

Identification Information About Your Sensor

Your doctor or nurse will complete a temporary patient identification card before you leave the hospital. A permanent card will be mailed to you within a few weeks of discharge. This card provides information about the sensor to health care professionals so it can be identified correctly if you need a chest x-ray, CT scan, MRI or other testing.

The patient identification card will contain your name, your doctor's name and the serial number of your sensor. Always carry your patient identification card with you. It will alert medical and security personnel that you have an implanted sensor.

Implant Risks

As with any medical procedure, there are risks associated with the implantation of a sensor, although complications are very rare. Some of these risks include:

- Arrhythmias
- Bleeding
- Death
- Device embolization
- Hematoma
- Infection
- Myocardial infarction (heart attack)
- Stroke
- Thrombus (blood clot)
- Transient ischemic attack (warning stroke)

Be sure to talk with your doctor so that you thoroughly understand all of the risks and benefits associated with the implantation of this sensor.

To learn more about treatment of heart failure and the CardioMEMS™ device program at St. Elizabeth's Medical Center, please call the office of Joseph Carrozza, MD, Chief, Division of Cardiology at 617-789-5027 or visit www.semc.org

Directions

From the West

Take the Massachusetts Turnpike (I-90) East to Exit 17 (Newton-Watertown).

Go straight and take the second right onto Park Street, following signs for Brighton.

Take the first left onto Tremont Street and follow for approximately one mile until it connects to the right with Washington Street.

Continue on Washington Street for approximately one mile to the medical center.

From the North, South and Downtown Boston

Take I-93 to the Massachusetts Turnpike (I-90) West. Follow the Mass Pike to Exit 20 (Brighton- Cambridge). Proceed through the tollbooth and bear left towards Allston/Brighton (Cambridge Street).

Follow "H" signs for approximately 1.5 miles to the medical center.

Advanced Treatment for Heart Failure

The CardioMEMS™ System



St. Elizabeth's Medical Center

A STEWARD FAMILY HOSPITAL



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Treating Heart Failure at St. Elizabeth's Medical Center

Heart failure is a chronic condition that affects millions of people each year, impacting quality of life and often restricting day-to-day activities. It occurs when, for a number of reasons, the heart is unable to pump enough blood to meet the body's demands. When this happens, blood pressure within the heart and lung blood vessels increase, eventually leading to congestive symptoms and commonly to shortness of breath. About 90 percent of patients admitted to a hospital for heart failure have pulmonary congestion (excess fluid). Episodes of pulmonary congestion can lead to a downward spiral of progressive cardiac deterioration and mortality.

St. Elizabeth's Medical Center is now offering an advanced treatment for patients who have heart failure, the CardioMEMS™ HF System. This state-of-the-art system features a miniature wireless monitoring system that is implanted in the pulmonary artery during a minimally invasive procedure to directly measure pulmonary artery (PA) pressure. The system allows patients to transmit PA pressure data from their homes to health care providers allowing for personalized and proactive management to reduce the likelihood of hospitalization.

The CardioMEMS™ HF System

The implantable sensor is a completely sealed capsule that uses microelectromechanical systems (MEMS) technology, which allows the sensors inside of it to measure PA pressure. The system is implanted into the pulmonary artery in a minimally invasive technique by a catheter and is designed to last a patient's lifetime. This small sensor does not have a battery or leads. Once implanted, the sensor wirelessly sends pressure readings to an external patient electronic system. There is no pain or sensation for the patient during the readings. The electronics transmit the readings to a secure website where it can be read by the patient's clinician.

The external measurement system wirelessly tracks frequency and uses it to determine the pressure in the pulmonary artery. At home, patients use a portable electronic unit and a special pillow containing an antenna to take daily sensor readings.

This is a simple process that takes only a few minutes. Your electronic unit is turned on and the patient lies on the pillow. The electronic unit uses audible signals telling you to press the button to initiate a reading. The pressure readings are then wirelessly transmitted to a secure website.

Clinicians access your pressure readings and trending data transmissions using the patient management website, providing valuable clinical insight for guiding treatment decisions. Automated alerts will be sent to health care providers if pressure readings fall outside of prespecified ranges.

If readings fall outside of the desired ranges, the health care provider can work with you to adjust your treatment plan to address your medical needs immediately.

St. Elizabeth's Medical Center is the only site in Steward Health Care where this new technology is currently available. If you are a patient at another Steward facility, the St. Elizabeth's Division of Cardiology will work with your doctor during the implantation process. Ultimately you will be returned to your physician for your ongoing treatment and monitoring.

Your Implant Procedure

On the day of your procedure, you may receive a mild sedative before and/or during the procedure, but you will be awake so you can follow instructions. A nurse will clean an area on your upper thigh and a local anesthetic will be injected at that site. An electrocardiogram (EKG) will constantly monitor your heart rate and rhythm.



Your doctor will make a small incision and insert a device called a catheter into your femoral vein. Using a fluoroscope (a type of x-ray), he or she will thread the catheter through your body to your heart and into your pulmonary artery. The doctor will check that the catheter is in the right position and release the sensor into your artery. The doctor will then hold an antenna to your back, chest or side to ensure that it can read the signals from the sensor.

The length of the procedure depends on your specific anatomy and the time it takes to locate a good position for the sensor. After your procedure is completed, you may be asked to lie flat on your back for a few hours to prevent bleeding. You may feel some mild discomfort at the injection site as you recover. You should be able to return to normal activities soon after the procedure.

Your PA sensor is a permanent implant. You will not feel it, and it will not interfere with your daily activities. The sensor will also not interfere with other devices you may have such as a pacemaker or defibrillator.

After Your Implant Procedure

As you recover from your implant procedure, it is important that you follow your doctor's instructions, including:

- Report any redness, swelling or drainage from the insertion site
- Walk, exercise, and bathe according to your doctor's instructions
- Contact your doctor if you develop a fever that does not go away in two to three days
- Ask your doctor any questions you have about your device, heart failure or your medication

You will receive training about how to set up and take readings with your Patient Electronics System before you go home. A customer service representative will be available should you have any questions after you are home, or you can refer to the Patient Electronics System video.