



UNIVERSITY OF OTTAWA
HEART INSTITUTE
INSTITUT DE CARDIOLOGIE
DE L'UNIVERSITÉ D'OTTAWA

PACEMAKER IMPLANTATION

A Guide for Patients and Families



PLEASE BRING THIS BOOK WITH YOU TO THE HEART INSTITUTE

Patient Name _____

Please complete the following information:

Contact Person
(relative, friend) Name _____

Phone Number
(Home) _____

Phone Number
(Cell) _____

Family Doctor Name _____

Phone Number _____

Pharmacy Name _____

Phone Number _____

Cardiologist
If you have one Name _____

Phone Number _____

Other (Specify) Name _____

Phone Number _____

IMPORTANT

Pacemaker/Defibrillator Clinic

Hours: Monday to Friday, 8:00 a.m. to 4:00 p.m.

Phone: 613-761-4142

Please call the Pacemaker/Defibrillator Clinic if you have any symptoms or concerns throughout your early recovery period.

If you need to speak with someone after hours, the Nursing Coordinator can be reached any time at 613-761-4708.

In case of emergency, call 911

Table of Contents

TABLE OF CONTENTS	3
PATIENT RESPONSIBILITY CHECKLIST	4
ABOUT PACEMAKERS	5
The Heart's Electrical System	5
Heart Arrhythmias	5
Why a Pacemaker Is Necessary	6
Parts of a Pacemaker	6
PREPARING FOR A PACEMAKER IMPLANT	7
Before Your Procedure	7
Day of Procedure	7
In the Electrophysiology Lab	8
After Your Procedure	8
DISCHARGE & FOLLOW-UP CARE.....	9
Discharge Checklist	9
Caring for Your Insertion Site	9
Activity Guidelines.....	10
Driving.....	10
Follow-Up Appointment at the Pacemaker/Defibrillator Clinic	11
About the Pacemaker/Defibrillator Clinic.....	12
FREQUENTLY ASKED QUESTIONS.....	14
MY MEDICATION LIST	15
FOR MORE INFORMATION	16

If you are unable to keep the scheduled date for your pacemaker implant, please notify the Wait List Management Office at 613-761-4436.

Sometimes there are sudden changes in scheduling that may result in your procedure being delayed. If this happens, we will let you know as soon as possible.

Patient Responsibility Checklist

The following checklist will help you prepare for your admission:

Before your admission:

- ☐ Fill out the medication list included in this booklet to bring with you, along with all of your medications in their original pharmacy containers.

The evening before your booked procedure:

- ☐ We will call you between 4:00 p.m. and 8:00 p.m. and tell you when to come to the Heart Institute.
- ☐ If you do not hear from us by 9:00 p.m., please call the Day Unit at 613-761-4770.

On the day of your admission:

- ☐ Take your usual medications with a small amount of water, unless otherwise directed.
- ☐ Do not eat or drink from midnight onward before your procedure.
- ☐ Remove all nail polish and do not wear any makeup.

Make sure you bring the following items with you to the Heart Institute:

- ☐ Your health card
- ☐ All of your medications in their original pharmacy containers
 - Be sure to tell us about any allergies you have
- ☐ The name and phone number of your emergency contact person

Leave these items at home:

- ☐ All of your valuables (including money, jewelry, mobile phones and other personal electronic devices). The Heart Institute is not responsible for the loss of or any damage to your personal belongings.

Plan for your discharge:

- ☐ Make transportation arrangements: You cannot drive yourself home.
- ☐ Arrange for someone to stay with you during your first night home from the hospital.
- ☐ If you live a long way from the Heart Institute, check with the Wait List Management Office at 613-761-4436 to see whether you should stay close to the hospital the night of your discharge. If so, you will need to make advance arrangements for accommodations.

Remember

Do not eat or drink after midnight before your procedure, unless you are told otherwise.

About Pacemakers

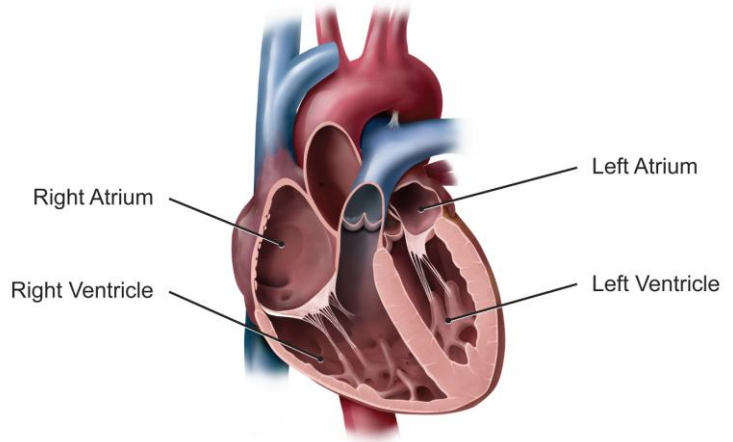
You have been recommended to have a pacemaker implant to treat your heart rhythm problem. The purpose of this guide is to help you and your family prepare for this procedure and for your recovery at home.

The Heart's Electrical System

Your heart is a muscle that works like a pump. The main job of your heart is to pump blood throughout your body. The heart is divided into a right and left side. Each side has an upper chamber, or atrium, that collects blood returning to the heart and a muscular lower chamber, or ventricle, that pumps the blood away from the heart.

The pumping of your heart is regulated by an electrical current, or impulse, much like a spark plug in a car. The electrical impulse starts in the sinoatrial (SA) node, often called the body's natural pacemaker, and then spreads throughout both atria, like ripples in a pond. This causes both atria to contract, squeezing blood into the ventricles.

The impulse then travels down to the atrioventricular (AV) node, which is like a wire that connects to the ventricles. The AV node splits into two branches, allowing the even spread of the electrical signal to both ventricles at the same time. This lets your heart beat effectively.

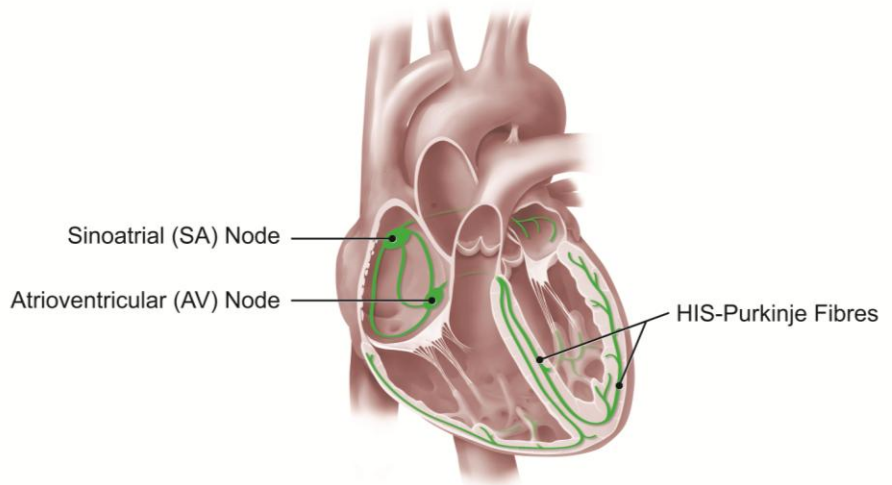


Heart Arrhythmias

Arrhythmias are an abnormality of the heart's electrical system.

Tachyarrhythmia occurs when the heart beats too fast. Bradyarrhythmia occurs when the heart beats too slowly.

Arrhythmias are very common and usually do not cause problems; however, in rare cases, they can cause you to have symptoms such as dizziness or extreme tiredness.



Why a Pacemaker Is Necessary

Most patients need a pacemaker because their hearts beat too slowly to meet the needs of their bodies. This is known as bradycardia. A slow heart rate can cause symptoms such as dizziness, fatigue or fainting spells that can put you at risk of injury or harm.

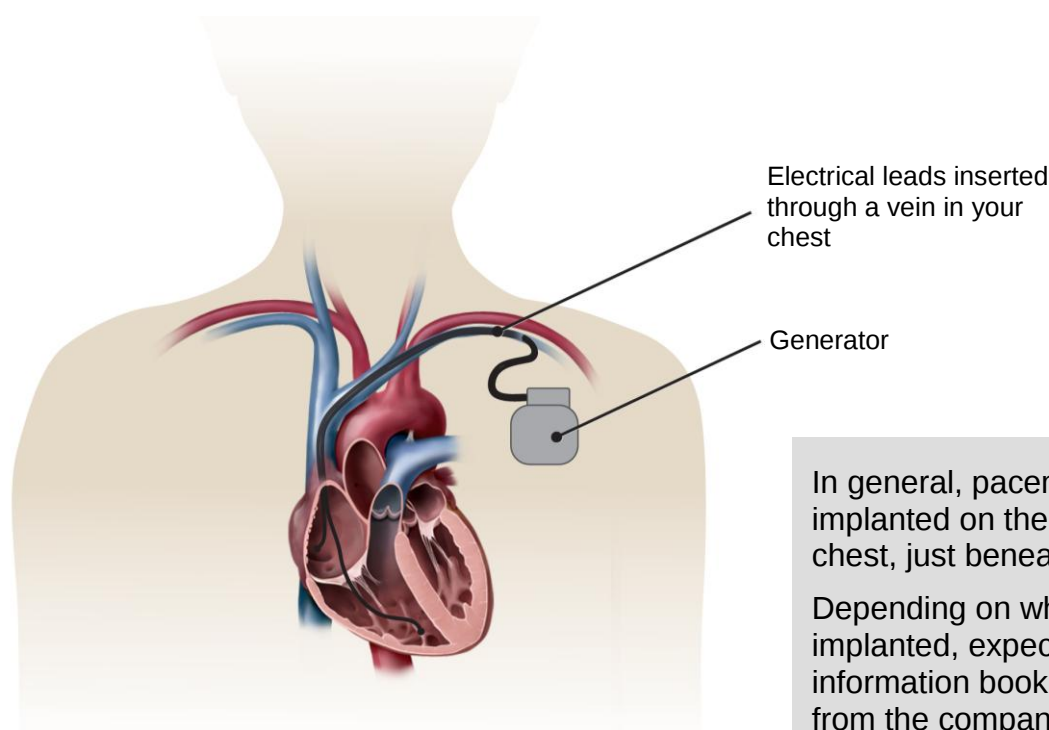
Parts of a Pacemaker

There are several different types of pacemakers, each of which has different capabilities. The decision about which pacemaker to implant is based on your particular situation.

In general, pacemakers are made up of two basic parts: the pacemaker generator (sometimes called the battery) and one or more wires called leads.

The generator contains the battery, important wiring and computer components that make the pacemaker work properly. The leads are special wires that are connected on one end to the generator, with the other end attached to a spot inside your heart.

To help your heart beat properly, a very small pulse of electricity is transmitted from the generator and travels along the leads directly into the heart muscle. This electrical current makes the heart beat and can be delivered as needed to keep your heart beating at a healthy rate.



In general, pacemakers are implanted on the left side of the chest, just beneath the collarbone.

Depending on which pacemaker is implanted, expect to receive an information booklet in the mail from the company that made your device.

This booklet will have extra information about your specific pacemaker.

Preparing for a Pacemaker Implant

At the University of Ottawa Heart Institute, pacemakers are implanted by cardiologists who specialize in the electrical system of the heart. This specialty is called electrophysiology. There are several electrophysiology doctors working at the Heart Institute.

The electrophysiology doctors work as a team in caring for all patients who are having pacemaker implants. This means that, depending on the booking schedule, the doctor who does your pacemaker implant may not be the same doctor you first saw in the clinic.

Before Your Procedure

Please use the checklist on page 4 to help you prepare for your admission to the Day Unit at the Heart Institute.

Day of Procedure

Expect to be at the Heart Institute for six to 12 hours. Plan to arrive at the Day Unit according to the instructions you received the night before.

The Day Unit is located on the first floor. Take the elevators from the main lobby at the Heart Institute up to the first floor. When you get to the first floor, follow the path of green hearts to the Day Unit.

You will be in the Day Unit area until you are ready to go for your pacemaker implant and you will come back to the Day Unit once your procedure is completed. The actual implant procedure will take place in a special room called the Electrophysiology Lab. Before you go for your implant, the doctor will come and meet with you in the Day Unit; this will be a good time to ask any final questions.

Only one friend or relative will be able to sit with while you are waiting because space is limited. During your procedure, your relative or friend will be able to wait in the lounge area. Once you are back and recovering, the staff will call your relative or friend back in to sit with you until you are ready to go home.

Once you are in the Day Unit, the final preparations for your procedure will start. You will change into a hospital gown. You may have a small intravenous (IV) tube placed in your arm. The implant area on your chest will be clipped of hair and cleaned.

What Are the Risks of a Pacemaker Implant?

Pacemaker implant procedures are considered to be very safe; however, with any invasive procedure, there can be complications. These include:

- Excessive bleeding
- Infection at the implant site

Rarely, the heart or lung can be punctured. If this were to happen, you would be treated immediately.

Occasionally, while everything is still healing, a pacemaker lead may slip out of position inside the heart. If this occurs, it will be seen on the X-rays and other checks that you have after your procedure. Although this usually causes no harm, you will probably need a second operation to fix it.

Before you are discharged, the nurse will review any signs or symptoms you should watch for that may mean there is a problem.

In the Electrophysiology Lab

There will be a team of doctors, nurses and lab technologists involved in your procedure. All staff will be wearing gowns, masks and special lead aprons.

Your chest area will be washed with a cold solution and sterile sheets will be placed over you. It is important that you don't move or touch the top of the sheets once they are in place. A nurse will be available to assist you if you have any concerns during your procedure.

During your procedure, you will receive medications through your IV that will make you feel very relaxed. You might even fall into a light sleep. To make sure you stay comfortable, you will also receive pain medications through your IV, as needed.

A local anesthetic will be given to numb the area below your collarbone, which is where the pacemaker will be inserted.

Once the anesthetic has taken effect, the doctor will make a small incision. Using a special X-ray, the pacemaker leads will be threaded into your heart through a vein in your chest. You will not feel any pain, but you may feel some pressure as the veins are entered. The generator is then put into place just under the skin. Tell the nurse immediately if you feel any discomfort or have any concerns. It is very important you remain as still as possible during the procedure.

Once the procedure is finished, the incision will be closed with special stitches. You will not need to have them removed. They will dissolve on their own. The whole procedure will probably take one to two hours to complete.

After Your Procedure

After your procedure, you will be taken back to the Day Unit on a stretcher or bed. You may be hooked up to a heart monitor that will keep track of your heart rate and your blood pressure. Shortly after your procedure, you will go for a chest X-ray to check your pacemaker placement.

You may experience some discomfort at the incision site. If you are uncomfortable, tell your nurse and you can be repositioned and given pain medication to make you more comfortable.

While you are recovering, it is important to avoid moving your affected arm; in particular, you must not raise this arm above your head because that could displace the pacemaker leads.

You may experience some bruising and discolouration around the insertion site. If you were on a blood thinner before your procedure, this may be particularly noticeable.

You may eat and drink as normal when you return to the Day Unit. Your nurse will assess and assist you as necessary. If you are feeling okay, the nurse will bring you a light snack and something to drink.

Once you are feeling better, you will be able to go home.

***You must have someone pick you up at the hospital and drive you home.
The day you arrive home, you will need someone to stay with you
during the day and overnight.***

Discharge & Follow-Up Care

Before you are discharged from the Day Unit, your doctor and nurse will go over follow-up care with you. They will tell you how to take care of the insertion site. Also, they will discuss any changes in your medications. This will also be a good time to talk about when you can drive and return to work.

Before you leave the Day Unit, you will need to have your intravenous line removed and you may require a prescription to take to your pharmacist.

In a week or so, you will receive in the mail from the Heart Institute a temporary registration card and confirmation of your follow-up appointment at the Pacemaker/Defibrillator Clinic.

Discharge Checklist

Before you leave, make sure you have received information about:

☐ Medication changes

☐ Activity over the next few weeks

☐ Driving restrictions

☐ Return to work

Caring for Your Insertion Site

The area around your insertion site, including the incision, must stay dry. Avoid taking a shower until it is well-healed—usually a week to 10 days. You may take a bath but keep the insertion site completely dry.

Remove the initial bandage two days after your procedure. Leave the area open—do not wash or put any creams or ointments on it. If you are more comfortable with the area covered, apply a small, dry gauze dressing with one piece of tape to keep it secure.

Mild discomfort at the insertion site is normal and may be treated with acetaminophen (Tylenol®) as directed on the bottle. If your pain is not decreasing, call the Pacemaker/Defibrillator Clinic; you may need a stronger pain medication.

Check the insertion site every day and call the Pacemaker/Defibrillator Clinic at 613-761-4142 if you have any of these problems:

- A lump that keeps getting bigger
- Redness, tenderness or warmth around the incision
- Yellow pus or other fluid seeping from the incision
- Severe pain at the incision site
- Chills or fever

If you have questions, call the Pacemaker/Defibrillator Clinic

Monday to Friday, 8:00 a.m. to 4:00 p.m., at 613-761-4142.

If you need to speak with someone after hours,
the Nursing Coordinator can be reached any time at 613-761-4708.

Activity Guidelines

It can take up to four weeks for the pacemaker leads inside your heart to become firmly embedded. To avoid dislodging the leads, follow these activity guidelines:

Timeline	Avoid These Activities	You Can Do These Activities
First 24 hours:	Avoid moving your shoulder on the side of the insertion.	You can bend your elbow.
First 2 weeks:	Do not lift your affected arm over your head.	After the first 24 hours, you can move your arm freely below your shoulder.
First 4 weeks:	Do not lift anything heavier than 10 lbs. (5 kg). Avoid any kind of sports or other vigorous activities, such as golf, tennis, swimming or sweeping.	After 2 weeks, you can begin to do most of the regular activities you did before the procedure.
First 8 weeks:	Avoid any kind of shoveling.	After 4 weeks, you can begin to do all of the regular activities you did before the procedure.

Driving

Do not drive for the first week following your procedure. Some patients cannot drive for a longer period of time. It is important that you talk to your doctor about when you will be able to drive again. If you are in doubt, please be on the safe side and do not drive. Ask about driving at your first clinic appointment.

Follow-Up Appointment at the Pacemaker/Defibrillator Clinic

You will need to be seen in the Pacemaker/Defibrillator Clinic within two to four weeks after your pacemaker insertion.

You will receive a follow-up appointment card from the Pacemaker/Defibrillator Clinic within a week. If you do not receive an appointment card, call the clinic at 613-761-4142.

At the same time, please schedule an appointment with your family doctor to talk about your pacemaker and how it may affect any other health problems you have.

About the Pacemaker/Defibrillator Clinic

The Pacemaker/Defibrillator Clinic is an outpatient clinic designed to care for patients who have had a device implanted to correct or address arrhythmia problems. The clinic is staffed with cardiologists and registered nurses who specialize in the care of patients with pacemakers or implantable cardiac defibrillators (ICDs).

The clinic is open Monday to Friday from 8:00 a.m. to 4:00 p.m. Phone messages left over the weekend will be answered on Monday. Clinic appointments may be scheduled any day of the week but are usually scheduled on Monday, Tuesday, Wednesday or Thursday.

Clinic visits are by appointment. If you are not feeling well or if you have questions, call the clinic and speak to a member of the staff. He or she may be able to help you over the phone or, if needed, can schedule an appointment for you to be seen in the clinic.

Please call the Pacemaker/Defibrillator Clinic to cancel or change an appointment 24 hours in advance of the appointment.

The goals of the clinic are to:

- Look after aspects of your health related to your pacemaker device
- Educate you and your family about your device
- Maintain patient records regarding how your device is functioning

At each clinic visit, expect to see a nurse or a nurse and a doctor. During your clinic appointment, the nurse will check (interrogate) your device to obtain information about how it is functioning. This information will be reviewed and any necessary changes will be made.

At the same time, the clinic staff will be available to answer any questions you or your family might have about your particular device and how it is functioning.

For your follow-up appointment, please bring the following:

- Your medication list and your medications in their original packaging
- The name of your family doctor and cardiologist (if you have one)
- A list of any questions or problems you wish to discuss

Who We Work With

Monitoring and care of your device is only one part of your care. Clinic staff work in partnership with your other doctors. It is our responsibility to communicate the details of your visits to your family physician and your cardiologist (if applicable).

If you already have a cardiologist, you will continue to see him or her for all other general cardiology check-ups. If you don't have a cardiologist and are uncertain whether you need one, please ask the clinic staff.

The Pacemaker/Defibrillator Clinic is located on the first floor of the Heart Institute.

Patients who have had a pacemaker implant procedure are routinely seen at the clinic on an annual basis or more often if necessary.

MedicAlert Bracelet

It is a good idea to get an alert bracelet or necklace that tells the public about the device you had implanted in case of an emergency.

You can get the MedicAlert brochures from your pharmacy or order them from www.medicalert.ca.

Frequently Asked Questions

Can I use a cellphone?

Yes, you can use a cellphone. It is recommended that, when both talking on and simply carrying a cellphone, you keep it on the side of your body opposite your pacemaker.

Can I use an iPod or MP3 player?

Yes, you can. It is recommended that you keep the player on the side opposite the pacemaker when you are using or carrying it.

Can I use a microwave oven?

Yes, you can use a microwave oven without taking any special precautions.

Can I go through a security system at the airport?

Yes, it is OK to walk through the security screening archways. The system may detect your device and set off the alarm; however, it will not affect the functioning of your device. Present your device identification card to the security personnel. Ask that they clear you after a hand search and that they not use the handheld screening wand because it might affect your device.

How long should a pacemaker last?

Pacemakers can last anywhere from five to 10 years—the average is seven years. The length of time depends on how hard the generator/battery has to work, which is affected by how much energy is needed to pace your heart and how your pacemaker is programmed. The functioning of your device will be assessed at each clinic follow-up appointment.

Will I feel the pacemaker?

At first, you may feel the weight of the pacemaker in your chest. With time, you will become accustomed to it. The generator is very small—about the size of two loonies stacked together—and weighs about an ounce, depending on the make and model.

Can I exercise?

Once your doctor gives you the go-ahead to exercise, it is a good idea to exercise regularly.

My Medication List

List all prescription medications you are currently taking and over-the-counter (non-prescription) medications and supplements, such as vitamins, aspirin, acetaminophen (Tylenol®) and herbals (for example, ginseng, ginkgo biloba and St. John's wort). Include prescription medications taken as needed (such as nitroglycerin or Viagra®).

Name of Medication	Dose	When Taken	Reason for Taking

For More Information

Informative Websites

- University of Ottawa Heart Institute: www.ottawaheart.ca
- Heart and Stroke Foundation of Canada: www.heartandstroke.ca
- Heart Rhythm Society: www.hrsonline.org
- Canadian Heart Rhythm Society: www.chrsonline.ca

Pacemaker Device Companies

The pacemaker device companies have frequently asked questions listed on their websites:

- Medtronic:
www.medtronic.com/patients/tachycardia/living-with/index.htm
- Boston Scientific:
www.bostonscientific.com/lifebeat-online/live/icd-patients.html

MedicAlert Jewelry Website

- MedicAlert Foundation Canada: www.medicalert.ca

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