stitch) may be used to seal the puncture site that may reduce your bed rest time.
- You must use the urinal or bedpan for elimination.
- If you have to sneeze or cough, apply pressure with your fingers over the groin or puncture site to reduce risk of bleeding.
- It is not necessary to hold your affected leg stiff (you may move your foot or wiggle your toes, and move your arms freely). You may move all unaffected limbs.
- The nurse will check your vital signs and the insertion site (usually the groin) frequently.

CAUTION!!! If you feel:

- Sudden pain at the site; or
- Warm, sticky sensations or sensation of fluid or blood on the affected leg,

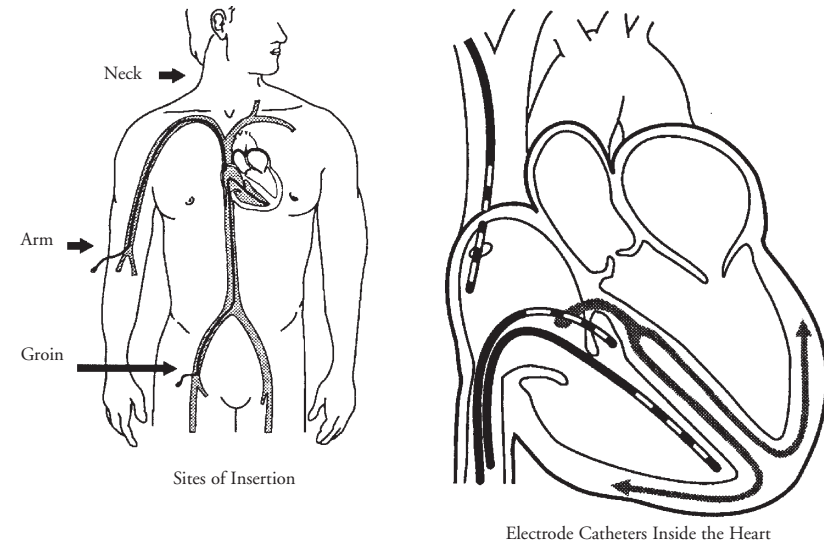
NOTIFY THE NURSE IMMEDIATELY!

Pressure will be reapplied for as long as needed to stop the bleeding.

Electrophysiologic Studies (EPS)

An electrophysiology study is designed to thoroughly assess the conduction system or “electrical wiring” of the heart and to assess abnormal heart beats. This test may be done to assess for abnormal fast heart rhythms that can lead to palpitation, fainting or even cardiac arrest. It is also used to assess the need for pacemaker implantation, or the need for further special procedures. This test involves the insertion of several thin catheters (tubes) or wires into your groin, and commonly the right neck. These wires are advanced to various loca-

tions in the chambers of your heart to record signals and stimulate the heart to identify abnormal rhythms. Once the wires are in place, electrical signals from your heart are monitored and recorded. In addition, the doctor may artificially increase your heart rate in an attempt to provoke any abnormal rhythm distur-



bances with medication. The entire study may take from one to three hours.

Preparation:

- Nothing to eat or drink six to eight hours before the test.
- Intravenous line will be started in your room before you leave before you leave for the catheterization laboratory. Medications can be given directly into this line, as needed, during the test.
- A small area on your upper legs and neck will be used for the catheter insertion. This area will be clipped and scrubbed with an antiseptic soap.
- Empty your bladder before going to the study.
- Wear a hospital gown and remove all undergarments.

After Electrophysiologic Study (EPS):

- You must remain in bed and avoid bending the groin area for four hours.
- You must use the urinal or bedpan for elimination.
- The nurse will check your vital signs often.
- You may move your foot or wiggle your toes and you may move your arms freely.

Discharge Instructions for Outpatients:

- Arrange for someone to drive you home upon your release from the hospital.
- Arrange for a responsible adult to be with you for 12 hours at home.

- If bleeding occurs, do the following:
 - You must lie down
 - Using your hand, apply firm pressure continuously over the insertion site until no blood is observed to be leaking.
- Do not lift any heavy objects or perform any strenuous activities for several days following your procedure. You will need to check with your physician for other restrictions.
- You may resume your normal diet and previous medications following your procedure, unless instructed otherwise.

Lipid Panel

A lipid panel is a blood test, usually performed after a 12-hour fast, in which levels of cholesterol, LDL cholesterol, HDL cholesterol and triglycerides are measured. The total level of cholesterol is made up of the levels of the HDL and LDL cholesterol, as well as the cholesterol portion of the triglyceride particle. The level of each of these components is more important than the total cholesterol.

HDL, also known as “good cholesterol”, protects against heart disease by removing excess cholesterol deposited in arteries. Levels less than 40 mg/dl for men and 50 mg/dl for women are a risk factor for heart disease. You can increase your HDL with regular exercise, weight loss if needed, stopping smoking, avoiding hydrogenated or “trans” fats and alcohol (discuss this with your physician).

LDL, also known as “bad cholesterol”, causes plaque deposits to form in arteries. Optimal levels of LDL are between 70 and 100 mg/dl. Lowering LDL to less than 70 mg/dl is a new treatment option in some cases. You can decrease your LDL by decreasing your intake of saturated fat, trans fat and cholesterol, as well as by increasing your intake of soluble fiber and plant stanols/sterols. Weight loss, if needed, also helps.

Triglycerides are lipids that carry fat through the bloodstream to tissues. Optimal triglyceride levels are less than 150 mg/dl. Reduce triglycerides by moderating carbohydrate intake, especially white flours, limiting sweets and fruit juices, restricting alcohol intake and losing weight, if needed.



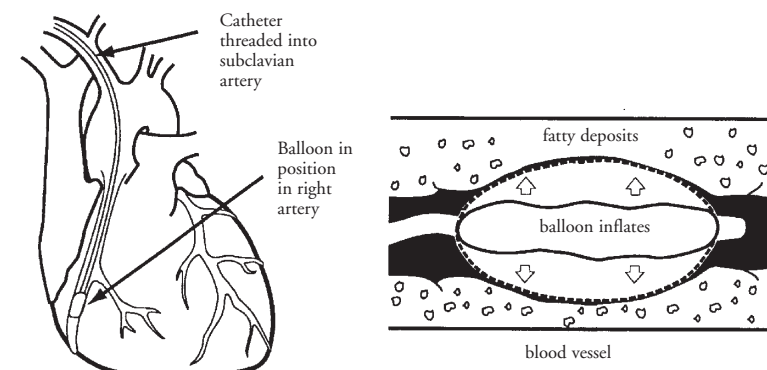
Therapeutic Procedures

Coronary Angioplasty Procedures

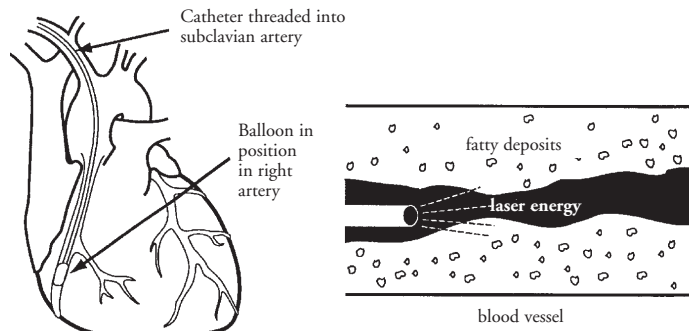
Coronary angioplasty is a non-surgical procedure, which may be recommended by your physician to reduce the blockage or narrowing in one or more of your coronary arteries. The goal of this procedure is to improve the supply of blood into the heart muscle.

Angioplasty can be completed in any number of fashions, dependent on the type of plaque, size and shape of the artery. It may be performed with the use of balloons, stents, laser, or directional atherectomy (a cutting away of the plaque from the inside of the artery). Other equipment such as ultrasound may be used to assess the blockage and the effectiveness of balloons and stents.

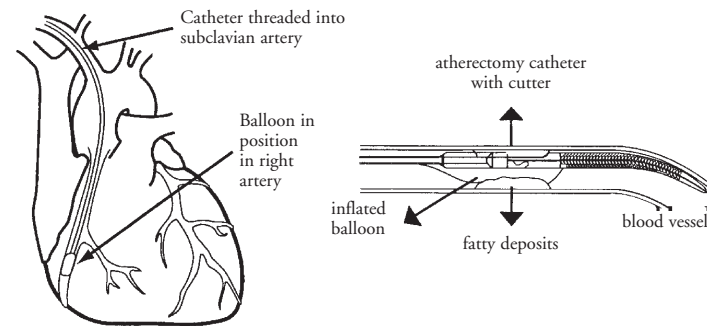
Balloon Angioplasty (Percutaneous Transluminal Coronary Angioplasty [PTCA]), involves insertion of a small balloon mounted on a catheter, into the narrowed segment of the artery. Inflation of the balloon at high pressure one or more times is used to open the narrowed segment to make it easier for blood to flow through the artery.



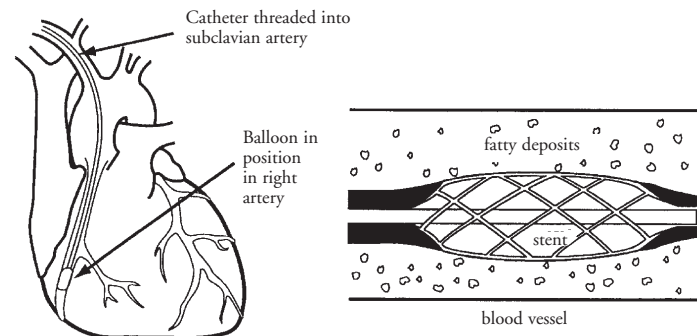
Laser Angioplasty (Excimer Laser Coronary Angioplasty [ELCA]) involves using the insertion of a laser emitting catheter into the narrowed segment of the artery. Once the laser energy is turned on, the plaque is vaporized, thus reducing the blockage of the artery.



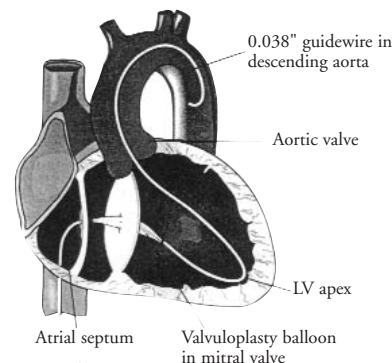
Directional Coronary Atherectomy involves the use of a small sharp blade housed inside a catheter which is placed against the plaque allowing the doctor to cut and remove part of the plaque from the wall of the artery.



Stent Implantation, a thin metal scaffolding mounted on a balloon catheter, is advanced into a narrowed coronary artery. This stent is permanently implanted in the coronary artery after the balloon catheter is inflated. An expanded stent acts as a scaffold within the artery to keep it open.



Valvuloplasty is a non-surgical technique for increasing flow of blood through narrowed or tight heart valves using dilation catheters. This procedure is similar to PTCA. Catheters are inserted from a femoral approach (from the artery in the groin) and advanced to the narrowed valve using fluoroscopic (X-ray) guidance. A dilation catheter is inflated to increase the heart valve opening and improve blood flow.



After Coronary Interventional Procedures:

- Most likely you will go to a monitored (telemetry) unit overnight.
- The catheters are usually removed shortly after the procedure.
- Catheters are removed from your groin and hand pressure is applied to the puncture site(s) to prevent bleeding.
- A vascular hemostatic device (VHD) may be used. This is an invasive method of sealing the large puncture in the artery. It allows the puncture site to close faster and stabilize the artery so you can walk sooner.
- **TOTAL BED REST** is needed after the procedure. If a VHD is used, you may need to lie still for 2 – 4 hours before getting up.
- If your doctor does not use VHD, you may be required to lie still for 4 – 6 hours before getting up. The most important thing to remember is **NOT TO BEND** the leg at the puncture site.
- You must use the urinal or bedpan for elimination until the doctor has determined you can get up.
- If you sneeze or cough, apply pressure with your fingers over the puncture site.
- The nurse will check your vital signs and puncture site(s) frequently.

CAUTION!!! If you feel:

- Sudden pain at the site; or
- Warm, sticky sensations or sensation of fluid or blood on the affected leg,

NOTIFY THE NURSE IMMEDIATELY!

Pressure will be reapplied for as long as needed to stop the bleeding.

After Discharge from the Hospital:

1. Activity

- Minimize activity for two days after discharge.
- Do not lift heavy objects for five to seven days; check with your doctor.
- Do not bend from the waist. Avoid strenuous exercise. Exercise is considered strenuous if you sweat.
- You may drive the day after you come home.
- Avoid straining during bowel movements.
- Talk to your doctor about when to return to work.

2. Groin Care

- You may shower the day after discharge. However, you should avoid tub baths, swimming and the use of Jacuzzi or sauna until the puncture site has completely healed.
- You may remove the Band-Aid or dressing from the site the next day and wash with soap and water. Pat dry.

Pacemaker

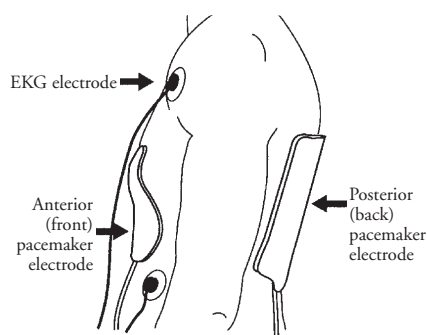
A pacemaker is an artificial device placed inside or outside the body to regulate your heartbeat. As you perform daily activities, the pacemaker sends and receives electrical signals to and from the heart to regulate your heartbeat to meet your body's needs.

1. Temporary Pacemaker

While in the hospital, you may have a temporary pacemaker to stabilize your heartbeat. The temporary pacemaker is placed outside of the body. This allows your doctor to regulate the number of electrical signals going to the heart through a pacemaker wire.

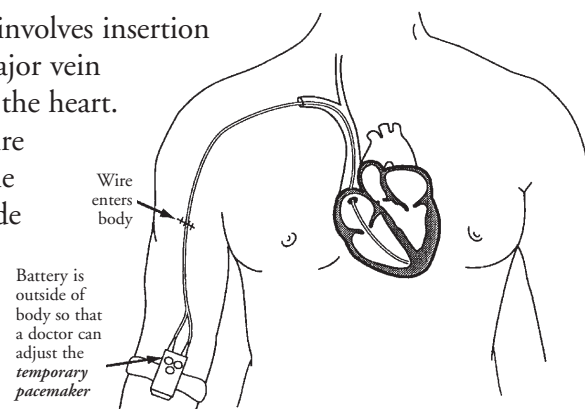
■ External Non-Invasive Pacemaker

A temporary pacemaker that involves application of adhesive electrode pads on the chest and connected to a pacemaker machine via a pacemaker wire. Electrical signals between the heart and the pacemaker machine are exchanged via these electrode pads applied on the chest.



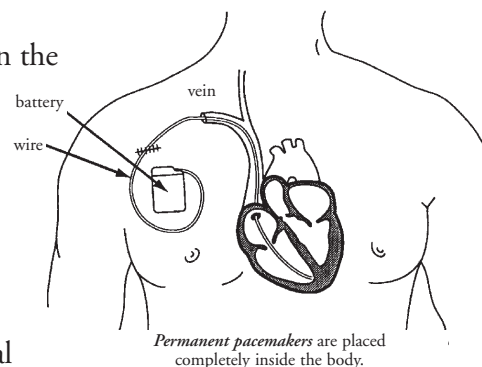
■ Transvenous Pacemaker

A temporary pacemaker that involves insertion of a pacemaker wire into a major vein and advanced until it reaches the heart. One end of the pacemaker wire touches the heart muscle while the other end is located outside the body to be connected to a pacemaker box. The procedure is done under local anesthesia.



2. Permanent Pacemaker

A permanent pacemaker is usually placed in the body through a small incision in the upper chest or abdomen close to a major vein. This procedure is done under local anesthesia. The area will be clipped and scrubbed with an antiseptic agent. The vein is opened and the pacemaker wire is advanced into the heart. The wire must touch the heart so that it can carry electrical



signals back and forth between the heart and the pacemaker. The pacemaker is then attached to the wire and placed under the skin in a pocket-like area.

ACTIVITIES YOU CAN DO AND WHEN YOU SHOULD BE CAREFUL

At first, many people are overly concerned about their pacemaker. However, as they become more confident in themselves and the pacemaker system, they feel comfortable resuming a normal lifestyle.

- You may wear comfortable clothing.
- You may operate any of the electrical devices in your home.
- You may drive or ride in an automobile, tractor or boat.
- You may not go through magnetic resonance imaging (MRI) machines. Before you go for any test, tell your doctor you have a pacemaker implant. Cardiac pacemaker is contraindicated for MRI studies.
- Airports: Sometimes the metal case of the pacemaker will trigger the security-screening device in airports. If this happens, simply show your pacemaker identification card to the security guard (the function of your pacemaker is not affected by these airport devices).
- Regular appointments with your doctor or visits to a pacemaker clinic may be necessary to evaluate you and your pacemaker.

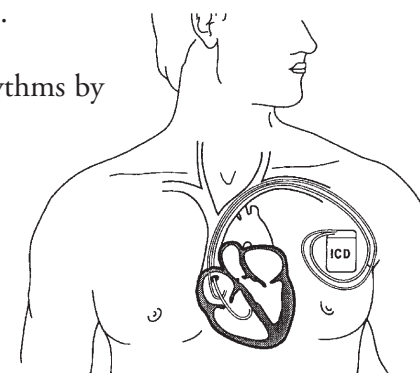
Note: Your pacemaker function needs to be checked every one to three months.

Implantable Cardioverter Defibrillator (ICD)

The ICD is an electronic device which is designed to stop rapid abnormal heart rhythms. Patients who have suffered cardiac arrest or have life-threatening arrhythmias (rapid abnormal heart rhythms) uncontrolled by the usual methods (e.g. medications, etc.) may receive this device.

The ICD terminates rapid abnormal heart rhythms by pacing the heart faster than the abnormal rate (called overdrive pacing) or delivering one or several shocks directly to the heart. These shocks may or may not be felt depending on the amount of energy required to restore your heart to normal rhythm.

The ICD is implanted under the skin in either side of the chest region. It is connected to leads (wires), which are used for pacing, shocking and sensing. The ICD is implanted in the operating room setting while you are asleep. Several kinds of surgical approaches are available and your physician will discuss the various options.



Preparation for ICD Implant:

- Nothing to eat or drink six to eight hours before surgery.
- Intravenous line will be started in your room before surgery.
- Medications can be given directly into this line as needed during the surgery.
- Empty your bladder before going to surgery.
- Wear a hospital gown.

After ICD Implant:

- You may go to a monitored (telemetry) care area.
- The nurse may check your vital signs frequently.
- You may have incisional pain. You may ask your nurse for pain medication.

After discharge, patients are followed up every few months to check device status as well as perform several non-invasive tests.

Radiofrequency Ablation

Radiofrequency ablation is a non-surgical procedure designed to locate abnormal conduction pathways in the heart and eliminate them by delivering burning or freezing energy to that area. The procedure is performed in the Cardiac Catheterization Laboratory and can be done on an inpatient or outpatient basis. The radiofrequency ablation procedure is similar to a cardiac catheterization in that catheters (small thin wires) are placed into different areas of the heart by entering through the groin, and commonly the neck. Once the abnormal pathway is found, energy is applied to that area through the catheter. Several applications of radiofrequency or cryo energy (a freezing technique to burn tissue) may be needed to eliminate any abnormal heart rhythm disturbances. You may be asleep during the entire procedure, which can take from two to eight hours.

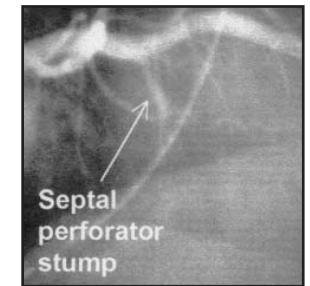
After Radiofrequency Ablation:

- All catheters and sheaths are removed before you go back to your room.
- You may go to a monitored (telemetry) care area.
- You will be asked to lie flat in bed, keeping your legs straight for four hours.
- The nurse will check your vital signs and access sites (groin) frequently.
- You may be discharged the following morning, which will be determined by your physician.

Septal Ablation

This is a new, non-surgical procedure that requires injecting pure alcohol through catheters into the arteries that feed the interventricular septum (the muscle that separates the two chambers of the heart) creating a mild heart attack that thins the thickened heart muscle. This procedure is done in the Cardiac Catheterization Laboratory under local anesthesia. This procedure is beneficial for

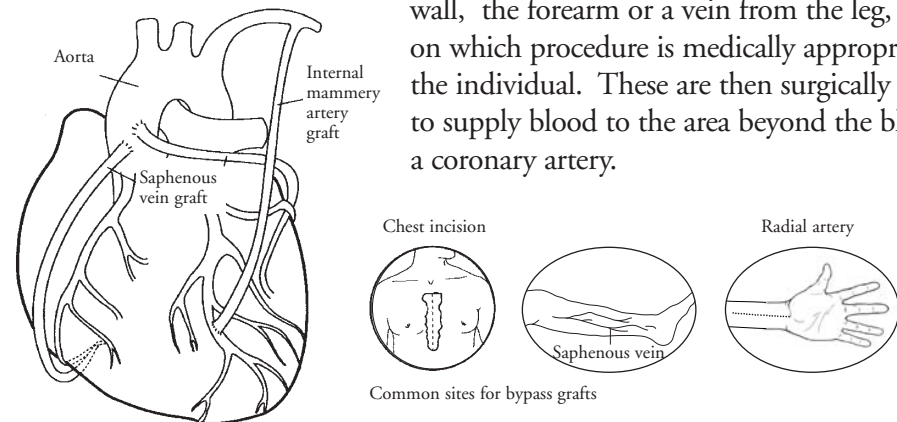
patients who suffer from a heart condition called hypertrophic obstructive cardiomyopathy (HOCM). Hypertrophic obstructive cardiomyopathy is an inherited condition that causes excessive muscle growth in the interventricular septum. This limits blood flow from the left ventricle to the aorta, the main valve of the heart, which means the heart must work harder to move the blood. The procedure helps to make the interventricular septum muscle smaller so the heart works better.

**Cardiac Surgery**

There are many options for the surgical approach to bypass and valve surgeries. They range from the traditional sternotomy incision down the middle of the chest, to a partial sternotomy where only a portion of the sternum is cut through, to completely minimally invasive or robotic approaches. You should discuss the options available to you with your surgeon.

1. Coronary Artery Bypass Graft (CABG) Surgery

Bypass surgery is recommended for some people with narrowing in one or more of the coronary arteries. Surgery involves removing an artery from the internal chest wall, the forearm or a vein from the leg, depending on which procedure is medically appropriate for the individual. These are then surgically attached to supply blood to the area beyond the blockage in a coronary artery.

**2. Minimally Invasive Direct Coronary Artery Bypass Grafting (MIDCAB) and Beating Heart Surgeries**

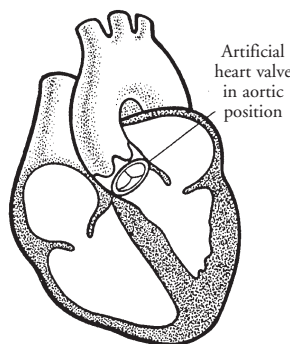
The minimally invasive direct coronary artery bypass or MIDCAB procedure is a surgical approach. This is done through the making of smaller incisions on the chest, usually between the ribs. The MIDCAB procedure can be performed on single or multiple blocked coronary arteries. Both traditional sternotomy and MIDCAB procedures can be done with or without the use of a “bypass machine”. When done without the use of a “bypass machine”, it is called a “beating heart surgery”. There are many factors that go into determining which approach and option is best for the individual patient. Please discuss these options with the surgeon.

3. *Transmyocardial Revascularization (TMR)*

Transmyocardial revascularization (TMR) is a procedure designed to relieve severe angina or chest pain in patients who are not candidates for bypass surgery or angioplasty. Sometimes TMR is used with traditional heart surgeries. A laser device is used to develop pathways within the heart muscle necessary to supply the heart with oxygen-rich blood.

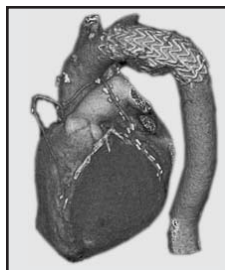
4. *Valve Surgery*

It is sometimes necessary to repair or replace a heart valve that is no longer functioning properly. Often the valve has become damaged or scarred by birth defects, rheumatic fever or infection. When the heart valves do not open or close properly, the heart has to pump harder to get blood to the body. Over time this can weaken the heart and cause pain, shortness of breath, dizziness or other symptoms. When medication cannot correct these problems, heart valve surgery is often recommended. Some conditions allow for robotic or minimally invasive valve surgery. This is done by making several small porthole incisions on the chest and/or a small incision on the right side of the chest. Some heart valves can be repaired or replaced with this technique. Please discuss the possibility of this option with your surgeon and cardiologist.



5. *Thoracic Aortic Aneurysm Surgery*

A thoracic aortic aneurysm is an abnormal dilation in a weakened wall of the aorta in the chest. If left untreated, an aneurysm will lead to a variety of life-threatening conditions, such as aortic dissection or rupture. Due to the potential risks, timely diagnosis and treatment is crucial. Thoracic aneurysms may occur in the aortic root, ascending aorta, arch or descending aorta. Surgery may become necessary to replace the weakened aorta with a graft. In addition, endovascular stent grafting is another potential procedure available for individuals with distal arch and descending aortic aneurysms.



6. *Heart Transplantation*

Once a heart has reached advanced heart failure, the Heart Transplantation Program provides a continuum of comprehensive treatments and surgical care, individually tailored to each patient. Treatments include surgical therapies, such as heart transplantation, heart-lung transplantation, left ventricular assist device implantation and automatic implantable cardioverter defibrillator insertion. The program was also the first in California to implant the portable artificial

heart (HeartMate VAD). For patients with advanced heart failure, the use of a ventricular assist device (VAD) can be used as a life-saving treatment option. Such devices act as a “bridge” for patients awaiting heart transplantation or the VAD can provide a new alternative which can extend the life expectancy of end-stage heart failure patients. In addition, the program provides detailed follow-up care that entails endomyocardial biopsies and management of immunosuppressive therapy.

7. *Lung Transplantation*

Cedars-Sinai Medical Center has been a national leader in lung transplantation with the longest running program in the western United States, established in 1988. Since that time, the lung transplant team at Cedars-Sinai has completed more than 150 transplants with excellent outcomes. Lung transplantation is a good treatment option for many individuals with end-stage lung disease who have exhausted all other medical and surgical treatment options without significant improvement. The conditions for which lung transplantation is typically considered include severe emphysema, cystic fibrosis, pulmonary fibrosis and pulmonary hypertension. This treatment option has traditionally been restricted to younger individuals who are healthy except for their lung disease but Cedars-Sinai has been able to expand the benefits of lung transplantation to older individuals with other health conditions that would have precluded lung transplantation at most other centers. In spite of this, the results of lung transplantation at Cedars-Sinai have been comparable to the results reported by most centers around the country. In addition, the lung transplant program is an integral part of the Women’s Guild Lung Institute which provides comprehensive services for individuals with all forms of advanced lung disease.

8. *Atrial Fibrillation Center*

Atrial fibrillation is the most common clinically encountered arrhythmia (irregular heart rhythm) and can lead to dizziness, fainting and stroke. It is most common in older people with heart disease or after cardiac surgery but can also occur in otherwise young and healthy individuals. Here at Cedars-Sinai Medical Center, our world class team of experts are at the cutting edge of the many treatment options for atrial fibrillation. Our comprehensive staff utilizes state of the art options including: evaluation and treatment of the underlying causes, medical treatment options, catheter based ablation using state of the art technology and the newest minimally invasive surgical approaches.



Important Facts We Want You To Know

Early Warning Signs of Heart Disease

1. Symptoms of a Heart Attack: (MI = Myocardial Infarction)

- Prolonged discomfort or a sensation of pressure in the chest
- Aching, burning tightness or squeezing
- A feeling of indigestion, fullness or heaviness
- Choking feeling
- Sudden shortness of breath

These symptoms may spread to the upper body, abdomen, chest, back, jaw, and shoulder blades or to one or both arms.

If the above symptoms are new or last longer than 15 minutes, stop whatever you are doing and sit or lie down.

CALL (911) EMERGENCY IMMEDIATELY!

Other symptoms may include one or more of the following:

- Sweating (cold or hot)
- Nausea and/or vomiting
- Dizziness
- Palpitations
- Loss of consciousness

The symptoms of a heart attack may vary in severity, quality and location. Therefore, it is important to describe symptoms to your doctor and nurse as accurately as possible.

2. Symptoms of Congestive Heart Failure (CHF)

- A sudden weight gain (2-5 pounds in 1 – 4 days); weigh yourself daily wearing the same clothes and at the same time each day

- Swelling of the lower extremities (i.e., legs and ankles)
- Inability to sleep except when propped up on two or more pillows
- Shortness of breath (may be continuous, with exertion, or may awaken you at night)
- Frequent dry, hacking cough without sputum (especially when lying down)
- General fatigue

These symptoms of heart failure occur when the heart fails to pump blood effectively and blood backs up in the heart and other organs.

Risk Factor Control

To control your risk factors for developing heart disease, most doctors recommend the following changes:

- Stop smoking
- Maintain or achieve a healthy body weight
- Eat less saturated fat, trans fat and cholesterol, and more vegetables, fruits, whole grains and fish
- Lower your blood pressure
- Find a way to manage your stress
- Exercise
- Keep your blood sugar under control
- Normalize your blood lipids (HDL, LDL and triglycerides)
- Get enough rest
- Visit your doctor regularly
- Regularly take your medications as prescribed by your physician.
(Do not stop taking prescribed medications without discussing it with your doctor).

Nutrition and Heart Disease

Eating more vegetables, fruits, whole grains and fish while lowering your intake of saturated fat, trans fat and cholesterol are important aspects of your heart healthy eating plan. The transition to a healthier eating style can reduce cholesterol, triglycerides, and blood pressure, improve insulin resistance, and aid in weight management. To help you implement the “Therapeutic Lifestyle Changes” outlined on the following page, professional assistance from a Registered Dietitian is highly recommended and can be obtained on an outpatient basis by calling the Preventive and Rehabilitative Cardiac Center at (310) 423-9660 or the Outpatient Nutrition Counseling Center at (310) 423-3444.

Lowering Your Cholesterol with Therapeutic Lifestyle Changes (TLC)

The TLC diet, outlined by the National Cholesterol Education Program, calls for a variety of foods that are low in saturated fat, trans fat, and cholesterol but high in taste.

<p>Breads/Cereals/Grains Select whole grain breads, cereals and pasta, brown rice, oatmeal, potatoes, low fat whole grain crackers and cookies. One serving is equal to one slice or approximately ½ cup.</p>	<p><i>6 or more servings a day</i> <i>Adjust to calorie needs</i></p>
<p>Vegetables/Dry Beans/Peas Fresh, frozen or canned – without added fat, sauce or salt. One serving is equal to ½ cup vegetables and beans, or 1 cup dark, leafy greens.</p>	<p><i>3-5 servings a day</i></p>
<p>Fruits Fresh, frozen, canned, dried – without added sugar. One serving is equal to 1 piece, 1 handful or ½ cup canned.</p>	<p><i>2-4 servings a day</i></p>
<p>Dairy Products Fat free or 1% milk or yogurt, or cheese with less than 3 grams of fat per ounce. One serving is equal to 1 cup milk or yogurt, or 1½ ounces of cheese.</p>	<p><i>2-3 servings a day</i> <i>Fat free or low fat (for example, 1% milk)</i></p>
<p>Eggs Use 2 whites or ¼ cup egg substitute in place of 1 yolk.</p>	<p><i>2 or fewer yolks per week</i> <i>– including yolks in baked goods and in cooked or processed foods</i></p>
<p>Meat/Poultry/Fish Poultry without skin and fish are lower in saturated fat. Be sure to trim any fat from meat and remove skin from poultry before cooking. Lean cuts of beef include sirloin tip, round steak and rump roast; extra lean hamburger; cold cuts made with lean meat or soy protein; lean cuts of pork are center cut ham, loin chops and pork tenderloin. Strictly limit organ meats, such as brain, liver and kidneys – they are high in cholesterol. Eat shrimp only occasionally – it is moderately high in cholesterol. Avoid squid.</p>	<p><i>5 or less ounces a day.</i></p>
<p>Fats/Oils Nuts are high in calories and fat, but have mostly unsaturated fat. Nuts can be eaten in moderation on the TLC diet—be sure the amount you eat fits your calorie intake. Unsaturated vegetable oils that are high in unsaturated fat include canola, corn, olive, safflower and soybean; soft or liquid margarines <i>(continued in the table on the right)</i></p>	<p><i>Amount depends on daily calorie level.</i></p>

Fats/Oils (continued from previous page)

(the first ingredient on the good label should be unsaturated liquid vegetable oil, rather than hydrogenated or partially hydrogenated oil) and vegetable oil spreads; salad dressings; seeds; nuts and avocado. Choose products that are labeled “low-saturated fat,” which equals 1 gram of saturated fat per serving.

Diet Options

- Stanol/sterol-containing food products. Specially labeled margarines, orange juice, snack bars and other food items.
- Soluble fiber: barley, oats, psyllium, apples, bananas, berries, citrus fruits, nectarines, peaches, pears, plums, prunes, broccoli, brussels sprouts, carrots, dry beans, peas, soy products (such as tofu and miso).

Source: U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute, 2005.

These recommendations may be altered to further lower cholesterol intake by reducing animal flesh intake and meeting protein needs through vegetarian protein sources such as dried beans and legumes, edamame or soybeans, tofu and soy “meat” alternatives such as veggie burgers.

Additionally, the American Heart Association adds goals to consume fish, especially oily fish, twice weekly (4 oz serving) as well as to prepare foods with little or no salt, to minimize intake of foods and beverages with added sugar and to remember this nutrition advice when eating foods prepared outside the home.



How to Take a Pulse

Why learn to count your pulse?

How much your heart beats EACH MINUTE depends on many things:

- whether you are resting or exercising
- medications you take
- the condition of your heart and body

Often when your dosage of medicine needs to be changed or when there is a change in your heart, the pulse will change. It may be, FAST or SLOW, REGULAR or IRREGULAR.

Learning to count your pulse helps you know when to take your medication, and when to call the doctor.

During my hospitalization:

My pulse at rest _____

My pulse after an activity, such as walking _____

Finding your pulse

There are three places you can try:

The WRIST - just below the bottom of the thumb

(We will use the wrist.)



Place your first two or three fingers on the radial artery at the wrist. Can you feel the beating of the pulse? Now take your fingers away and try to find it again. Feel it? Is the beating regular or irregular?

Note: If you are having trouble, try using your other wrist, or try someone else's first

Inside of the ELBOW



At the bottom of the NECK



Counting the pulse

Get a watch with a second hand and place it so you can easily see it.

- RELAX! so your heart rests. It's best to count a resting pulse.
- Find your pulse and just FEEL THE BEATING for a while.
- Now – start COUNTING WITH ZERO AND COUNT EACH BEAT YOU FEEL FOR ONE FULL MINUTE.

Got the number? **THAT'S YOUR PULSE!!!**

To practice: Try counting your nurse's pulse or someone in your family. You will find that everyone's pulse is a little different.

Recording your pulse

- Be sure to write down in a log the NUMBER of your pulse, and if it was regular or not.
- If your pulse is slower than _____ or faster than _____ for one full minute, DON'T take your medicine. Check with your doctor first.

COMMENTS



Basic Anatomy of The Heart

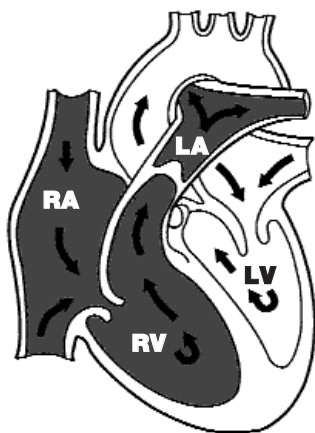
Chambers of the Heart

Right Atrium (RA) – The heart chamber which receives unoxygenated blood from the rest of the body.

Right Ventricle (RV) – The heart chamber which pumps unoxygenated blood to the lungs for oxygenation.

Left Atrium (LA) – The heart chamber which receives oxygenated blood from the lungs.

Left Ventricle (LV) – The heart chamber which pumps oxygenated blood (coming from the LA) to the aorta to distribute it to the different parts of the body.

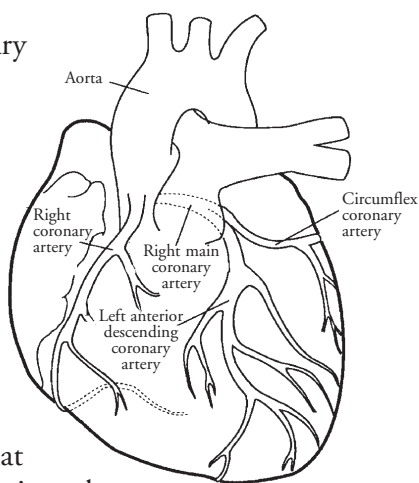


Coronary Arteries

Left Main – The main branch of the left coronary arteries that divides into 2 major arteries:

1. **Left Anterior Descending (LAD)** – The coronary artery that supplies a major portion of the Left Ventricle.
2. **Left Circumflex (LCX)** – The coronary artery that supplies the left atria and inferior and posterior portion of the LV.

Right Coronary Artery – The coronary artery that supplies the right chambers of the heart (right atria and right ventricle) and conduction system.

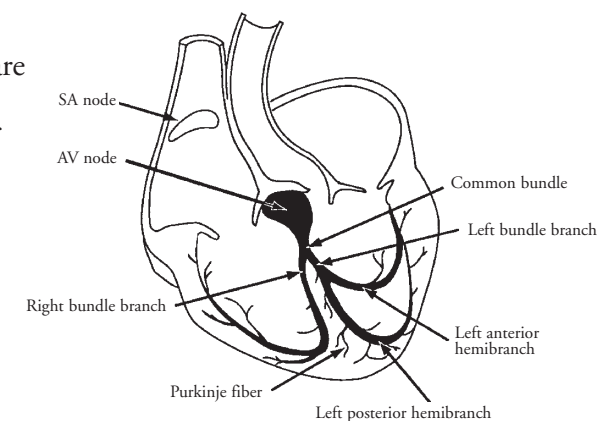


Conduction System

Parts of the Conduction System are the following:

SA Node – primary pacemaker of the heart

AV Node – Bundle Branches



Glossary of Terms

Ablation – A non-surgical procedure in which a catheter is inserted through the veins to the heart, and delivers an electrical energy to eliminate the areas of the heart muscle or conduction system that cause abnormal rapid and potentially life-threatening heart rhythms.

Angina – A warning sign that the heart muscle is not getting enough blood and oxygen. This may be manifested by one or more of the following: a discomfort or a feeling of pressure, tightness, squeezing, aching, pain, indigestion, fullness, heaviness or burning in the chest, arm, neck or jaw.

Anticoagulants – Medications that prolong the time it normally takes for the blood to clot. These medications (Heparin and Coumadin) are often called “blood thinners.”

Aorta – Main artery leading from the heart to the rest of your body.

Aortic Insufficiency (Regurgitation) – Leakage or backflow of blood from the aorta, across the aortic valve into the left ventricle.

Aortic Stenosis – Inability of the aortic valve to open completely, resulting in obstruction to the forward flow of blood from the left ventricle into the aorta.

Arrhythmias – Refers to irregularities in heart rhythm with the heart beating either too fast (tachycardia) or too slow (bradycardia). The arrhythmias may reduce the pumping ability of the heart.

Arteries – Vessels branching from the aorta which carry oxygen-rich blood to different parts of the body.

Arteriosclerosis – Commonly called “hardening of the arteries.” A condition in which the arterial wall becomes thick and hard, losing its elasticity.

Atherosclerosis – Narrowing or blockage of arteries (blood vessels) caused by build-up of fatty plaque made up of cholesterol and other materials within the artery wall.

Blood Pressure – A measurement of the force that moving blood puts on the artery wall. It consists of two measurements: the systolic pressure, and the diastolic pressure.

Diastolic Pressure – Pressure left in the arteries in between heartbeats. The “lower number” in a blood pressure reading.

Systolic Pressure – Peak pressure in the arteries when the heart pumps out the blood to the body. The “top number” in a blood pressure reading.

Cardiomyopathy – Enlargement and weakening of the heart muscle which may have resulted from any one of various causes, i.e. long-standing heart disease, viral infections, toxic effects of alcohol or unknown causes. A dilated heart does not pump as well as it should.

Catheter – A small plastic tube used to inject liquid (dye) into the coronary artery at the time of coronary angiogram or angioplasty/stent.

Cholesterol – A waxy substance with fat-like properties present in animal tissues and, thus, in foods of animal origin such as meat, eggs and dairy products. Saturated fats will also increase cholesterol levels. In addition to food sources, cholesterol is manufactured by the body. Cholesterol in excess is stored in the fatty deposits in the arterial wall in atherosclerosis.

Low-Density Lipoproteins (LDL) – Special type of cholesterol that, when high, increases the incidence of fatty deposits within arterial wall (increasing risk for coronary atherosclerosis). Called “bad cholesterol.”

High-Density Lipoproteins (HDL) – A special type of cholesterol that, when high, decreases the incidence of fatty deposits within arterial wall (decreasing risk for coronary atherosclerosis). Called “good cholesterol.”

Triglycerides – Another type of fat which, when elevated, increases the risk for atherosclerosis.

Congestive Heart Failure – A condition in which the heart muscle is unable to effectively pump out blood to the rest of the body which results in increase accumulation of blood in the heart chambers and the lungs.

Coronary Arteries – Vessels originating from the main artery (aorta), which runs on the surface of the heart, supplying blood to the heart muscle from the aorta.

Coronary Arteriography – X-ray procedure in which dye is injected to outline the coronary arteries, allowing the physician to see blockages or abnormal narrowing in the artery.

Coronary Artery Disease (CAD) – A condition in which a coronary artery is clogged by a buildup of cholesterol and fatty deposits. Clogged arteries may potentially decrease delivery of oxygen-rich blood supply to the heart muscle and predispose to development of heart attacks (myocardial infarction).

Coronary Artery Bypass Graft (CABG) – Open heart surgery used to bring new blood supply to the heart muscle by connecting pieces of a vein or artery to reroute blood flow around the obstructed arteries.

Coronary Thrombosis – A blood clot in an artery which blocks the supply of blood to the heart muscle.

Diuretics – A medication commonly called a “water pill” that helps the body get rid of excess salt and fluid.

Echocardiogram – A procedure which uses sound waves to: 1) evaluate the structures and functions of the heart valves and heart muscle; and 2) measure the size of the heart’s pumping chambers (ventricles).

Electrophysiological Study (EPS) – A procedure in which a catheter is inserted through the veins to the heart to study the electrical activity of the heart and to identify absence or presence of abnormal heart rhythms. If abnormal heart rhythms are present, the specific site of origin is identified and appropriate treatment is instituted.

Fats -

Monounsaturated Fats – Aid in lowering blood cholesterol levels. They are liquid at room temperature and originate only from plant and vegetable sources. Examples: olive oil, canola oil, peanut oil, and avocado.

Polyunsaturated Fats – Aid in lowering of blood cholesterol levels. They are usually soft at room temperature and originate from plant and vegetable sources. Examples: cottonseed, soybean, corn and safflower oils.

Saturated Fats – Raise blood cholesterol levels. Generally, they are solid at room temperature. They originate primarily from animal sources, such as beef, veal, lamb, poultry, milk, butter, cheese and lard.

High Blood Pressure (Hypertension) – A greater-than-normal pressure of blood against the walls of the arteries. It may not make you sick, but over time it may cause wear and tear on the artery walls and may damage the heart, brain, eyes and kidneys. The causes of high blood pressure are not completely understood. Stress, high sodium diet, obesity, and smoking may contribute to or aggravate high blood pressure. In some cases the tendency for high blood pressure runs in the family.

Implantable Cardioverter Defibrillator (ICD) – A special type of electronic device placed inside the body to automatically terminate life-threatening abnormal heart rhythms.

Invasive Procedures – Procedures which involve puncture or incision of the skin or insertion of an instrument into the body.

Ischemia – Blood supply to the heart muscle is insufficient to maintain normal function of an organ.

Mitral Insufficiency (Regurgitation) – Inability of the mitral valve to close completely, resulting in leakage or backflow of blood into the top left (atria) chamber and the lungs.

Mitral Stenosis – Obstruction of the passage of blood across the mitral valve due to narrowing of the opening, resulting in a decreased forward flow of blood and accumulation of blood into the top left (atria) chamber and the lungs.

Myocardial Infarction – Heart muscle damage brought about by a prolonged or persistent abrupt blockage of the blood vessels that supply the heart muscle (coronary arteries). Also known as a heart attack.

Pacemaker – A device placed in the body to help regulate your heart rhythm. This device sends out electrical signals to keep the heart beating at a speed appropriate for your body's needs.

Pacemaker-Cardioverter Defibrillator (PCD) – A special type of electronic device placed inside the body to automatically detect and terminate life-threatening abnormal heart rhythm and at the same time regulate the speed of the heartbeat to meet your body's needs.

Percutaneous Transluminal Coronary Angioplasty (PTCA) – A procedure used to widen the narrowing in your coronary artery using a small balloon that is inflated within the narrowed section of the coronary artery.

Plaque – Thickened portion of the artery containing cholesterol that blocks the arteries.

Resting Electrocardiogram – Recording of the heart's electrical activity at rest.

Sheath – A small catheter or tube which allows for access into a vein or artery during catheterization, angiogram and angioplasty procedures and electrophysiological study procedures. This tube is usually removed immediately after most of these procedures except for an angioplasty procedure in which it may be left in place for several hours.

Stress Electrocardiogram – Recording of the heart's electrical activity while the patient exercises.

Transesophageal Echocardiogram – An invasive type of echocardiographic procedure wherein a probe with an ultrasound transducer is placed into the esophagus via the mouth.

Thrombolysis – A process of dissolving clots that clog arteries.

Vasodilators – Medications used to increase the size (dilatation) of a blood vessel.

Valvuloplasty – A non-surgical procedure to loosen up narrowed or tight heart valves.

