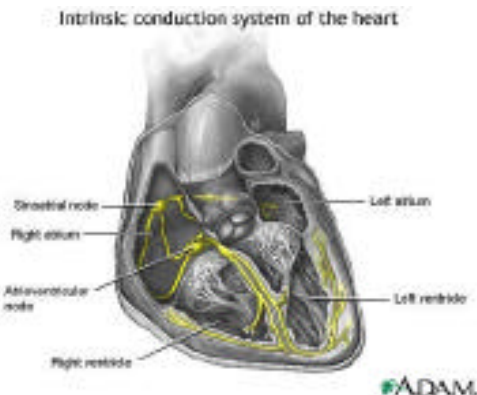


Implantable Cardiac Defibrillator

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An arrhythmia is an irregular heart rhythm, or abnormality in the timing or pattern of the heart beat, causing the heart to beat too rapidly, too slowly or irregularly. It occurs when the electrical signals that keep the heart contracting and pumping blood become disrupted. Electrical waves begin swirling independent of one another, throwing the heart into cardiac arrest.



The intrinsic conduction system sets the basic rhythm of the beating heart by generating impulses which stimulate the heart to contract.

Two types of arrhythmias are ventricular tachycardia (VT), a fast heartbeat originating in the heart's ventricular chamber and, ventricular fibrillation, which is a heart quiver in the heart's ventricular chamber.

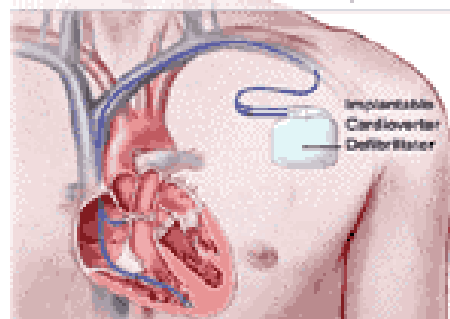
How does it work?

The ICD consists of a battery and electrical circuitry (pulse generator) connected to one or more insulated wires.

The battery and pulse generator are sealed together and implanted under the skin, usually near the shoulder. Wires

are threaded through blood vessels from the ICD to the heart muscle. The ICD checks heart rate continuously. When it detects a rapid or irregular heartbeat, it delivers a shock around the point of scarring, which scatters the electrical swirls and prevents them from sabotaging the heart's rhythm that resets the heart to a more normal rate and electrical pattern. It paces both the atrial and ventricular heart chambers for an excessively slow heart rate as well.

When the ICD senses an abnormal heart rhythm, it delivers an electrical shock to reset the heart to a normal rhythm.



The surgical procedure to get the implant costs between \$16,900 and \$22,800. The battery life ranges from 4-8 years and this can be checked at routine office visits.

Potential risks:

- Infection
- Bleeding
- Bruising
- Rare complications include stroke, heart attack, blood clots, or perforation of a major vessel, a lung, or the heart muscle.

Sources:

- <http://www.fda.gov/cdrh/mda/docs/p910023s047.html>
- <http://www.americanheart.org/presenter.jhtml?identifier=4451>
- <http://www.whitaker.org/news/efimov.html>
- <http://www.fda.gov/hearthealth/treatments/medicaldevices/icd.html>
- <http://www.americanheart.org/presenter.jhtml?identifier=3025703>