

## **Cardiac Catheterization, Coronary Angiogram, and Percutaneous Coronary Intervention (PCI)**



# Cardiac Catheterization, Coronary Angiogram, and Percutaneous Coronary Intervention (PCI)

**Your doctor has recommended that you have a cardiac catheterization, coronary angiogram, and/or possible percutaneous coronary intervention (angioplasty or stent placement) as part of your continuing medical care.** Your procedure is performed in a specialized room, the Cardiac Cath Lab, on the Pacific Campus. Here, a team of cardiologists, registered nurses, and technologists work closely together to provide your care. It is their goal to make your experience as comfortable as possible.

**Note:** *Each person is unique and therefore each person's condition will vary. This booklet contains general information about these procedures. If you have additional questions or concerns, please ask the staff.*

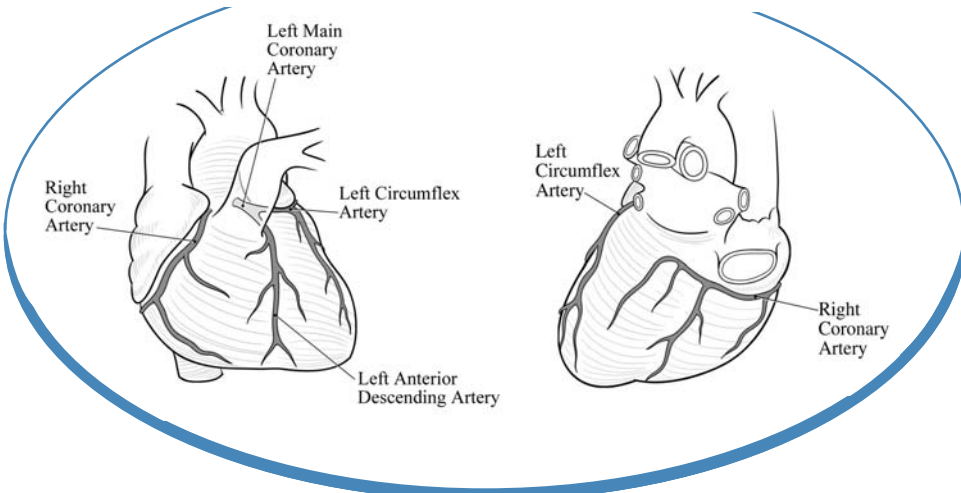


## What is a Cardiac Catheterization and Coronary Angiogram?

A cardiac catheterization is an invasive, **non-surgical procedure** done to study the arteries that bring blood to the heart muscle and to check the function of the main pumping chamber of your heart. During a cardiac catheterization, the cardiologist inserts a small, hollow tube (catheter), into an artery or vein, and then guides it into the heart using x-ray. The cardiologist injects contrast (x-ray dye) through the catheter to outline the arteries and to show any blockages or narrowings that may exist. The results of these tests will assist your doctor in making the diagnosis of Coronary Artery Disease (CAD). Most patients have little or no discomfort during a cardiac catheterization. However, you may feel a hot, flushing sensation for several seconds when the contrast is injected into the main pumping chamber of the heart. The nursing and medical staff will give you medication and reassurance throughout the procedure to ensure your comfort.

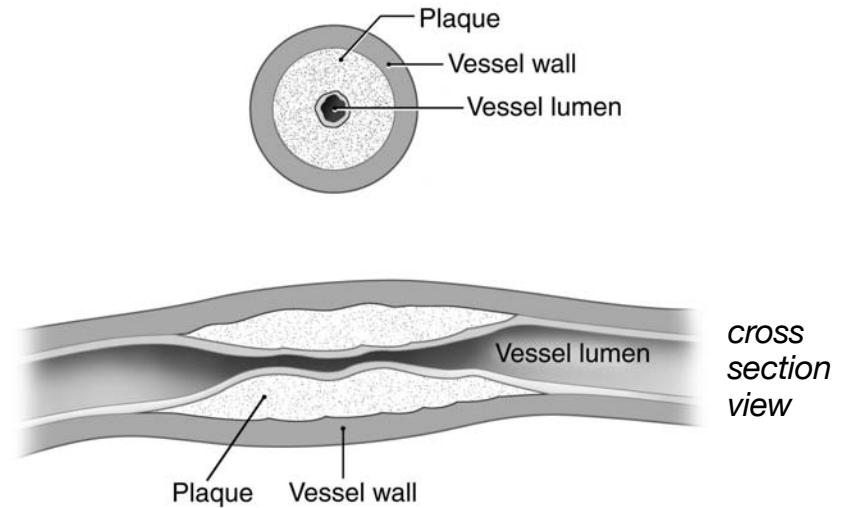
**Anterior (front)  
View of the Heart**

**Posterior (back)  
View of the Heart**



## What is a Percutaneous Coronary Intervention (PCI)?

PCI is a treatment procedure that unblocks narrowed coronary arteries without performing surgery. During this procedure, your cardiologist determines the best treatment for your condition. Treatment will vary from patient to patient.



### PCI may include one or more of the following treatments:

**Balloon catheter angioplasty:** During this procedure, the cardiologist inserts a cardiac catheter with a small balloon around it into the coronary artery. The cardiologist then places the balloon in the narrowed area of the artery and expands it with liquid. This pushes the plaque (blockage) to the sides of the artery where it remains. This technique reduces the narrowing in the artery and restores the normal size of the artery. The cardiologist removes the balloon catheter at the end of the procedure.

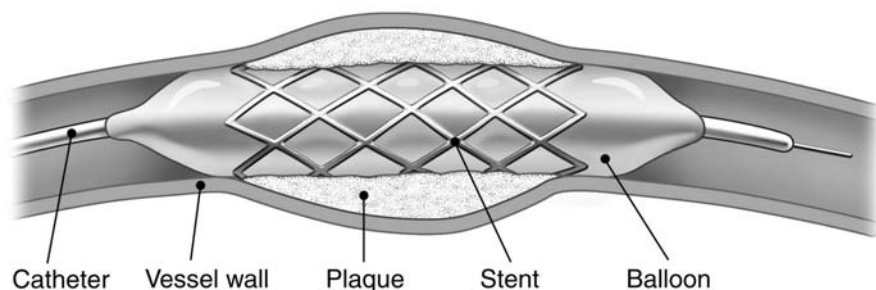
*more treatments...*

## What is a Percutaneous Coronary Intervention (PCI)?

(continued)

**Stent:** The cardiologist places a small, hollow metal (mesh) tube called a “stent” in the artery to keep it open following a balloon angioplasty. The stent prevents constriction or closing of the artery during and after the procedure. Drug-eluting stents are now used. These stents are coated with medication that helps prevent narrowing of the artery.

*Coronary Artery with Stent*



**Rotational Atherectomy:** During this procedure, the cardiologist uses a specialized instrument to break up rock-hard plaque with calcium build-up from the blood vessel wall into tiny pieces. You may experience some discomfort such as chest pain, pressure or tightness in your chest during this procedure. Medications may be given to ease the discomfort. This procedure may last for 30 seconds to one minute.

## What Can I Expect BEFORE the Procedure?

### *Consult with your doctor about your medications:*

- ❖ Bring a list of all your current medications with you to your appointment, including strength (dose) and frequency (time taken). This includes any over-the-counter medications, herbal preparations or vitamins.
- ❖ Ask your doctor about whether or not to take your routine medications with a sip of water before coming to the hospital.
- ❖ Usually, aspirin **should** be taken prior to cardiac catheterization and PCI.
- ❖ **If you are taking blood-thinning medications such as Coumadin (Warfarin), check with your doctor about when to stop taking these medications prior to the procedure.**
- ❖ If you are taking medications for diabetes, e.g., Glucophage (Metformin) or Glucovance (Glyburide and Metformin), you may be advised to stop these medications **before** the procedure and re-start these medications **after** the procedure, as directed by your doctor.
- ❖ Be sure to tell your doctor if you have had an allergic reaction to x-ray dye (contrast), iodine or seafood, or have a history of bleeding problems.

### *Prepare the night before:*

- ❖ Drink plenty of fluids the evening before the test, unless otherwise directed by your doctor.
- ❖ **Do not eat or drink anything after midnight, the night before your procedure, unless otherwise directed by your doctor.**
- ❖ **You must arrange for a relative or friend to drive you home. You may not drive for 24 hours following the procedure.**

## What Can I Expect on the DAY of the Procedure?

- ❖ Take medications that your doctor has **specifically** instructed you to take on the day of your procedure with a **sip** of water.
- ❖ Arrive at least 2 hours before your scheduled procedure. **Note:** If you are scheduled for a 7 a.m. procedure, please arrive at 6 a.m.
- ❖ Most scheduled procedures are performed on time. However, your scheduled procedure time may be delayed if there are emergency cases.
- ❖ Family members and friends are invited to wait in a designated waiting area. The cardiologist will contact them there after the procedure.

### *While you are in the Ambulatory Care Unit (ACU) and Cath Lab holding area:*

- ❖ Your nurse places a small intravenous (IV) catheter (tube) in your arm. The IV is needed to give you medications to help you relax and make sure that you are comfortable throughout the procedure.
- ❖ You will be asked to sign several consent forms stating that you understand the procedure. These forms may include consent for cardiac catheterization, coronary angiogram, PCI, emergency coronary bypass surgery, and blood product transfusion, if needed.
- ❖ The nurse shaves either your groin and/or arm area (the insertion site for the cardiac catheter) to remove hair and prevent infection.
- ❖ Then, the nurse may insert a small tube (urinary catheter) into your bladder to drain your urine. The catheter will be removed after your procedure.

## What Can I Expect DURING the Procedure?

- ❖ The nurse or technologist brings you into the Cardiac Cath Lab procedure room.
- ❖ The nurse gives you medication through your IV to help you relax and to ensure your comfort throughout the procedure.
- ❖ The nurse cleans your groin/arm area with a special anti-bacterial soap, and covers you with sterile drapes to prevent infection.
- ❖ The cardiologist injects a numbing medication (local anesthesia) into the groin/arm area. This may feel like a mild sting which lasts only a few seconds and will keep the area pain free.
- ❖ Next, the cardiologist places a small plastic tube called a *sheath* through the skin and into the artery. You may feel a slight pressure at that moment.
- ❖ Immediately report any chest pain or discomfort during the procedure.
- ❖ Once the sheath is in place, the cardiologist inserts a catheter into the sheath and advances it toward the heart. Then, x-ray pictures are taken as the contrast is injected. You may feel a “hot flash” or a flushing sensation during contrast injection.



## When Do I Get My Results?

Your cardiologist will notify you, your family member(s) or friend(s) of the test results after the procedure.

### Frequently Asked Questions

**Question: What is a cardiac catheterization?**

**Answer:** Cardiac catheterization is an invasive, non-surgical procedure done to study the structure of the arteries that bring blood to the heart muscle and to check the function of the main pumping chamber of your heart.

**Question: What is percutaneous coronary intervention (PCI)?**

**Answer:** Percutaneous coronary intervention (PCI) is a treatment procedure that unblocks narrowed coronary arteries without performing surgery.

**Question: When can I go home?**

**Answer:** Usually, after PCI, patients remain in the hospital for an overnight stay.

**Question: When will I get the test results?**

**Answer:** Your cardiologist will give you and your family member the results of your test after the procedure.

## More Ways to Learn

- ❖ Go to [www.cpmc.org](http://www.cpmc.org), click on “Learning About Your Health” and then “Patient Education.” Select the broad health topic “Heart & Circulation.”
- ❖ Cardiac Rehabilitation is a program offered at California Pacific on the referral of your doctor. For more information about this service, call (415) 600-3361, or go to [www.cpmc.org/services/cardiac/card-rehab.html](http://www.cpmc.org/services/cardiac/card-rehab.html).
- ❖ Visit the American Heart Association Web site at [www.americanheart.org](http://www.americanheart.org).

---

Produced by the Center for Patient and Community Education in association with the staff and physicians at California Pacific Medical Center. Last updated: 3/06

Graphic Design: Bioscience Design / Jodi Hassig

Medical Illustrations: Christine Galapp

© 2003–2006 California Pacific Medical Center

Funded by: A generous donation from the Mr. and Mrs. Arthur A. Ciocca Foundation.

Note: The information provided in this material is intended to provide readers with accurate and timely information. It is not intended to substitute for information and personal medical advice, which you need to obtain directly from your doctors. If you have any additional questions related to treatment or the risks and benefits of treatment mentioned in this work, please direct these questions to your doctors.