Patient Guide to

Placement of an Implanted Cardioverter Defibrillator (ICD)
What is an ICD?

There are two parts to an ICD system: (1) The ICD generator, which is a small computer and battery; and (2) Leads that are placed within or on the outside of the heart. An ICD is used to detect and treat possible life-threatening fast heart rhythms (arrhythmias). An ICD can also pace the heart to treat slow heart rates.

How does an ICD work?

An ICD monitors every beat of the heart. If the heart develops a life-threatening abnormal rhythm, or arrhythmia, the ICD can treat this rhythm. The ICD works by either rapidly pacing or by defibrillating (shocking) the heart back to a normal rhythm. The doctor will program the device to treat the patient’s particular type of arrhythmias. An ICD also has the ability to pace the heart if it is beating too slowly. Pacing electrically activates the heart resulting in a heartbeat.

Where is an ICD placed?

An ICD is normally placed in the chest, either above or below the chest (pectoral) muscle. In most cases, the ICD lead(s) travel through a vein leading to the heart, and are attached to the inside of the heart.

How is an ICD placed?

During placement of a patient’s first ICD, he or she receives both the ICD and the leads.

- At American Family Children’s Hospital, the patient is typically “asleep” under general anesthesia.

- To place the ICD generator, an incision is usually made on the left chest. To make the incision less noticeable, Dr. Von Bergen – the UW Health pediatric cardiologist who specializes in these procedures – can place the incision just in front of the armpit. A “pocket” is then created for the ICD generator, often below the pectoral muscle.

- The ICD leads are then placed into the heart by passing them through the vein running from the left arm to the heart. Once the leads are secured inside the heart, they are tested to confirm that they work properly.

- The ICD generator is attached to the leads and placed into the “pocket.” The incision is then closed with sutures.
• The device is usually tested by placing the patient into an abnormal heart rhythm and confirming that the device correctly detects and treats potentially life-threatening rhythms.

• A chest X-ray is taken the day of the procedure, and again the day after the procedure. This ensures that the ICD and leads are in a stable position and that there are no adverse effects to the heart or lung from placement of the device.

• Patients are typically discharged from the hospital the day after the procedure.

What restrictions are there after device placement?
• Restrictions may vary for each patient, so please discuss with your doctor.

• We typically suggest wearing an arm sling for two to three days on the side that the device was placed.

• Afterward, we suggest range-of-motion exercises for that arm. However, the elbow should be kept below the shoulder for six weeks on the affected side. We also limit the amount of weight lifted by the affected arm to 10 pounds or less for two weeks.

• There may be driving restrictions for some patients.

How are ICDs monitored?
• Patients are typically seen in clinic every six months. While in clinic, the patient is examined and the ICD is evaluated. A chest X-ray is taken every few years to confirm that the leads remain in a good position.

• Between clinic visits, the doctor usually requests a “remote transmission.” The remote transmission is sent from home and includes information about the ICD generator and leads, the device’s use and battery life. A remote transmission can also allow the doctor to see if the patient has had any abnormal heart rhythms or has received a shock from the ICD. Your care provider will explain how to send a remote transmission.

What happens when the battery in the ICD needs to be replaced?
• Most ICD batteries last six to seven years or more.

• When the battery is nearly depleted, the ICD is replaced while keeping the leads in place.

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• An incision, typically made through the prior scar, allows the doctor to remove the ICD from the leads. The leads are tested, and if they are functioning normally, the new ICD is attached to the leads. The ICD is placed into the pocket in the same location as the previous device. The pocket is then closed with sutures.

• The ICD may be tested by placing the patient into an abnormal heart rhythm and confirming that the ICD can correctly detect and treat the life-threatening rhythm.

• Patients typically leave the hospital the same day, and have only a two-week restriction to activities.

What should I do if I receive a shock?

• First, try to relax and take a deep breath. If you continue to have symptoms of a fast heart rate or dizziness, seek medical help by calling 911 or visiting the Emergency Room.

• If you do not have any symptoms of a fast heart rate or dizziness, please contact your medical provider. You may be asked to send in a remote transmission.

• Depending on the cause of the shock, your ICD may be reprogrammed or medicines may be adjusted.

The Pediatric Electrophysiology Team

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For more information

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After hours/weekends: (608) 263-6428. Please ask the operator for the pediatric electrophysiologist on call.

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