

Implantable Cardioverter Defibrillator (ICD)

What is an ICD?

An **ICD (implantable cardioverter defibrillator)** is a small device that detects irregular heartbeats. It has a **pulse generator** that is placed into your body and one or more **leads** (wires) that are threaded into your heart.

The ICD leads record and monitor your heartbeat and send information to the pulse generator. If there's an irregularity with your heart rhythm, the generator creates an electrical pulse and sends it to your heart.

ICDs are different from a pacemaker. Pacemakers correct a heartbeat that is too slow, but ICDs correct heartbeats that are too fast.

Why do I need it?

An ICD is used to treat heart rhythm problems such as:

- **Ventricular Tachycardia.** This is when the ventricles (bottom heart chambers) send electrical signals too frequently, causing your heart to beat too fast.
- **Ventricular fibrillation.** This is when the ventricles send very fast, irregular signals, causing your heart to quiver. *This causes decreased blood flow through the body.* If left untreated, this condition can be fatal.

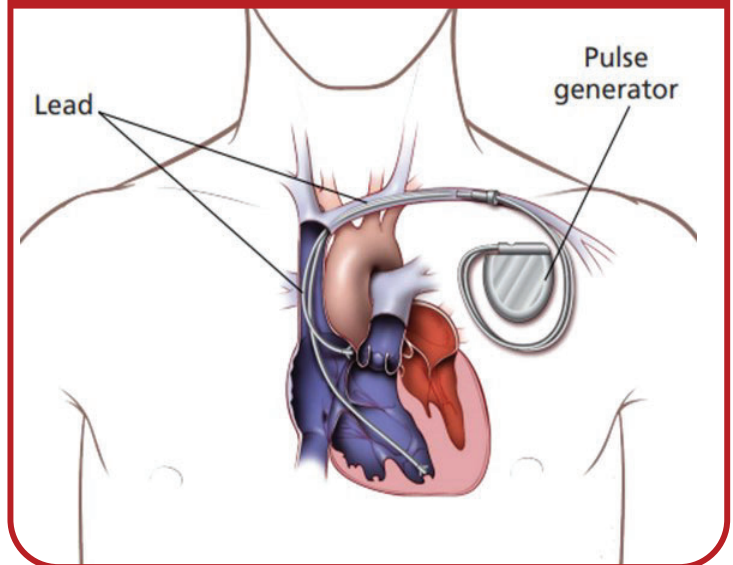
How does an ICD Work?

When the ICD senses that you're having a heart rhythm problem, the pulse generator sends a signal to correct it.

- **Pacing signals** correct a heart rate that is too fast or too slow. These signals are usually unnoticeable.
- **Cardioversion** is a mild shock which is applied if ventricular tachycardia continues even after pacing signals are sent. This can feel like a sudden thump in the chest that lasts for a moment.
- **Defibrillation** is a strong shock that corrects ventricular fibrillation. This shock can feel like being punched in the chest. The shock may be surprising or briefly painful, but is intended to save your life.

The ICD can also record your heart's electrical activity, so that the doctor can adjust its settings during the follow-up appointment.

The pulse generator is placed under the skin in the chest. Tiny wires called "leads" are threaded through a vein to the heart.



What do I need to do Before My Procedure?

- **Arrange for time off of work or school.** You can return to work when your doctor tells you, which is usually around a week after the procedure.
- **Tell your doctor about all medications that you are taking and follow all instructions on when to stop eating and drinking, before the procedure.**
- This includes over-the-counter medications, patches, vitamins, and/or herbal remedies.
- **Follow your doctor's directions about medications.** You may be asked to stop taking certain blood thinners before the procedure.
- **Arrange for a ride.** You will need someone to drive you to and from the office.

What Happens During My Procedure?

The procedure usually takes between 1-2 hours. You will be given a mild sedative which helps you feel relaxed during the procedure.

- A local numbing medicine will be injected in the area where the pulse generator will be placed.
- A small incision is made in the skin below your collarbone. This makes a pocket for the pulse generator.
- A needle is inserted into a vein in your upper chest to insert each lead. The doctor uses x-ray guidance to move the lead through the vein into your heart.
- The pulse generator is connected to the leads (after being tested to ensure proper positioning in the heart) and then inserted into the pocket in the skin beneath your collarbone.
- The pacemaker is set to the rate your heart needs. Your medical team might also adjust other settings.
- The incision site may be closed with stitches or a skin adhesive/glue, and you will be moved to the recovery area upon completion of the procedure.

What Happens After my Procedure?

The procedure usually takes between 1-2 hours. You will be given a mild sedative which helps you feel relaxed during the procedure.

- You will get a **temporary ID** card that shows the type of ICD you have, date of placement, and who performed the procedure. You will get a permanent card in the mail within a few weeks. Carry the ID card with you at all times.

What do I need to do when I get home?

Take all medications as instructed by your doctor.

Activity:

- **Keep your arm still for the first few days.** You might need to wear a sling for the first 24 to 48 hours.
- **Don't lift any objects or drive until your doctor says that its okay.**
- **Don't do any activities that involve raising your arms** such as golf, baseball, tennis, bowling, or swimming until your doctor says its okay.
- **Don't do any activities that could bump or jar the ICD site,** such as contact sports, using an air hammer, or firing a rifle, until your doctor says that its okay.
- **Ask your doctor about when its okay to have sex again.** You should avoid sex for at least the first week.
- **Perform any exercises that your doctor may have assigned you.** This will help with the mobility in your arms.

Wound care

- **Keep the incision dry and clean.** Don't take a bath, swim, or use a hot tub until your doctor says its okay. If you shower, try to avoid direct spray onto the incision site. **Don't soak or scrub your wound.** If your dressing becomes wet or soiled, remove the dressing, clean the site with soap and water, as directed by your doctor. Don't use creams, ointments, or lotions on the site.
- **Skin adhesive/glue.** If your doctor used skin adhesive on your incision site, don't apply any liquid or ointment medicines or any other product while the adhesive film is in place. Don't scratch or pick at the film, let it sit for 5-10 days, when it usually falls off naturally.
- **Wear loose clothing.** Place a gauze pad over the pulse generator to reduce rubbing on the stitches.
- **Expect some soreness** for the first few days, gradually improving for the next 2-4 weeks.

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Life with an ICD

Let people know

- **Carry your ID with you at all times.** Your ID will give healthcare providers important information in an emergency. It will also be helpful if the ICD sets off an alarm.
- **Tell your healthcare providers.** They need to know if you have an ICD before doing any procedures that involve needles or incisions.
- **Tell your dentist.** Your dentist can avoid using devices that produce electromagnetic fields that can interfere with the device.

Protect the ICD

- **Avoid letting anything hit or rub your ICD.** Be careful about contact sports or other activities that may jar the pulse generator under your skin.
- **Avoid strong magnetic fields.** Stay away from:
 - Magnetic resonance imaging (MRI) or other high powered magnets. *Even if your device is MRI compatible you should still contact your doctor before undergoing this test.*
 - Arc welding equipment, industrial equipment, and induction furnaces.
 - High-intensity power lines or radio towers
 - Combustion motors. Don't lean over the hood of a running car, or touch the spark plugs or distributor of a running car.
- **Don't linger around anti-theft devices** at store or building entrances. It is safe to walk through them at a normal pace.
- **Airport screening is safe.** Screening devices may set off an alarm, but they won't harm the device. If you set off an alarm, show them your ID. Ask them not to search you with the hand-held screening wand, since it contains a magnet.

What Should I Do if I Get a Shock?

- If the ICD gives you a **single shock**, sit or lie down for a few minutes. **Call your healthcare provider** to report the event.
- If the ICD gives you **several shocks** in a row **CALL 911.**

Monitoring and Maintenance

- **Follow-up appointments.** Your healthcare provider will set up follow-up appointments. To check the ICD, you might have various kinds of tests, including electrocardiograms and battery checks. Your doctor might adjust the ICD settings based on the tests.
- **Checking the ICD over the phone.** A transmitter might be used at home to send ICD signals to your doctor.
- **Replacing the Battery.** The average battery life is around 5 years. Follow-up appointments and other checks will tell your healthcare provider if this is needed.
- **Replacing leads.** In rare cases, the leads can become cracked. Your healthcare provider will check the leads and possibly replace them if needed.

Contact your doctor if you experience the following:

- Redness, swelling, or drainage around the wound
- A wound that separates or isn't healing
- Fever over 101° F
- Joint pain, stiffness, or weakness in your arm
- Fainting or feeling lightheaded, or dizzy
- Swelling in your hands or ankles
- A constant tired feeling
- Hiccups that won't go away
- Chest pain, or a kicking sensation in your chest
- Twitching muscles in your chest or belly