

This sheet explains what an ICD is, why it's needed and how we put it into the body.

### Key points

- ICD stands for implantable cardioverter-defibrillator.
- An ICD picks up rapid heart rhythms and brings the heartbeat back to normal.
- The ICD can be through the veins or on the heart's surface.

### What is an ICD?

- It's a small electronic device ("generator") placed under the skin of either the chest or abdomen (belly) (see Figure 1).
- We place wires (called leads) through the veins into the heart. Or, we sew the wires directly onto the outside of the heart.
- An ICD can pick up a rapid, dangerous heart rhythm. It gives a shock to the heart that can stop this rhythm and bring the heart back to a normal rhythm.

### Why would my child need an ICD?

- ICDs are used to treat unpredictably fast heart rhythms that can be life-threatening.
- In some cases, the ICD is also used to pace the heart. These painless electrical impulses help people with slow heart rates.

### What kinds of ICDs are there?

- **Single chamber ICD:** This has 1 wire going to the bottom part of the heart (ventricle). This wire picks up and stops dangerous heart rhythms. It paces the heart (if needed) for slow heart rhythms.
- **Dual chamber ICD:** This uses 2 wires. One wire goes to the top chamber of the heart (atrium), and another one goes to the ventricle. This allows the ICD to keep track of dangerous heart rhythms and stop them. It can also provide pacing to the top and bottom chambers of the heart as needed.
- **Cardiac resynchronization ICD:** This uses 3 wires. One wire goes to the atrium, and 2 go to the ventricles. This is used if your child is at risk for ventricular dysfunction (when the left ventricle is too weak to pump enough blood). This kind of ICD can help the atrium and ventricle pump more regularly. This kind of ICD will also check for dangerous heart rhythms and stop them when needed.

### How is the ICD implanted?

The way we implant the ICD depends on your child's size and anatomy. We either place the ICD as a transvenous device (through the veins) or as an epicardial device (on the heart's surface).

- **Transvenous ICD:** One or more leads are inserted through a big vein below the collarbone and guided to the heart, then attached to the heart muscle. The leads attach to a generator under the skin (see Figure 1.)

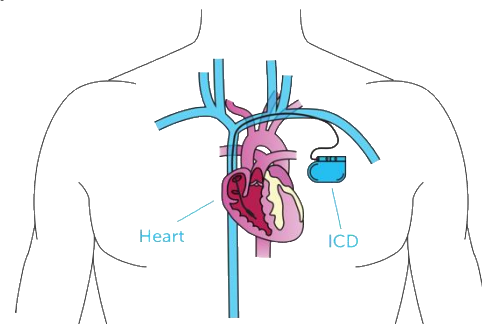


Figure 1.

- **Epicardial ICD:** A cardiac surgeon attaches wires to the surface of the heart through an incision in the chest.
- The wires then connect to a generator placed under the rectus muscle (the "six pack" on the belly) (see Figure 2.)

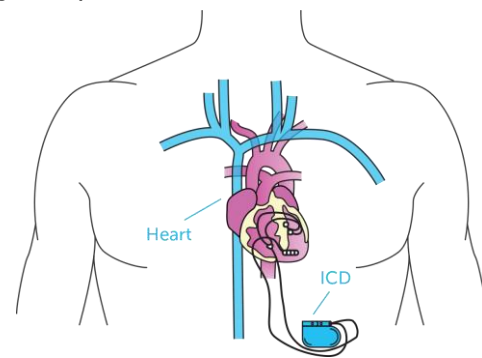


Figure 2.

### How long will my child be in the hospital?

- **For transvenous ICDs:** Your child will stay overnight. They will have a chest X-ray the next morning, and we'll check their ICD to make sure it's programmed the right way.
- **For epicardial ICDs:** Your child will stay in the cardiac intensive care unit (CICU) for 1–2 days. They will probably spend 5–7 days in the hospital recovering from surgery.

- Your child's care team makes sure that the incision is healing well and that your child's pain is under control. The team also makes sure that the ICD is working and programmed the right way.

### How long will the ICD last?

- ICD batteries last 5–8 years. How long they last depend on how they're programmed and used.
- The leads are made to last 10-15 years. Young people and those with congenital heart disease (CHD) can have their leads wear down faster.

### Should my child avoid electronics?

- Keep all electronics and magnets 6 inches away from the generator. This helps prevent interference with the ICD.
- Some power tools and large electromagnetic tools have different rules. Check your ICD booklet for information about these kinds of tools, or ask your child's care team.

### What happens next?

- You'll learn how to send transmissions from your child's ICD so we can check on the device remotely (from our office) every 3 months. We'll also need to see your child in person every 6–12 months.

### Contact us

- **Monday–Friday, 7 a.m. – 4 p.m.:** Call the Pacemaker Office at 617-355-4676.
- **After hours, on holidays, or on weekends, or if your call is urgent:** Call Boston Children's page operator at 617-355-6369 and ask to page the electrophysiology (EP)-doctor-on-call at #3737.