

A Guide to Your

- Cardiac Resynchronization Therapy Defibrillator**
- Implantable Cardiac Defibrillator**

Information for Patients and Families

- You are having your procedure at:

Royal Columbian Hospital
330 East Columbia Street
New Westminster, B.C.

- Report to **Patient Registration** at your hospital 'Check-in Time'.
- Patient Registration is just off the main lobby (located in the **Health Care Centre** or **Green Zone**).

- You are having your procedure at

Jim Pattison Outpatient Care and Surgery Centre
9750 – 140 Street
Surrey, B.C.

- Come in through the Main Entrance or the underground parkade.
- Take the elevator to the 4th floor (Level 4).
- Follow the signs to Surgical Day Care (which opens at 6:30_{AM})

This booklet tells you about your heart device, as well as about what to expect before, during and after your hospital stay.

Your nurse will help you to understand the information and how to take care of yourself when having a heart device.

- Take your time.
- Write down any questions you might have.
- Talk to us about your concerns and ask questions.

We are here to help you and your family.

Cardiac Services Program

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Words to Know

Antibiotic – medicines used to treat or control infections caused by bacteria or other organisms

Cardiac Resynchronization Therapy (CRT) – – a device used to trigger the heart's lower chambers (ventricles) to pump in a coordinated way (resynchronize) by sending tiny electrical impulses into the heart muscle

Cardiologist – (sounds like 'card-ee-all-oh-jist') A doctor who specializes in the study of the heart

Electrocardiogram (EKG or ECG) – 'Electro' means electrical activity, 'cardio' means heart, and 'gram' means a print out

An electrocardiogram is a test that checks the electrical activity of the heart. The heart's electrical activity is then printed out. The test can show problems with the heart's natural electrical system.

Electrophysiologist - a heart doctor who specializes in the study of the electrical activity of the heart

Health care provider - can include your doctors, nurses, physiotherapists, dietitians, dentists, chiropractors, massage therapists, ambulance attendants, and others that provide medical care

Heart monitor – machine records the electrical activity of the heart, known as the heart rhythm, some also record blood pressure and pressures within the heart
The monitor has many alarms that sound an alert when the patient's numbers are outside the range set by the nurse. The heart monitor can be seen in two places: at the patient's bedside and at the main desk.

Implantable Cardioverter Defibrillator (ICD) – a device used to send electrical pulses or shocks to the heart to help control life-threatening arrhythmias

Incision – opening or cut in your skin made to insert the heart device

Intravenous line – an intravenous is commonly called the IV ('intra' means into, and 'venous' means vein) used to give medicine and fluids into the blood

We insert a small flexible tube through the skin (the IV site) into a vein in the hand, arm, or foot.

Pacemaker – a medical device used to control or help a person's heart beat at a normal rate

Having a Heart Device

Your heart doctor feels it would be best for your heart if you had a heart device. This booklet describes 2 types of heart devices:

- Cardiac Resynchronization Therapy Defibrillator (CRT-D) device
- Implantable Cardiac Defibrillator (ICD) device

Why do I need a CRT device?

Sometimes the heart can become damaged by aging or heart disease. This damage can result in a weaker heart muscle. When the heart muscle is weakened, less blood is pumped with each heartbeat and the lower chambers of the heart (ventricles) do not pump at the same time. The CRT device is meant to help your heart pump blood around your body.

How does a CRT device work?

This device is a type of pacemaker. It is inserted into your upper chest, usually just below the skin near your collarbone.

It works by sending tiny electric impulses into the heart muscle, triggering the heart to beat and the ventricles to pump at the same time (called resynchronization). Your CRT device will be set to work as both a pacemaker and defibrillator (called a CRT -D).

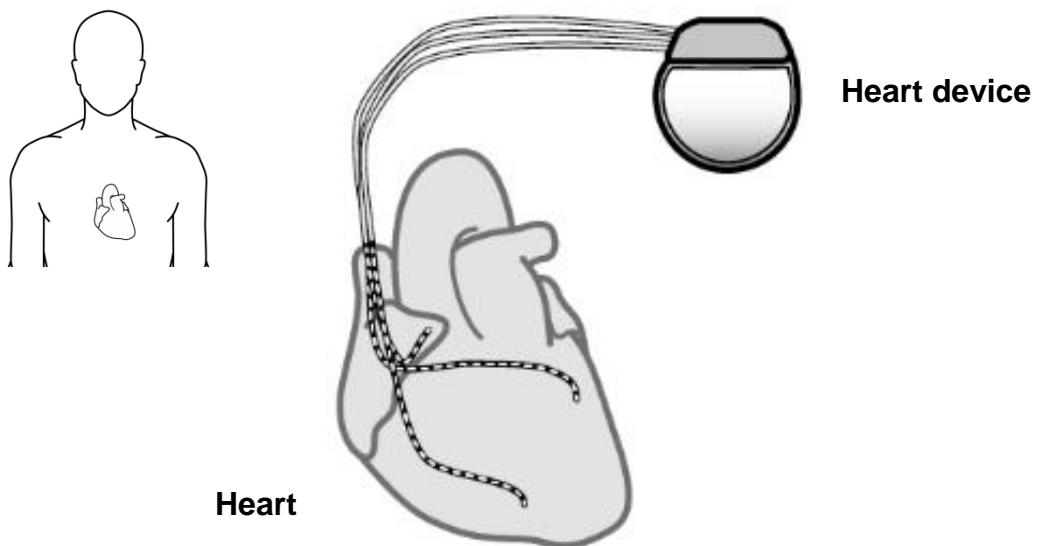
Why do I need an ICD?

You might need an ICD device if you have or are more likely to get a dangerous fast heartbeat. When the heart beats too fast, it cannot pump enough blood and oxygen to your body. If not treated quickly, the heart can stop (called a cardiac arrest) and death follows.

How does an ICD work?

The ICD detects when the heart is beating dangerously fast. It tries to correct the fast heartbeat by sending rapid electrical signals to the heart to reset the heartbeat. You will not feel these signals. If the heart does not respond to these signals, the ICD gives a controlled electrical shock to correct the dangerously fast heartbeat. You will feel this shock.

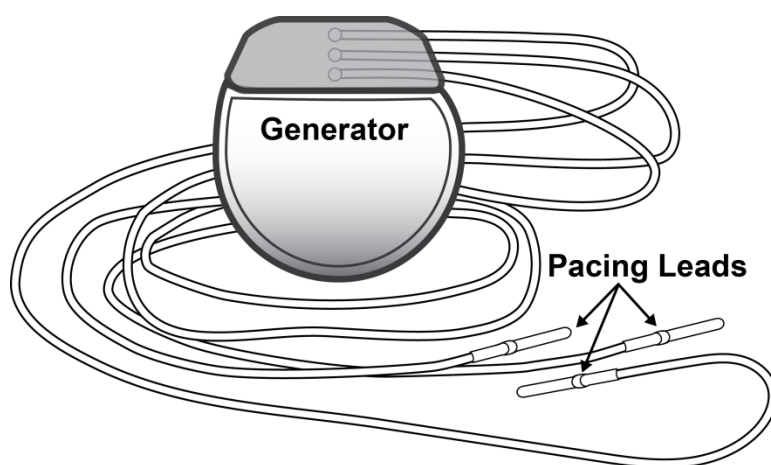
An ICD is usually able to correct a dangerous fast heartbeat within 10 seconds of detecting the problem. However, an ICD does not prevent the dangerously fast heartbeat from starting. You also need to take heart medicine to help prevent the fast heartbeat.



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Your heart device has 2 parts: a generator and pacing leads (sounds like 'leeds')

- The **generator** monitors your heartbeat. When needed, it sends an electrical impulse to your heart, triggering a heartbeat. As an ICD, it sends either electrical impulses or an electrical shock. It is powered by a special battery.
- The **pacing leads** are insulated wires that go from the generator to the inside of your heart.
 - A CRT has 3 leads: 1 to the upper chamber (atrium), and 1 for each lower chamber (ventricles).
 - An ICD can have 1 or 2 leads: 1 to the ventricle and maybe 1 to the atrium.



How long will this heart device last?

The **leads** can last many years and might never need to be replaced.

The **battery** life of the device depends on the type of device. Usually, the battery lasts between 6 to 10 years.

Most people have their battery checked every 6 months to 12 months at the Royal Columbian Cardiac Clinic or the electrophysiologist's office. Your electrophysiologist might arrange for you to have your device monitored remotely (wirelessly).

Preparing for a Heart Device

Weeks or days before

Once you and your doctor have decided a CRT or ICD device is right for you, you will have an appointment with our electrophysiologist in their office or in the Cardiac Clinic.

What to bring to your appointment:

- BC Services Card or BC CareCard
(your personal health number)
- Glasses and hearing aids, if needed
- A list of all the medicines you take
- Someone to be with you during the visit to support you, take notes for you, and help you remember what was discussed.

Note: If you do not speak or understand English well enough to have medical conversations, we can arrange for a medical interpreter (This service is free.). Let us know when we call to make your appointment. If you prefer, you can bring a family member or friend to interpret for you.



During your visit:

- We arrange for blood tests, an electrocardiogram (ECG), and maybe a chest x-ray.
- We let you know where to have these tests done.
- We tell you about how the device is put in place.
- We give you special instructions about:
 - How to prepare for the procedure such as when to stop eating and drinking, and how to clean your skin.
 - Which medicines you need to take and not take on your procedure day.

This is a good time to ask any questions you might have about the procedure.

What to plan before your procedure:

- A ride to the hospital.
- A ride from the hospital after the device has been put in place.
You cannot drive after you have had the device put in.
Ask your doctor when you can return to driving.
- Someone to be with you in the hospital if:
 - You would like someone to help you keep track of the information we give you.
 - You need help reading or speaking English.
- Someone to stay with you for 1 to 2 days when you return home.

If you are already in a hospital and need a heart device

The doctors and nurses in that hospital:

- Give you information and instructions about the procedure.
- Arrange for blood work and tests.
- Arrange for you go by ambulance, if needed, to a hospital where the device can be put in.

The evening before the procedure

- Eat a healthy snack in the evening.
- Clean your upper body and neck with Chlorhexidine Gluconate 4% solution following the instructions given to you during your clinic visit. Remember to rinse off the solution.
- Put on clean clothes after you wash.
- **Do not eat anything after midnight (12:00_{AM}).**
- If you wake up during the night, you can drink clear fluid if needed (such as water, apple juice, or clear tea without milk).

Note: You will need to buy either some apple juice or cranberry juice.

The morning of your procedure

Note: If you do not follow these instructions, your procedure could be cancelled.

- Do not eat anything after 12:00_{AM} (midnight).
- At 5:00_{AM}, drink 1 or 2 glasses of apple or cranberry juice.
- Do not drink anything after 5:00_{AM}.
- If your doctor has said you can take certain medications in the morning before your procedure, take these medications with a small sip of water.

If you have diabetes, ask your doctor about which medications you should take.

- Remove all jewellery.
- Take a shower or bath.
 - Clean your upper body, front and back, and your neck again with Chlorhexidine Gluconate 4% solution. Remember to rinse off the solution. Let what is left dry on your skin.
- Put on freshly washed clothes after you have cleaned your upper body and neck.

What to bring to hospital:

- BC Services Card or BC CareCard (your personal health number)
- Photo identification (such as driver's license)
- A list of all the medicines you take
- Bring all of your medications with you
- Dentures
- Hearing aid and spare batteries
- Glasses
- Someone to drive you to the hospital, stay with you, and take you home.

Do not bring valuables such as jewellery, money, or credit cards.

Inserting the Heart Device

It takes 1 to 2 hours to put the device in place. We use a special room that looks like an operating room.

Before the procedure

We ask you to change into a hospital gown. You can leave your socks and underpants on.

During the procedure, you can wear:

- glasses
- hearing aid(s)

***Remember to not to wear any jewellery.**

The surgeon explains the procedure to you. Ask any questions you have. We then ask you to sign a consent form agreeing to the procedure. We also ask you to agree to allow your personal information related to the heart device to be stored outside of Canada.

We attach you to a heart monitor and start an intravenous line.

We give you an antibiotic through your intravenous to help prevent infection.

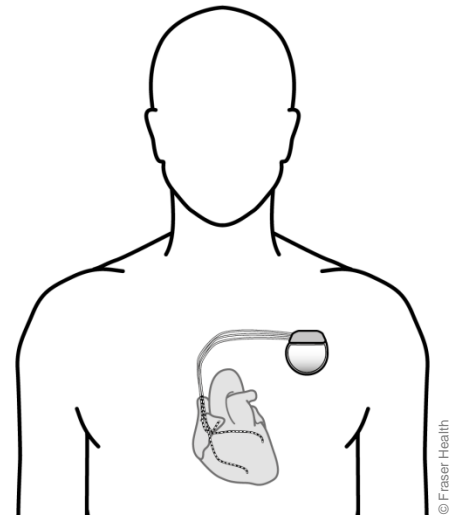
We give you medicine to help you relax before the procedure. This medicine might make you feel drowsy.

Just before we start the procedure, we will ask you to take out your dentures.

How the heart device is placed

We usually place the heart device on the left side of the body.

Let your doctor know if you are left handed or have concerns about where the device is placed.



1. The doctor then injects numbing medicine (freezing) into your skin to freeze the area where the device is being put so you do not feel pain during the procedure. This freezing wears off in 4 to 5 hours.
2. A small cut or incision is made on your chest just below your collarbone.
3. We use a special x-ray camera to guide the pacing lead (s) through a large vein into your heart.
4. Once the lead is in place, the other end of the lead is attached to the generator.
5. The generator is tested to make sure it is working properly.
6. The generator is placed just under your skin.
7. The incision is closed with stitches that dissolve over time. Your stitches might have little white tapes called 'steri-strips' overtop. These can help prevent scarring.

If your doctor uses some other way to close the incision, we give you instructions before you go home on how to care for the incision.

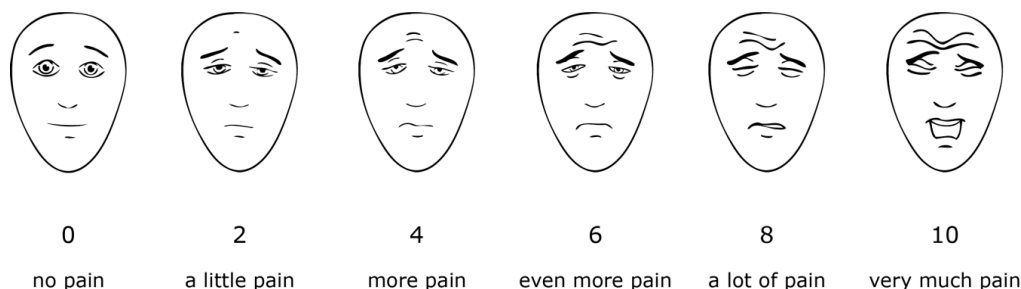
8. We place a small bandage over the incision.

Recovering in hospital

These are some of the things you can expect while you are recovering in the hospital.

- We give you acetaminophen (Tylenol) regularly to prevent pain from becoming a problem.

To help us know how much pain you are having, we use a pain scale like this one here. These faces show how much something can hurt (not what your face looks like when in pain). From left to right, the faces show more and more pain. You can point to the face that shows how much you hurt, or tell us how much you hurt using words or a number from 0 to 10.¹



- We keep the heart monitor on you for the first 2 hours after the procedure. We monitor your heart rate to make sure the device is working properly.
- We check your heart rate and blood pressure often. These must be close to your normal heart rate and blood pressure before you can go home.
- You can eat and drink as you normally would.
- If you need to go to the toilet, please ask for help the first time you get up.

¹ Faces Pain Scale – Revised (FPS-R). www.iasp-pain.org/fpsr. Copyright © 2001, International Association for the Study of Pain®. Reproduced with permission.

Just before you leave:

- We remove your intravenous.
- We give you any special instructions for follow-up appointments and for caring for your incision.

If you came from another hospital to have your heart device put in, we transfer you back to that hospital when we feel you are ready to go.

Before you leave, make sure:

- You ask any questions you have, and write down the answers.
- You have any prescriptions for medications.
- You have information on when you have an appointment with Royal Columbian Cardiac Clinic and heart specialist.
- You know when to get help.
- You have the temporary heart device identification card and information booklet about your heart device. (Your permanent card comes in the mail in about 2 to 3 months.)
- You have all your personal belongings.
- You have someone to take you home.

Going Home with a Heart Device

We expect that you will recover quickly from the procedure.

This section contains information about when to see your doctor, when to get help, as well as special instructions to follow during the first 4 to 6 weeks to take care of yourself and your CRT-D or ICD.

When to see your doctor

Within the first week of going home:

- Call your family doctor's office to make an appointment.
- Tell the office this is your first visit after having had a CRT-D or ICD put in.

The Cardiac Clinic will call you with a time to come to the Clinic. This appointment usually happens 4 to 6 weeks after your procedure.

When to get help

Call 9-1-1 or go to the nearest Emergency Department if you notice any of the following:

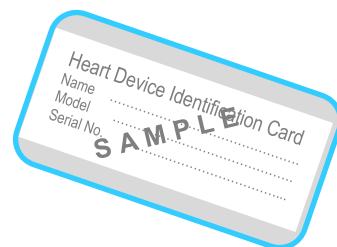
- Dizziness or light-headedness
- Blacking out or fainting
- Worsening pain in your chest or shoulder
- Shortness of breath or having a hard time to breathe
- Racing heart (palpitations)
- Increasing weakness
- Increasing tiredness
- Lots of hiccups or muscle twitching
- A fever of 38.5°C (101.3°F) or higher
- New bleeding through your chest bandage

Contact your family doctor or electrophysiologist right away if:

- Your bandage is wet with blood or other drainage.
- You have a fever over 38.5°C (101.3°F).
- You notice these things at the incision site:
 - redness
 - warmth or a feeling of heat
 - puffiness or swelling
 - green or yellow coloured liquid coming from your incision
 - pain or tenderness
- You feel unwell or think you have the flu.
(This could be signs of a blood infection. It must be treated right away.)
- You notice a new bruise over the site of the heart device.
(Some bruising in the area is normal right after the procedure and should go away over the next 6 weeks. A new bruise is **not normal**).
- You have swelling over the site of the heart device and the swelling is larger than an egg.
- You have pain that gets worse or does not improve with pain medicine.

Always have your heart device identification card with you.

If there is a problem with the heart device, the hospital uses this identification card to contact the doctor who inserted your heart device.



Caring for yourself

Managing Pain

It is normal to have some pain at the heart device site for a few weeks following the procedure.

You will feel better sooner if:

- You control your pain by taking pain medicine regularly.
- You rest the arm on the side the device was placed.

- **To manage pain in the first 48 hours:**
 - Take regular strength acetaminophen (325 mg).
 - Take 1 to 2 pills every 4 to 6 hours.

- **To manage pain after the first 48 hours:**
 - Continue to take regular strength acetaminophen, but begin to take them less often.
For example, instead of taking the acetaminophen 4 times a day, take it 3 times a day, then 2 times a day, then 1 time, then none.

Taking your other medications

Return to taking your medications unless we gave you new instructions.

If you were taking a blood thinner before the procedure and we said you can return to taking this medicine, start taking it again as directed.

Bathing

- After 48 hours, you can start taking showers.
Check when you can remove your bandage – See ‘Incision Care’.
- After 1 week:
 - You can take baths if you wish.
 - You can use unscented lotion on your incision site if it becomes itchy.

In the first 6 weeks:

- **Do not** let the shower spray directly on the incision area (or bandage).
- **Do on** scrub your incision. (See ‘Incision Care’)
- **Do not** soak the incision for a long time.

Doing any of these can delay healing.

Dressing and Clothing

When getting dressed, put the arm on the side with the heart device through the clothing first.

To protect your skin and keep your incision from getting irritated, wear loose-fitting clothing over your heart device area.

For women: You can wear a bra if it is comfortable. You might find it more comfortable to place a pad under the shoulder strap.

Sleeping

Sleep in any position that does not cause the area around your heart device to hurt.

Dealing with feelings and emotions

After your heart device, you might feel:

- fearful
- angry
- worried
- anxious
- uncertain
- irritable
- insecure
- depressed

As you recover, these feelings should start to improve. If you continue to have these feelings, it is best to talk to your doctor.

Activity

Rest the first day you are home.

Start these exercises **the day after you get home** and do them for the **next 2 weeks**.

1. To prevent stiffness and soreness, do these 2 exercises 3 times a day:
 - Gently roll your shoulders in forward circles 5 times.
 - Gently roll your shoulders backward circles 5 times.



Increase the number of circles you do each time, each day if you can.

2. To increase movement in your shoulder, do this exercise 3 times a day:
 - Face the wall.
 - Place both hands on the wall.
 - Slowly 'walk' your fingers up the wall. **Do not go above your shoulder height.**
 - Slowly 'walk' your fingers back down the wall.

During the first 8 weeks:

- **Do not** do any activities where you are repeatedly swinging or raising your arm.
Examples: throwing a ball, golfing, tennis, table tennis, vacuuming, or chopping wood
(You could cause the pacing lead(s) to move out of place.)
- **Do not** do any contact sports.
(You could damage the heart device.)

For most people, it is safe to return to sexual activity after a heart device. It will not harm your heart device. While your incision is healing, try not to support your weight with your arms during sexual activity.

Driving a vehicle

Do not drive unless your heart doctor or electrophysiologist has said it safe for you to drive.



When you can return to driving will depend on the type of heart device you have and the reason for the device.

Incision Care

You could have any one of these types of bandages over your heart device site. The incision should not bleed very much. If you see any blood or other drainage coming through your bandage, contact your doctor.

Type of bandage	What you should do
Large gauze pad	Remove after 48 hours.
Band-Aid-type	Remove after 1 week.
Small tapes over the incision	Remove after 1 week. To remove, gently lift the tapes from each end and roll towards the middle. It might help to loosen the tapes if you get the area wet in the shower first.

Watch for bruising.

Some bruising in the area is normal right after the procedure and should go away over the next 6 weeks.

Remember to contact your family doctor or electrophysiologist right away if you notice new bruises or any bruise that gets larger (like the size of an egg).

Once your bandage is off, gently clean your incision with soap and water each day. Rinse well and pat the area dry.

Remember

- **Do not** let the shower spray directly on the incision area (or bandage).
- **Do on** scrub your incision.
- **Do not** soak the incision for a long time.

Doing any of these can delay healing.

Living with a Heart Device

Tell others that you have a CRT-D or ICD

- **Attend follow-up appointments.**

Your heart device needs to be checked regularly. The Royal Columbian Cardiac Clinic or electrophysiologist's office contacts you to arrange for your appointment.

- **Always carry a heart device card with you.** ²

If you have an accident, this card tells people helping you that you have a heart device.

You might be asked to show your heart device ID card when going through any security scanner.



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- **Wear a medical alert bracelet or necklace.**

In an emergency, health care personnel can get your important medical information. (See the Resource page for more information about how to get your medical alert bracelet or necklace.)



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- **Tell all your health care providers you have a heart device.**

This allows them to take special precautions for certain types of medical procedures or therapies.

² Hamilton Health Sciences image used with permission

At home, work and in the community

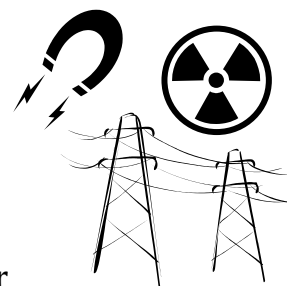
- **Using household items**

It is usually safe to be around or use electronic household items.

Microwave ovens	Safe
Cellular telephones	Keep your cell phone at least 15 cm (6 inches) away from your heart device. Do not carry your cell phone in your breast pocket
Electric razors, hairdryers, electric toothbrushes	Use with caution. Keep at least 15 cm (6 inches) away from your heart device.
Lawnmowers, wee eaters, electric drills or saws	Use with caution.
Television sets, CD players, radios	Safe

Stay away from:

- **magnetic fields**
- **high voltage**
- **radiation**



If you need radiation therapy, tell your cancer doctor you have a heart device. Certain steps might be needed.

Magnetic fields, high voltage, or radiation could cause your heart device to not work as it should.

Try to stay away from industrial areas with magnetic fields and high voltage or radiation.

Try to stay away from welding equipment.

If you have entered an area with a magnetic field, high voltage, or radiation, **leave the area if you feel:**

- Light-headed
- Dizzy
- A change in your heart beat

Going through security systems

It is safe to pass through airport security systems, border security systems, or any anti-theft devices in stores or banks.

It is best to move through quickly and not stay near the device.

Before you walk through, we suggest you have your heart device identification card ready to show them.

Tell the security guard you have a heart device so that they can stay away from using or holding the detection wand over the heart device site.

Resources

CRT / ICD / Pacemaker coordinator 1-855-529-7223

MedicAlert 1-800-668-1507
www.medicalert.ca

Medtronic Devices (pacemaker, CRT, ICD)
To ask questions about your heart device 1-888-660-4616
Monday to Friday
9:00_{AM} to 8:00_{PM} Eastern Standard Time

Abbott Device Guides and Brochures
www.sjmglobal.com/en-int/patients/arrhythmias/resources-support/guides-and-brochures

Electromagnetic Compatibility Guide
For information on magnetic fields, high voltage, and radiation
Medtronic
www.medtronic.com/ca-en/your-health/electromagnetic-guide.html
Boston Scientific
www.bostonscientific.com/content/dam/lifebeat-online/en/documents/BSC_Electromagnetic_Compatibility_Guide.pdf



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This information does not replace the advice given to you by your healthcare provider.

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