

# What can I expect from pacemaker surgery?

*Compliments of your doctor and*

 ST. JUDE MEDICAL

## **Pacemaker surgery is routine**

Every single day, hundreds of pacemakers are implanted in patients around the world. The implant technique is simple and straightforward, and there is no need for apprehension.

## **Every surgery is different**

Every case is different, so you must discuss your particular surgery with your physician. But, as a general rule, pacemakers are implanted under local anesthetic. This means you will be awake when the pacemaker



is implanted. You may be given some medication intravenously to help you relax, but you will be aware of what is going on around you. The place where the doctor and staff are working is draped, so you will not see anything. But you will hear the doctor and nurses moving around you, and they may even talk to you from time to time during the procedure. A typical pacemaker surgery lasts about an hour.

## **Starting the procedure**

Pacemakers are usually implanted just under the skin in the upper chest area. This part of your body will be shaved, scrubbed, and then painted with a special disinfectant to make sure it is as clean as possible. You will be given one or more shots of numbing medication in that area. Because of the drapes, you will not see the shot. The doctor may touch the area and ask you when you start to lose sensation in your upper chest.

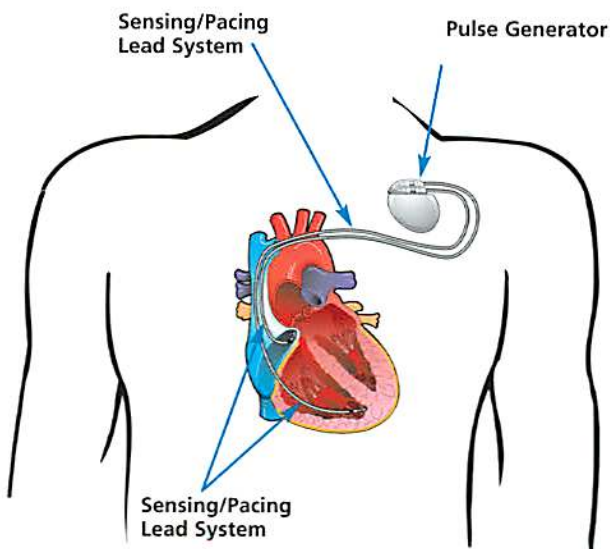
## Placing the leads

The doctor will make a small incision and then locate a vein. A small puncture is made in the vein, and a thin, flexible wire is inserted.

This wire is called the *lead*. The doctor gently maneuvers the lead through the vein and into the heart. He watches the progress of the lead using a large overhead monitor called a *fluoroscope*. The fluoroscope may be thought of as a kind of moving X-ray picture.

You will not be able to see the fluoroscope, but you may be aware of the staff looking at it during this phase of the operation. The doctor will probably operate the fluoroscope with a foot pedal on the floor, which you may hear.

Once the lead enters the heart, the physician attaches it to the tissue inside the heart itself. At this point, the doctor will want to test the lead to see if this location is suitable for pacing.



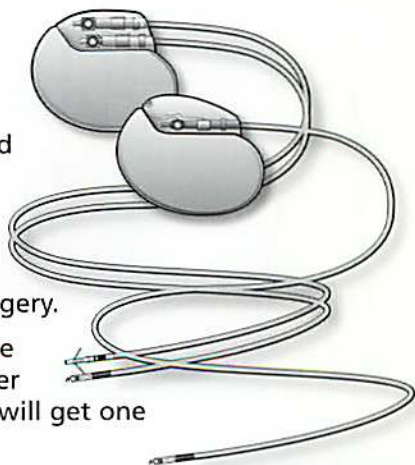
The staff will test the lead by attaching it to a small, handheld computer called an *analyzer*. As the lead is checked, a technician or nurse will start to call out numbers. Another technician may monitor an *electrocardiogram*



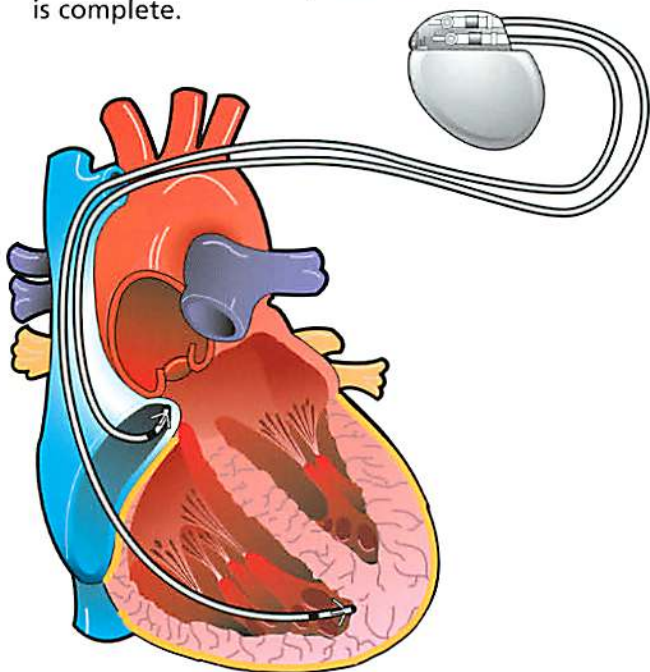
or *ECG* machine and call out information to the doctor. (An *ECG* machine produces an image of the electrical activity of your heart.) Although lead testing is not painful, it is probably the loudest phase of the operation. You will hear numbers and information being called out. These numbers help the doctor determine the best possible position for the lead in your heart.

After the lead test, your doctor may decide to move the lead and run the test again. You may hear the procedure of calling out numbers several times as the doctor attempts to find the best position for the pacing lead. Repositioning and retesting a pacing lead several times is not unusual in pacemaker surgery.

Depending on the type of pacemaker you receive, you will get one or two leads.



Once the leads are in their proper place, your physician will plug them into the pacemaker and then slip the pacemaker into a small pocket made just beneath the skin of your upper chest. The pocket is then closed with stitches, and the procedure is complete.



### After the surgery

After your operation, you will be taken to a recovery room or a telemetry unit, which is a special monitoring facility. Although you may feel some pain or tenderness around the implant site, your recovery should be relatively smooth. The typical hospital stay for a pacemaker patient is only a few days, sometimes less.

## The coronary care unit

You may stay for a day or two in a special unit of the hospital, either the CCU (Coronary Care Unit) or the telemetry unit. The staff is specially trained to give cardiology patients such as you the best care for your condition.

At this time, you may be monitored by a continuous ECG. Several pads will be placed on your chest with wires running to an ECG monitor. This ECG monitoring is done following surgery, so that nurses can be sure that your heart is functioning properly after your operation. You may be able to see the ECG monitor at your bedside.

If you are transferred to a regular hospital room, you may be hooked up to an ECG machine periodically. This is a routine procedure.

## Being aware

In the period after surgery, you should follow all of your physician's instructions carefully. Above all, be sure to report any redness, soreness, or tenderness around the incision site. If you are already home when you notice redness or soreness around your scar, call your doctor immediately – don't wait for your next appointment.

Immediately following surgery, you may feel very aware of the pacemaker and have an urge to touch the implant site. It is best if you resist the temptation to twiddle with the pacemaker. There is actually a condition called *Twiddler's Syndrome* in which the new pacemaker and lead get tangled because the patient has poked at the implant site. For that reason, try to touch your new pacemaker as little as possible.



## Recovery

It is difficult to make generalizations about your recovery, since every patient is different. Follow your doctor's instructions and rely on his advice during this period.

Although your doctor may restrict your activities for a few weeks after surgery, you should soon be able to resume your normal activities. Pacemaker patients can drive cars, go to work, travel, and do just about everything else they used to do. If your overall health permits, you can even exercise, jog, run, hike, play sports, or do other high-energy activities.



## Keep in touch with your doctor

Your physician is your best resource during this period. Feel free to ask questions.

You will probably be asked to see your pacemaker doctor a few weeks after surgery. This is a very important appointment, because it allows the doctor to see how well the pacemaker is working. Sometimes some minor adjustments are required. Your doctor will also want to check the incision to see how it is healing.

During the follow-up visit, your doctor will use a small tabletop computer called a *programmer* to communicate with the pacemaker. Attached to the programmer is a small device called the *wand*, which looks like a TV remote control. The wand is placed over the implant site, and in a few moments, the



programmer can communicate with your pacemaker. This is completely painless and can be done in a routine office visit.

When the programmer talks to the pacemaker, the doctor can use the programmer to make adjustments to the pacemaker's settings. This can help fine-tune your pacing prescription, so you get exactly the kind of pacing you need. This procedure usually takes several minutes.



### **What about complications?**

Any surgical procedure includes the possibility of complications – things that can go wrong. The most typical complications for pacemaker implantation are not life threatening, but may require a repeated operation or a longer hospital stay. The most common complications include bleeding, an infection, lead dislodgement, and problems with the lead or pacemaker following surgery. In most situations, the incidence of complications is less than 1%. Please ask your doctor about potential complications before your surgery.

### **If you are nervous**

It is only natural to be somewhat apprehensive before any type of surgery. If you are nervous, you should take time to discuss your concerns with your physician.



The implant procedure is what is commonly called routine surgery. While surgery may not exactly be routine for you, you should know that this procedure is relatively simple to perform. It is minimally invasive, which means that only a small incision is necessary. You probably will not need general anesthesia.



The implant technique for pacemakers has been perfected in literally hundreds of thousands of surgeries in the past few decades.

You and your physician have probably decided that a pacemaker is the best treatment for your particular condition. The pacemaker should make you feel better and improve the quality of your life. In short, there's a lot to look forward to!



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