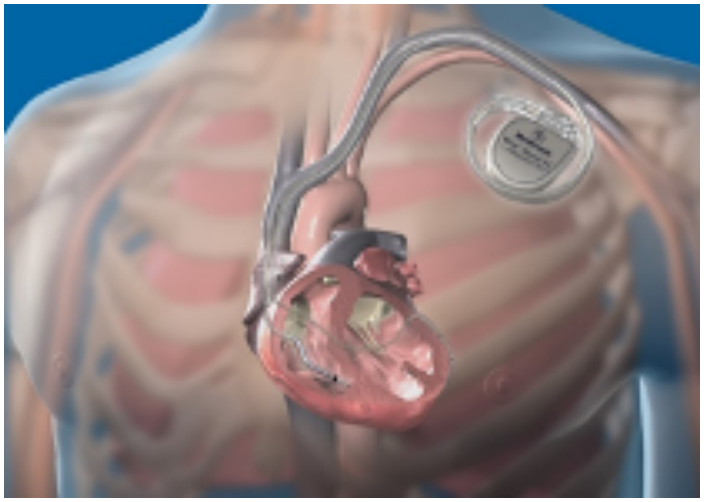
IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (ICDS)

MultiCare Pulse™ Heart Institute

What is an ICD?

An implantable cardioverter defibrillator (ICD) is a device that can detect dangerously fast heartbeats and give a lifesaving shock to correct the heart's rhythm.

Today all ICDs also act as pacemakers and can prevent slow heart rhythms as well.



Defibrillation, or shock, can be the only way to stop rapid and disorganized heart rhythms. If the heart beats too quickly or the rhythm is disorganized, the chambers or ventricles, will not have enough time to fill with blood and will not be able to pump blood to the rest of the body. For individuals at high risk of these dangerous and life threatening rhythms – called ventricular tachycardia and ventricular fibrillation—an ICD with the ability to defibrillate or "shock" the heart may be the best protection against sudden cardiac arrest (SCA).

Who should get an ICD?

Individuals with heart muscle damage or heart failure have a greater chance of having one of the dangerous fast heart rhythms that ICDs treat. Therefore, ICDs are often recommended for people who have this problem (often referred to as "reduced left ventricular ejection fraction" or "LVEF < 35%" with 55% being the normal value) even if they have not yet had an abnormal heart rhythm.

Other heart conditions such as cardiac sarcoid, hypertrophic cardiomyopathy, or inherited arrhythmia syndromes like long QT syndrome may predispose patients to life-threatening heart rhythms.

ICDs, like medicine, are considered treatments for your heart rhythm condition. This means that ICDs won't necessarily prolong your life. Individuals with an ICD may have other health conditions not related to their heart rhythm abnormalities. In circumstances where a patient is otherwise very sick and not expected to recover a decision may be made to deactivate the shocking function of the ICD. This requires consultation with the patient, their family, and caregivers.

Heart Rhythm Society http://www.hrsonline.org

Will an ICD prevent a heart attack?

A heart attack occurs when a partial or complete vessel blockage interferes with the ability of blood to flow to the heart, and the heart muscle dies.

- Cardiac arrest, or sudden cardiac death (SCD), happens when a heart rhythm disturbance prevents the heart from operating properly and delivering blood to the brain and vital organs
- An ICD can treat abnormal rhythms such as ventricular tachycardia and ventricular fibrillation that are sometimes associated with a heart attack

Talking to your Doctor

By talking openly to your doctor, you will know what treatments are best for you. Your doctor can provide advice based upon your concerns, value and priorities; a process called shared decision-making.

Treatment - How does an ICD work?

An ICD is most often implanted below the collarbone in a pocket under the skin. A different type of defibrillator may be placed along a patient's left side. Like pacemakers, an ICD contains computer circuitry, a battery, and wires called "leads" that go through a vein into the heart. The leads stay in contact with the heart muscle on one end, while the other end is connected to the generator. These are called transvenous ICDs. Transvenous ICDs also act as pacemakers and can treat slow heart rhythms by pacing as well.

A different type of ICD called a subcutaneous ICD may be placed along the patient's left side. The lead is tunneled under the front of the chest and does not go directly to the heart. It is very effective at treating life-threatening heart rhythms but does not provide pacemaker function. The battery in the ICD generator lasts 5-8 years and the ICD must be replaced when it runs out. The ICD is programmed to record signals from the heart. All of the heart rhythm information is stored in the ICD memory.

This information is available to your doctor at routine clinic visits and through remote data transmissions from home. ICD follow up is very important for each patient, to make sure the ICD battery is good, and that the device is working properly.

Pacing signals from the ICD are not felt by the patient, but the shock signal delivered by an ICD has been described as a "kick in the chest." Medication or other treatments may be given to try to prevent recurring shocks.