

## Patent Foramen Ovale Closure

A patent foramen ovale (PFO) closure is a procedure to seal off or close an opening between the upper right and left chambers of the heart. This brochure will explain what to expect before, during and after the procedure.

The heart is about the size of a closed fist. It delivers blood to the lungs and to all the body tissues. The heart has 4 chambers. The right atrium receives blood from the body and pumps it to the right ventricle. The right ventricle then pumps blood to the lungs, where it picks up oxygen. The left atrium receives oxygen-rich blood from the lungs and sends it to the left ventricle. From there, it pumps blood to the body (Figure 1).

Before birth, each fetus has a small opening between the upper left and right chambers (atria) of the heart. This opening is called a foramen ovale. In most cases, this closes naturally soon after birth. If it stays open (patent), blood may leak between the 2 atria.

### Before the procedure

In the past, the foramen ovale could be closed only during open heart surgery. A PFO closure done in the Cardiac Catheterization Lab (Cath Lab) is a less invasive way to treat the condition.

During this procedure, your healthcare team threads a thin catheter (tube) to the heart through a blood vessel in the groin area. The catheter, guided by X-ray, allows your team to put a special device in place to close the PFO. The procedure lasts about 1 to 2 hours. Afterwards, you may need to stay overnight in the hospital.

### Before the procedure

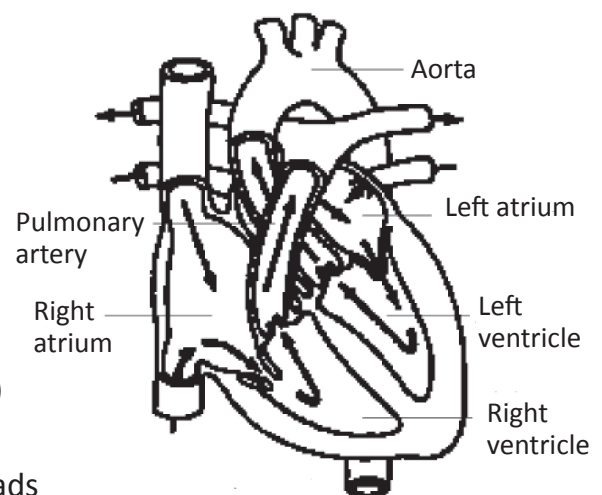
#### ***At home***

The Cath Lab nurse will contact you several days before the procedure. The nurse will answer your questions and review your instructions for the procedure. Please tell the nurse if you are allergic to metal.

The Cath Lab nurse will review your medications with you. Please tell them if you are taking blood thinners. They may need to change your medications before your procedure.

Do not eat or drink anything after midnight the night before the procedure.

**Figure 1**



## Day of the procedure

On the day of the procedure, take only the medications the nurse has instructed you to take. Take your medications with small sips of water.

Check in at the Cath Lab reception desk, Galter Pavilion, 675 North Saint Clair Street, 8th floor, at the time the Cath Lab nurse tells you to.

Parking is available for patients and visitors in the garage at 222 East Huron Street, across from Feinberg and Galter pavilions. For a discounted rate, please bring your parking ticket with you. Your ticket can be validated at the Customer Services Desks on the 1st, 2nd and 8th floors of Feinberg and Galter pavilions and on the 1st floor of Prentice Women's Hospital.

Be sure to bring:

- A list of allergies
- A list of all your current medications (prescription, over-the-counter and herbal)
- Photo ID
- Medical insurance information and card
- Medicare card (Medicare patients only)

### **Plan to have a responsible adult take you home.**

For their own safety, children under 16 may not visit in the testing area. They may stay in the waiting room with a responsible adult.

We will assign you a room for your care before and after the procedure. After you change into a hospital gown, the nurse will review your health history, start an IV (into the vein) line and draw blood tests. You will receive fluids and medications through the IV during the exam. Your healthcare team will clean and shave your groin area. The team will use the femoral vein in your groin for the procedure.

Your physician will discuss the procedure with you. After the physician has answered your questions, they will ask for your written consent.

You may wear your glasses, dentures (or bridgework), and hairpieces. You will need to empty your bladder just before going into the Cath Lab.

## During the procedure

Once in the Cath Lab, your healthcare team will help you onto a firm, X-ray table. The room has a camera and several TV monitors. Through the IV line, you will receive medication to relax you. You may feel drowsy, but usually you will be awake and comfortable during the procedure.

Your healthcare team will clean the area around the puncture site in your groin with a special soap that may feel cold. They will inject an anesthetic (numbing medication) into the area. They will insert a needle into the femoral vein. This is not usually painful. You may feel pressure and mild discomfort at the puncture site. If needed, you can receive more numbing medication.

They will also insert a catheter (with a tiny ultrasound at the tip) through the femoral vein. They will also insert a device delivery catheter through the femoral vein. Using X-ray, they will guide the catheters to the heart.

They will select and place a properly sized closure device on a special delivery catheter. They will advance the catheter across the PFO. Ultrasound images will determine the size and exact placement of the device. Once your team confirms the position, they will release the device and implant it in your heart.

## After the procedure

You will be on bed rest for at least 4 to 6 hours. This will allow the vein to seal. It is important to keep the affected leg(s) straight at all times. The nurses will be in often to check your:

- Blood pressure
- Heart rate
- Groin site(s) for any bleeding or swelling

Once your bed rest is over, the nurses will help you sit up and walk. You may be discharged from the hospital at the end of the day or possibly the following morning. You will have an echocardiogram before you leave.

## Caring for yourself after the procedure

At home, follow these guidelines to help recover.

### ***Medications and closure device identification card***

After your procedure, you will need to take:

- Aspirin 81 mg once a day
- Clopidogrel (Plavix®) 75 mg once a day for 6 months
- Other: \_\_\_\_\_

Aspirin and clopidogrel help prevent blood clots. Your cardiologist will decide if you need to take anticoagulants for longer than 6 months.

We will give you a closure device identification card after your procedure. Carry it with you at all times. It is important that all healthcare providers are aware that you have this device.

For 6 months after a PFO closure, you will need to take antibiotics before medical or dental procedures. This helps prevent the risk of infection to the device. Always tell your other healthcare providers that you have this device before having medical or dental procedures.

### **Activity**

While the wound is healing, you may have bleeding or swelling. This is due to the stress or strain to the groin and abdominal muscles. Carefully follow these guidelines:

- Limit your activities on the day you are discharged.
- Do not drive for the first 24 hours.
- You may shower after 24 hours, but do not take tub baths for 1 week.
- Climb stairs (as needed) with a slow, steady pace for 2 days after the procedure.

You may resume your usual activities the day after your discharge, including social activities, except:

- Do not lift anything that weighs more than 10 pounds for 1 week.
- Do not do strenuous physical exercise (such as tennis, running, swimming, golfing, weightlifting and bicycling) for 1 week.
- Avoid sexual activity for 1 week.
- Do not play contact sports for 6 months if you are taking Plavix.

### **Wound care**

After the procedure, your healthcare team will apply a small bandage to the wound site. You may remove the bandage the day after the procedure. Do not reapply a bandage. Do not use lotions, ointments or powders on or near the wound site for 1 week.

The wound should be soft and dry. You may have a bruise or a marble-sized lump.

### **Oozing/bleeding**

If you are bleeding from the puncture site, please do the following:

- Lie flat right away.
- Apply firm pressure just above the puncture site and hold firm pressure for 15 minutes. You may use a clean cloth or tissue to apply pressure. If possible, have another person apply the pressure.
- Remove pressure after 15 minutes. The wound should be dry and flat, without bleeding. Continue to lie flat for about 1 hour before getting up and walking.
- Cover the wound with a bandage.

### **When to call the physician**

Please call your physician or the Cath Lab physician if you have any of these symptoms:

- Bleeding from the wound
- Redness, swelling or color changes around the wound
- Drainage from the wound
- A lump at the puncture site that gets bigger or is larger than a marble
- Pain at the puncture site that makes walking difficult

- Numbness or tingling in your thigh or leg
- Calf tenderness or pain
- Swelling of your ankle or foot
- Increased area of bruising with discoloration that spreads into your thigh, over your buttock or into your groin
- Discoloration or coolness of your leg or foot

**Call 911 or go to the nearest emergency department if you have these symptoms:**

- Bleeding that lasts longer than 15 minutes
- Swelling at the wound site that seems to be increasing
- Chest pain

## Contact information

If you have any questions or concerns, please call the Cath Lab.

- During regular business hours (8 am to 5 pm, Monday through Friday), call 312.926.2284 (312.926.CATH), extension 3, (TTY: 711).
- After hours and on the weekends, call 312.926.2284 and ask for the Cath Lab physician on call.

## Follow-up care

Schedule your follow-up appointments as instructed by your cardiologist. You will need an outpatient transthoracic echocardiogram (TTE) test 1 month, 6 months and 1 year after a PFO closure. To schedule your outpatient TEE, call 312.926.7483. Please talk with your physician about scheduling these exams.