# Cardiac Catheterization
# Angioplasty and Stent Procedures

**What is Cardiac Catheterization?** Cardiac catheterization is a procedure that involves the insertion of a catheter, a long thin flexible tube into the heart. Cardiac catheterization is a valuable diagnostic tool since it gives the physician the opportunity to visually access the function of the heart.

**Why is a catheterization Performed?** Cardiac catheterization enables doctors to diagnose coronary heart disease, evaluate heart valve function of the heart valves and detect congenital heart defects.

**Coronary Heart Disease:** Normal arteries are smooth and flexible allowing blood to flow through them easily. Over the years arterial walls may become plugged with fatty deposits. As fatty deposits also known as plaques continues to build arteries narrow and blood flow is reduced. If blood flow is sufficiently reduced in coronary arteries, angina (pain or discomfort in the chest, arm, or neck) or heart attack will result.
During cardiac catheterization, x-ray dye is injected into the coronary arteries and pictures are taken. In patients with coronary disease, the pictures show the actual blockages and their severity.

**Heart Valve Evaluation:** Valve disease is present when one or more of the heart valves do not work properly. Heart valves may be narrowed or leak. Cardiac catheterization is utilized to accurately measure the severity of a valve narrowing, or leakage.

**Congenital Heart Defects:** A congenital heart defect is a deformity of the heart that is present at birth. Cardiac catheterization can be used to confirm that a defect exists and to assess the extent of the problem.Percutaneous Transluminal Coronary Angioplasty Percutaneous Transluminal Coronary Angioplasty or PTCA is a catheter based cardiac interventional procedure that utilizes a small balloon attached to a small catheter to expand the opening in an artery. During PTCA, a balloon is passed through a partially blocked artery. When properly placed within the blockage, the balloon is inflated, thereby, opening the artery. Blood can flow more freely through the artery when the balloon is removed.

**Coronary Stent Placement:** More than 400,000 PTCA procedures are done in the United States each year. Clinical studies have shown that up to 50% of patients may have a re-narrowing of restenosis of the arteries that were opened via PTCA within 3 to 12 months after the PTCA. The coronary stent is designed to help keep the treated area in the artery open. A coronary stent is a medical grade stainless steel framework that resembles a tiny spring. The stent is placed on a balloon catheter like the one used for PTCA. The stent and balloon catheter are passed through a blocked artery and a balloon is inflated. This causes the stent to expand inside the artery. After the stent has been expanded, the balloon is deflated and removed. The stent remains inside the artery to help keep the artery open. The inside of the artery will grow over the stent, helping to keep the stent in place.

**Is Cardiac catheterization and Interventional Cardiology Safe?** Cardiac catheterization is an invasive procedure that requires the insertion of the catheter into the body, and therefore has some risk. The risk is small, however, and the procedure is considered relatively safe. Most of the complications associated with catheterization are minor and have no long term effect. They may include nausea and vomiting, allergic skin rashes and irregular heart beats. Local swelling and, or bruising may also result at the insertion site. These complications however are short term and pose minimum long term risk to the patient. On rare occasions catheterizations may be associated with more serious complications. These include damage to blood vessels, formation of blood clots, infection, abnormal heart rhythms, a heart attack or stroke. Deaths are extremely rare.

Some additional complications that may result from PTCA or coronary stenting includes rupture of the artery, stent blockage or closure and stent movement.