Living with Your Implantable Defibrillator (ICD)*

References

Brief Statement
Additional Device Information
An implantable cardioverter defibrillator (ICD) system delivers therapies to treat patients with heart rhythm disorders or who are at significant risk of developing heart rhythm disorders. An ICD is placed inside your body and works automatically. Risks associated with an ICD system implant include, but are not limited to, infection at the surgical site and/or sensitivity to the device material, failure to deliver therapy when it is needed, or receiving extra therapy when it is not needed. After receiving an ICD system, you will have limitations with magnetic and electromagnetic radiation, electric or gas-powered appliances and tools with which you are allowed to be in contact.

The Medtronic CareLink® Monitor is a prescription device indicated for use in the transfer of patient data from some Medtronic implantable cardiac devices based on physician instructions and as described in the product manual. This product is not a substitute for appropriate medical attention in the event of an emergency and should only be used as directed by a physician.

The CareLink® service is prescribed by your physician. This service is not for everyone. Please talk to your doctor to see if it is right for you. Your physician should discuss all potential benefits and risks with you. Although many patients benefit from the use of this service, results may vary. For further information, please call the Medtronic toll-free number at 1 (800) 551-5544 (Monday-Friday, 8:00 a.m. to 5:00 p.m., Central time) or see the Medtronic website at www.medtronic.com.

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Helping you lead a fuller life.

If you or someone you love has been diagnosed with a fast heartbeat (tachycardia), has had a heart attack, or has heart failure, this booklet can help you understand your heart condition and treatment options. It is designed to provide you with basic information about sudden cardiac arrest (SCA) and implantable defibrillators, including what to expect before and after you have an implantable defibrillator implanted.

Ask your doctor about your unique medical condition and therapy management.

Dawn
ICD Recipient

What is tachycardia?
Tachycardia is a condition where the heart beats too fast. A healthy heart beats 60 to 100 times per minute, pumping about 75 gallons of blood every hour. Exercise, stress, or fear can cause the heart to beat faster, but this is a normal response. With tachycardia, the heart beats at more than 100 beats per minute and can beat as fast as 400 beats per minute for no specific reason. At this rate the heart is not able to pump blood effectively to the body and brain.

There are different types of fast heart rhythms that can occur in either the upper chambers (atria) or lower chambers (ventricles) of the heart.

- Atrial flutter and atrial fibrillation start in the upper chambers of the heart
- Ventricular tachycardia and ventricular fibrillation start in the lower chambers of the heart

What is sudden cardiac arrest?
Sudden Cardiac Arrest (SCA) is an electrical problem with the heart that triggers a dangerously fast heart rhythm (ventricular fibrillation). The rapid, irregular heart rhythm causes the heart to quiver rather than contract or pump. When the heart stops pumping blood, oxygen cannot reach the body and brain. If not treated immediately, SCA can be fatal.

One of the nation’s top killers, sudden cardiac arrest, claims more lives than breast cancer, AIDS, or lung cancer.¹
Heart attack and SCA: What are the differences?

Sudden cardiac arrest is not the same as a heart attack, although the two are often confused.

Heart Attack –
A circulation or plumbing problem

Cause: Blockage in a vessel that supplies blood to the heart muscle, which may permanently damage part of the heart

Risk factors: High cholesterol, high blood pressure, obesity, smoking, family history of a heart attack, diabetes

Symptoms: May be accompanied by pressure in the chest, pain radiating to the arm, shortness of breath, sweating, nausea

Sudden Cardiac Arrest (SCA) –
An electrical problem

Cause: Electrical malfunction of the heart that results in no blood flow to the body and brain

Risk factors: Previous heart attack, heart failure, abnormal heart rhythm, low ejection fraction (EF ≤ 35%), family history of SCA

Symptoms: Generally no symptoms, may experience racing heartbeat, lightheadedness, dizziness, fainting

Who is at risk of sudden cardiac arrest?
Generally, sudden cardiac arrest strikes without warning. People who are at a higher risk for SCA include:

- Those who have had a heart attack
- Heart failure patients
- Survivors of a previous SCA or those who have a family member who has had an SCA event
- People with a low ejection fraction

EF number: a number you should know
EF stands for “ejection fraction.” It is the percentage of blood that is pumped out of the heart with each heartbeat. Your doctor determines how well your heart is pumping based on your EF number.

Your EF number can change over time. It is important for you and your doctor to check your EF regularly.

Chart of typical EF ranges:

<table>
<thead>
<tr>
<th>EF Range</th>
<th>Heart’s pumping ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>50–75%</td>
<td>Normal</td>
</tr>
<tr>
<td>36–49%</td>
<td>Below normal</td>
</tr>
<tr>
<td>35% &amp; Below</td>
<td>Low</td>
</tr>
</tbody>
</table>

People with a low EF – 35% or below – are at an increased risk for SCA.

A healthy heart has an EF between 50% and 75%. This indicates the heart is pumping well and able to deliver enough blood to the body and brain. Even a healthy heart does not pump 100% of blood out of the heart during each beat – some blood always remains in the heart.

How is EF measured?
The most common way to measure EF is with an echocardiogram. This test is usually performed in a doctor’s office or hospital’s diagnostic area.
Treating SCA through defibrillation

The most effective way to treat SCA is through defibrillation. Defibrillation involves delivering an electrical shock to your heart to restore a normal heartbeat. To survive an SCA event you must receive defibrillation within ten minutes. Only about 5% of people survive SCA, because defibrillation was not delivered within this critical time frame.

There are two primary forms of defibrillation:

- **An automated external defibrillator,** or AED, is a portable device that measures the heart’s electrical activity. It is used by emergency response teams or the general public to shock the heart.

- **An implantable defibrillator,** or ICD, is a device that is implanted under the skin. The implantable defibrillator delivers therapies to treat fast, irregular rhythms.

What is an implantable defibrillator?

When people refer to an implantable defibrillator, they are actually discussing the system – the defibrillator and the leads.

- A **defibrillator** continuously monitors the heart and automatically delivers therapies to correct fast heart rhythms

- **Leads** are thin, soft insulated wires about the size of a spaghetti noodle. The leads carry the electrical impulse from the defibrillator to your heart and relay information about the heart’s natural activity back to the implantable defibrillator.
How does an implantable defibrillator work?

An implantable defibrillator is designed to monitor your heart rhythm 24 hours a day. If your heart is beating too fast or irregularly, the device will first send small painless electrical signals to correct your heart rate. If the fast heart rate continues, the defibrillator will deliver a shock to restore your heart to a normal rate. The implantable defibrillator can also treat slow heart rhythms by sending electrical pulses to the heart to correct it.

Your doctor will program the ICD to deliver the most effective therapies for your specific heart condition.
Getting a defibrillator implanted

The procedure to implant a defibrillator does not require open heart surgery, and most people go home within 24 hours. Before the surgery, medication may be given to make you sleepy and comfortable. Generally, the procedure is performed under local anesthesia.

The general steps of an implant procedure include:

- A small incision, approximately two to four inches long, will be made in your upper chest area, just below your collarbone
- One or two leads will be guided through a vein into your heart, and the leads will be connected to the implantable defibrillator
- The defibrillator settings will be programmed, and the device will be tested to ensure it is working properly to meet your medical needs
- The defibrillator will be inserted beneath your skin, and the incision in your chest will be closed

Follow-up care and monitoring

Follow-up appointments enable the defibrillator to be thoroughly checked. During these check-ups, your doctor can:

- Monitor the battery status of the defibrillator
- Check the leads to determine how they are working with the defibrillator and your heart
- Review your defibrillator settings to ensure they are programmed appropriately to your medical needs
- Make programming adjustments to your implantable defibrillator

In addition to these check-ups with your doctor, your clinic or practice may choose to have your implantable defibrillator checked through remote monitoring.

This remote monitoring can replace some visits, but not all. Your doctor may still need to perform a physical examination to adjust your defibrillator settings or medications.
Remote monitoring via the Medtronic CareLink® Network

The CareLink® Network allows you to send information stored in your implantable defibrillator to your clinic, as instructed by your doctor, using a portable home monitor connected to a telephone landline or the Medtronic M-Link® Cellular Accessory.* Your implantable defibrillator information is then transmitted to a secure Internet website where your clinic can access and review information about how your heart and implantable defibrillator are working. The CareLink Network provides the same implantable defibrillator information to your doctor that an in-clinic office visit provides.

Information in your implantable defibrillator may be sent automatically to your clinic, using wireless communication, as scheduled by your doctor. This process will be silent and usually happens during the night while you’re asleep. In addition, your implantable defibrillator can be programmed to automatically notify your clinic of irregular heart activity or conditions with your implantable defibrillator, such as a low battery.

* For more information about the M-Link® Cellular Accessory, please call 1 (877) 609-6698.

Living with an implanted defibrillator

Many people with an implanted defibrillator resume their normal daily activities after recovering from the implant procedure. There may be certain situations your doctor will ask you to avoid. Discuss your activity and lifestyle goals with your doctor and develop a plan that works best for you.

Tommy
ICD Recipient
Frequently asked questions

Can I use a cell phone?
Yes. When talking on a cell phone keep the phone’s antenna six inches away from your implantable defibrillator, and use the phone on the ear opposite your implantable defibrillator. We also recommend you avoid placing the cell phone in a pocket near your implantable defibrillator.

Are household appliances safe to use?
Yes. Most household appliances are safe to use as long as they are properly maintained and in good working order. This includes microwave ovens, major appliances, electric blankets, and heating pads.

Will magnets affect my device?
Items that contain magnets, such as magnetic therapy products, stereo speakers, and hand-held massagers can temporarily affect the operation of your implantable defibrillator. Therefore, it is recommended you keep items containing magnets at least six inches away from your implantable defibrillator. We do not recommend the use of magnetic mattress pads and pillows because it is difficult to maintain a six-inch distance when using these items.

Will I be able to travel?
Given the short duration of security screening, it is unlikely that your Medtronic implantable defibrillator will be affected by metal detectors (walk-through archways and hand-held wands) or full body imaging scanners (also called millimeter wave scanners and 3D imaging scanners) such as those found in airports, courthouses, and jails.

To minimize the risk of temporary interference with your implantable defibrillator while going through the security screening process, avoid touching metal surfaces around any screening equipment. Do not stop or linger in a walk-through archway; simply walk through the archway at a normal pace. If a hand-held wand is used, ask the security operator not to hold it over your implantable defibrillator and not to wave it back and forth over your implantable defibrillator. You may also request a hand search as an alternative.

If you have concerns about these security screening methods, show your device ID card, request alternative screening, and then follow the instructions of the security personnel.

Educational services for patients

Medtronic Patient Services
If you have a Medtronic cardiac device and want to learn more or have questions about living with an implantable defibrillator, please contact Medtronic Patient Services at 1 (800) 551-5544, ext. 41835. Our Patient Services Specialists are available to assist you, Monday-Friday from 8 a.m. to 5 p.m. Central time.

Medtronic.com
The Medtronic website includes in-depth information on heart conditions and treatment options for patients and their caregivers. Our interactive website allows you to take assessments, view video, read patient stories, and link to other resources. Visit us online at www.medtronic.com.