

# Let's Talk About...

## Implantable cardio defibrillator (ICD)

### What is an implantable cardio defibrillator?

An ICD (implantable cardio defibrillator) is a small device that corrects your child's heart rhythm. A pulse generator is implanted in your child's body, and one or more leads (wires) are threaded into your child's heart.

The ICD leads "listen" to your child's heartbeat and send information to the pulse generator. If there's a problem with your child's heart rhythm, the generator creates an electrical pulse and sends it through the leads to their heart.

### Why does my child need an ICD?

Your child may need an ICD if their heart beats too fast or too slow or has an irregular rhythm. A healthy heart pumps at a regular pace that adjusts as the body's needs change. This pace is set by your child's own natural pacemaker—a part of the heart that sends electrical pulses to make it beat.

### How does an ICD work?

An ICD works by:

- Sending pacing signals to correct a heartbeat that's a bit too fast or too slow
- Shocking the heart (called defibrillation) to reset its electrical system if it goes into an unstable rhythm or starts beating too fast
- Recording the heart's electrical activity so their doctor can adjust settings at follow-up appointments

### How is an ICD implanted?

An ICD is inserted under the skin below your child's collarbone in the hospital operating room. It is about the size of a stopwatch.



### How do I prepare for my child's ICD surgery?

There are several things you can do to get ready for the procedure and make it go more smoothly.

- **Arrange for time off school.** Your child can return to school when the doctor says it's okay, usually after a week or so.
- **Tell your child's doctor about medicines and allergies.** This includes prescriptions, over-the-counter drugs, herbs, and vitamins.
- **Follow the doctor's directions about medicines.** Your child may need to stop taking certain blood thinners before the procedure.
- **Have your child fast (have no food or drink) for 6–8 hours before the surgery.** If the surgery is in the morning, your child should not eat or drink anything after midnight the night before.

## What happens before my child's ICD surgery?

When your child arrives for ICD surgery:

- You will fill out paperwork, and your child will change into a hospital gown.
- An IV (intravenous, a small tube that goes into a vein) line may be placed in your child's arm or hand. Your child may receive medicine by mouth or through a mask before the IV is placed.
- A healthcare provider may test your child's blood for lab tests.
- A healthcare provider will clean your child's chest and shave it, if necessary.
- Your child will be moved to the cardiac cath lab. The room may feel cool, but your child will be covered with sterile drapes and a blanket.
- Your child will lie on their back and receive medicine through the IV so they sleep through the surgery.
- Your child's arms may be secured at their sides so they're still during surgery.

## What happens during ICD surgery?

During ICD surgery, healthcare providers will:

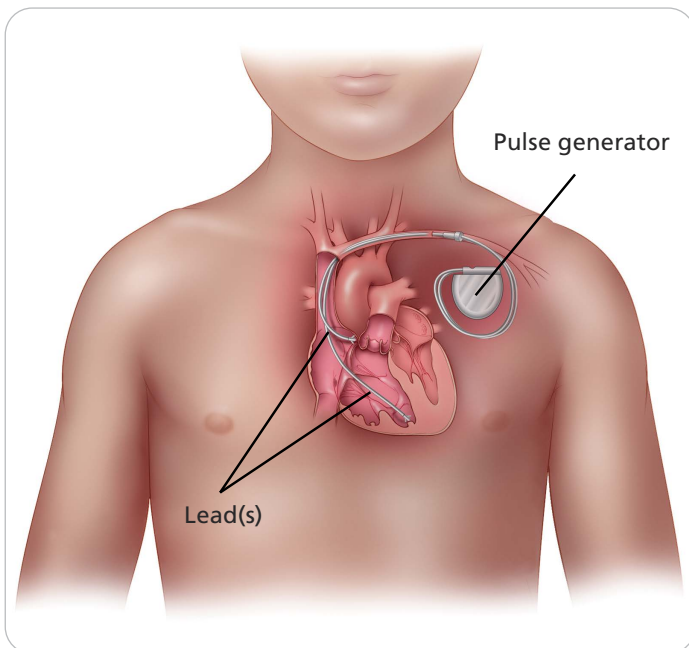
- Attach devices to your child to monitor their heart rate, blood pressure, and breathing
- Make a small incision (cut) in the skin to make a "pocket" for the pulse generator
- Insert a needle into a vein and insert each lead using the needle. Using x-ray guidance, they will thread the leads through the vein into your child's heart.
- Test the leads with electricity to make sure each one is in the correct place. Each lead might be moved, and retested each time, until it is perfectly positioned.
- Connect the pulse generator to the leads and insert it under your child's skin
- Set the ICD to the rate your child's heart needs. The medical team might also adjust other settings.
- Close the surgical cut with a few stitches and move your child to a recovery room

This surgery usually takes several hours.

## What happens after surgery?

- Your child will probably stay in the hospital overnight so the healthcare team can monitor their heartbeat.
- The next morning, your child will have a device check to make sure the leads and generator are working well.
- Your child will get an ICD ID card. This lists the type of ICD, when it was placed, and who performed the procedure. They will get a permanent card in the mail in a few weeks. Make sure your child has the ID card at all times.

When your child has recovered from sedation and the surgery, the nurse will send you and your child home with instructions from the cardiologist.



## What are the risks of an ICD?

Risks of ICDs include:

- Bleeding or infection where the pulse generator was inserted
- Problems with the sedation medicine
- Nerve or blood vessel damage
- Problems caused by electronic devices

## How do I care for my child's incision?

Your child's incision may be sore for the first few days and swell slightly for 2–4 weeks. To protect your child from infection:

- Keep the incision clean and dry. Your child may shower after 48 hours, but cover the incision with plastic so water doesn't hit the incision. Don't immerse the incision in water for the first 10 days or until it heals. Don't scrub the site, and avoid using creams, ointments, or lotions on or around the incision.
- Have your child wear loose clothing around the site. You can put a gauze pad over the pulse generator to reduce rubbing on the incision.

## When can my child return to normal activities?

After ICD surgery, you should help your child slowly return to activity. Follow the doctor's instructions about keeping your child's arm still for the first few days. Your child might need to wear a sling for a while, which may reduce pain.

Ask your child's doctor when your child can return to school. You should also ask about activity during the first 6–8 weeks, including:

- Lifting objects or driving
- Activities where your child raises their arms, like golfing, bowling, tennis, swimming, or diving
- Activities that could bump or jar the ICD site, like contact sports

## When should I call my child's healthcare provider?

Call the doctor if your child experiences any of these after ICD surgery:

- Redness, swelling, or drainage around the wound
- A wound that separates or isn't healing
- A fever higher than 101°F
- Very fast or slow heartbeat
- Swelling in their hands or ankles
- Hiccups that won't go away

## How can I protect my child during other healthcare procedures?

- Make sure your child has their ICD ID card at all times. The ID card tells healthcare providers important information in an emergency. It's also helpful if the ICD sets off a metal detector or other alarm.
- Tell healthcare providers your child has an ICD before any procedures that involve needles or incisions.
- Tell your child's dentist about the ICD. The dentist can avoid using devices that produce electromagnetic fields that can interfere with the device.

## How do I protect the ICD's pulse generator?

To protect the pulse generator, which powers the ICD:

- Don't let anything hit or rub the device. Make sure your child is careful about contact sports or other activities that may jar the pulse generator.
- Have your child avoid strong electromagnetic fields, including:
  - High-intensity power lines or radio towers
  - Magnetic resonance imaging (MRI) equipment
  - Combustion motors (They should never touch spark plugs or distributors on a running car or lawnmower)
  - Radio transmitters like CB radios, ham radios, or antennas used to control toys

- Don't let your child linger around anti-theft detection devices at store or building entrances. They should walk through them at a normal pace.
- Have your child keep any cell phone or mp3 player 6 inches away from the ICD if it is on.
- Ask airport security not to search your child with a handheld screening wand, since it contains a magnet.

Your child can safely use computers and small household appliances as long as they are working right. Airport screening is safe. Though screening devices may set off an alarm, they won't harm the ICD. If your child sets off a metal detector, show the security officer the ICD ID. You will get this ID from your healthcare provider.

## How do I take care of my child's ICD?

To make sure your child's ICD is working well:

- Set follow-up appointments with your child's healthcare provider so they can test the ICD regularly and adjust settings if needed
- Check the ICD over the phone with your child's healthcare provider using a transmitter
- Have their healthcare provider replace the battery if needed (average battery life is 5–10 years)
- Tell their healthcare provider if the leads become cracked and need to be replaced (this is rare)

## What should I do if my child gets a shock from the ICD?

- If the ICD gives your child a single shock, have them sit or lie down for a few minutes. Call their healthcare provider to report it.
- If the ICD gives your child several shocks in a row, call 911.

### Notes

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