

## Heart Procedures Glossary

**Ablation:** Catheter-based procedure utilizing electrical or chemical energy to identify and eliminate the source of abnormal electrical impulses and pathways in the heart. Ablation is used to treat some forms of cardiac arrhythmia.

**Angiography:** Also called a catheterization, this procedure creates a specialized x-ray movie of a coronary artery or other vascular structure by using radiopaque dye. The dye (or contrast medium) is injected into the blood vessel or the heart chamber through a catheter. The contrast medium is visible on x-ray and provides a detailed view of blood flow in the heart chambers and/or blood vessels of interest.

**Angioplasty:** A procedure to open a narrowed or blocked coronary artery. During the procedure, a catheter (a long flexible tube usually introduced through the leg) is inserted into one of the main coronary arteries. A thin wire is introduced through the catheter and used to cross the blockage. A balloon and/or stent can then be delivered over the wire and used to open the artery.

**Cardiac Catheterization:** A diagnostic test in which a catheter is inserted into the heart chambers or lung circulation to measure pressure and oxygen levels. Angiography is also usually performed in which x-ray movies of the coronary arteries are taken during injection of radiopaque contrast through a catheter from a leg artery.

**Cardioversion:** For patients in an abnormal rhythm, cardioversion utilizes medication or electricity to restore the rhythm back to normal. Pharmacologic cardioversion attempts to convert the rhythm using medication; electrical cardioversion converts the rhythm by delivering an external electric shock to reset the rhythm. If a defibrillator is in place, internal cardioversion can be performed by programming the device to deliver a shock.

**Carotid Duplex Ultrasonography:** Used to diagnose plaque buildup in the large arterial blood vessels of the neck that supply the brain with blood. Ultrasound is used to create an image of the carotid arteries. Doppler ultrasound measures velocity of blood flow through an artery which can be used to estimate the degree of vessel narrowing.

**Color Flow Doppler:** A Doppler study uses ultrasound to analyze blood flow characteristics within the heart or other vascular structure. Color is assigned by the computer to help determine the velocity and direction of blood flow. This color flow mapping can be used to identify abnormal blood flow through a heart valve or chamber and to estimate the degree of vessel narrowing.

**Coronary Artery Bypass Grafting (CABG):** In patients with blocked coronary arteries, heart bypass surgery is used to create a detour or "bypass" around the blocked part the artery. The surgery is commonly called Coronary Artery Bypass Grafting, or CABG(pronounced "cabbage"). In this surgery, an artery from the chest wall and/or veins from the lower leg are used to create the bypass.

**Dobutamine Stress Echocardiography:** A form of stress testing for people who cannot or should not walk in which the medication dobutamine is administered according to a protocol. Dobutamine gradually increases the heart rate and pumping power, thus simulating the increased demand of exercise. An ECHO is performed at rest and during dobutamine infusion to obtain information about blood supply to the heart.

**Dual Isotope SPECT Perfusion (Nuclear stress):** Type of single positron emission computed tomography (SPECT) exam where two different types of radioactive tracers are used. One is given at rest and the blood supply to the heart is measured with a camera. A second agent is given at peak exercise and a second set of pictures is taken. The rest images and stress images are compared to determine whether there are changes in blood supply and heart function with stress that would suggest blockages in the arteries.

**Echocardiography:** An ECHO study as it is commonly called examines the heart structure and function using ultrasound. During the procedure, sound waves are directed at the heart through a wand, or transducer. Sound waves bounce off the heart and the returning signals are converted into a video image. A 2-dimensional (2D) echocardiogram provides a cross-sectional "slice" of the heart. The procedure is painless and provides information on the size of the heart chambers, wall thickness, valves and ventricular pump function.

**2D Echocardiography:** ECHO as it is commonly called. This test uses ultrasound to examine the heart. During the procedure sound waves are directed at the heart through a wand, or transducer. Sound waves bounce off the heart and the

returning signals are converted into a video image. A 2-dimensional (2D) echocardiogram provides a cross-sectional "slice" of the heart. The procedure is painless and provides information on the size of the heart chambers, wall thickness, valve function and pump function of the ventricles.

**Electrophysiology Study:** Invasive study to provide information about electrical signals and pathways in the heart and to guide an intervention called ablation in hopes of correcting an electrical disorder. Vascular access is obtained from the leg, where a vein is punctured and used to deliver catheters to the heart.

**Holter Monitor:** Used to help diagnose arrhythmias. A Holter monitor is similar to an ECG(electrocardiogram); it records the heart's electrical activity, including rhythm and rate. However, a Holter monitor is a small, portable device that is worn for an extended period of time, usually 24 to 48 hours. This test will show changes in rhythm over time while you go about daily activities.

**Implantable Cardioverter Defibrillator (ICD):** Used to treat serious, life-threatening rhythm abnormalities. Similar to a pacemaker, an ICD is a small device that is implanted under the skin of the chest or abdomen. The ICD has wires with electrodes that connect to the chambers of the heart. The ICD continually monitors the heart's rhythm. The defibrillator can function as a pacemaker to back-up the electrical system of the heart and to potentially correct an abnormal rhythm. When a dangerous rhythm occurs, the ICD has the capacity to shock the heart with a high-energy electrical pulse.

**Myoview SPECT Perfusion:** Used for diagnosing ischemic heart disease. This is a type of cardiac imaging study called myocardial perfusion imaging (MPI) that uses technetium-99m tetrofosmin as the radioactive tracer. During MPI, the tracer is injected into the bloodstream. The tracer is taken up into the heart muscle and can be measured by taking pictures with a special camera. Previous heart damage and/or areas receiving abnormal blood supply can be identified.

**Pacemaker:** Used as a back-up to the natural electrical system of the heart or to take over for a failed system. A pacemaker is a small device that is implanted under the skin of the chest or abdomen with wires that connect to the heart chambers. The wires sense when the heart is beating abnormally and can deliver electrical impulses to pace the heart.

**Single Positron Emission Computed Tomography (SPECT):** Used to help diagnose coronary artery disease. This is a type of nuclear medicine imaging study. During SPECT scans, a radioactive material called a tracer is injected into the bloodstream. As the tracer travels to the heart through the blood stream, pictures of the heart are taken with a special camera that can read the energy released from the radioactive tracer. The SPECT scan is able to provide 3-dimensional pictures of the heart to obtain information about heart function and blood supply. It can help determine whether there are blockages in the heart arteries. Sometimes the test is obtained as a series of procedures before and after stress testing.

**Stress Echocardiography:** An ECHO, as it is also commonly called, is performed at rest and again following exercise to assess heart function and blood supply. This test helps determine whether there are blockages in the heart arteries.

**Tilt Table Test:** Used to help diagnose reasons for syncope (fainting). During the procedure, you will rest on a table that moves from a lying to an upright position. Blood pressure and heart rate will be monitored as you change position. A drop in either blood pressure or heart rate may signal a heart disorder. If no symptoms are present, a medication may be given which will simulate adrenaline release in the body. The increased demand on the heart and blood pressure from the medication may induce symptoms of fainting.

**Treadmill Exercise Test:** Used to help determine how well the heart is working. Because some heart problems are easier to diagnose when the heart is at work than at when it is at rest, this test is performed while you exercise. During exercise stress testing, your blood pressure and heart activity are monitored while you walk or run on a treadmill. If you are unable to exercise, medicine can be given to make your heart work harder and beat faster as if you are exercising on a treadmill. During the test blood pressure measurement and an ECG are recorded.

**Ultrasonography:** Used to create an image of internal organs and structures using sound waves. During the procedure, sound waves are directed at the body through a wand, or transducer. The sound waves bounce off the structures and the returning signals are converted into a video image. The procedure is painless.