

CARDIOVASCULAR DEVICES FOR TREATMENT OF CONDITIONS

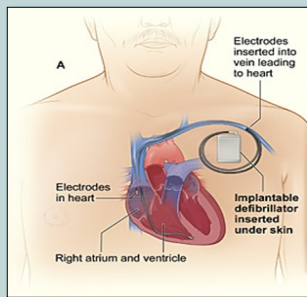
What is it?

Cardiac devices help control or monitor heart irregularities or rhythm disorders. When the heart's electrical system is not functioning properly and medications, lifestyle changes, and other treatments do not work, a cardiac device is considered.

Cardiac devices differ based on their use, function, and placement. Some are permanent implantable devices for long term control while others are portable temporary monitors. A cardiologist will be part of the child's treatment plan for any type of cardiac device. Most cardiac devices implanted under the skin are surgically placed in the shoulder area just under the clavicle. In infants and children, cardiac devices are often placed in the abdomen as the abdominal fat can protect the device and connecting wires from injury caused by everyday childhood activities.

Cardiac devices used to **treat** heart irregularities or rhythm disorders include the implanted cardioverter defibrillator, implanted pacemaker, and the ventricular assist device.

Implanted Cardioverter Defibrillator (ICD)



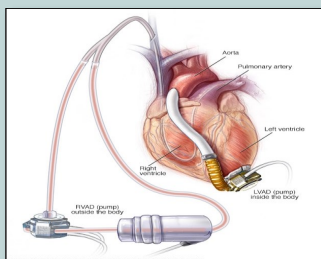
Small device used to treat patients who have or are at risk of developing abnormally fast heart rhythms. Fast rhythms may lead to cardiac arrest. An ICD monitors heart rhythm 24 hours a day and can send a small electric signal when fast heart rhythms are detected. The ICD will deliver a shock to restore a normal heart rate. An ICD can also treat slow heart rhythms. An ICD is made up of the defibrillator and the leads. After implantation, an external computer located at the HCP's office can program the device and retrieve information.

Implanted Pacemaker



Small battery powered device used to treat patients with abnormally slow rhythms or irregular heartbeat. A pacemaker produces an electrical signal that stimulates the heart and causes it to beat. A pacemaker includes the pacemaker device and leads.

Ventricular Assist Device (VAD)



VADs help children with acute heart failure while awaiting a heart transplant. A VAD is a surgically implanted pump that supports the left ventricle, right ventricle, or both to pump blood to the body. An external driveline exits the body with a VAD through the abdomen and attaches to a battery pack worn by the patient.



Kennedy Krieger Institute

The Specialized Health Needs Interagency Collaboration (SHNIC) program is a collaborative partnership between the Kennedy Krieger Institute and the Maryland State Department of Education.

Specific health issues for Individualized Healthcare Plan

- Diagnosis and need for cardiac device
- Name of cardiac device, location of device, date of surgical placement
- Current medication list including PRN and emergency medications
- Skin assessment, location of palpable device, incisions
- Medical device information card and/or emergency card, bracelet
- Fever protocol for implanted medical device
- Battery life information, back up battery and power sources for a VAD
- Consideration of team discussion for a possible 504/IEP and Emergency Evacuation Plan
- Activity and/or positioning restrictions
- Avoid rough physical contact that could cause the student to fall or hit the implanted device
- Any applicable electrical, magnet, or cell phone limitations specific to device
- Fluid intake goal, aim to avoid dehydration which can cause arrhythmias
- Monitor child for anxiety and depression
- Communicate with school staff, parents, and provider any changes or concerns about the student's disease or device
- Medical device information (see SHNICs "Medical Device Information Guide")
- Emergency Care Plan (ECP) related to medical needs in the school setting for cardiac arrest and/or event of equipment malfunction, including health care provider orders and staff education/training as appropriate including CPR and AED

Resources & Manuals

Children's Hospital of Philadelphia About Pediatric Pacemakers & Implantable Cardioverter Defibrillators (ICD)

<https://www.chop.edu/treatments/pacemakers-and-implantable-cardioverter-defibrillators-icds/about>

Medtronic– Answers to Questions about Implantable Cardiac Devices Electromagnetic Compatibility Guide

<https://www.medtronic.com/content/dam/medtronic-com/au-en/patients/conditions/bradycardia/documents/electromagnetic-compatibility.pdf>

Sudden Arrhythmia Death Syndromes Foundation (SADS) –Information for School Health Professionals

https://www.sads.org/Awareness/School-Nurses#Care_Plans